

PETROLEUM REVIEW



THE INSTITUTE
OF PETROLEUM

July 1994

AGM

David Varney becomes
IP president

Gas

Will the Interconnector project
get the green light?

Russia

Yuri Shafranik's views on his
country's oil and energy
sectors

Privatisation

Future privatisation plans may
meet rough path

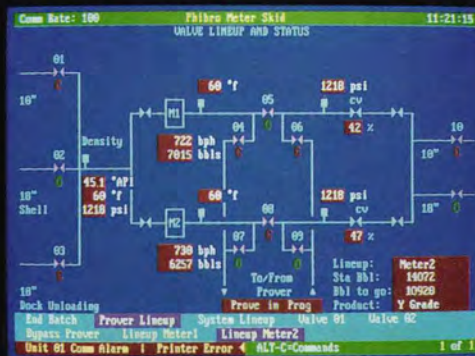
In fiscal metering, there is one flow computer against which all the others must be judged.



Field-proven Hardware and Software



Configuration Software



Remote Meter Surveillance

OMNI. The ultimate "cash register". Measure the difference!™



Omni Flow Computers, Inc., 10701 Corporate Drive, Suite 300, Stafford, Texas 77477
Phone: (713) 240-6161 Fax: (713) 240-6162

PETROLEUM REVIEW

JULY 1994 VOLUME 48 NUMBER 570 • £6.00 • SUBSCRIPTIONS (INLAND) £65.00 (OVERSEAS) £80.00

EDITORIAL

Editor: Carol Reader

Deputy Editor: Susannah Cardy

Production Editor: Emma Parsons

61 New Cavendish Street, London W1M 8AR

Telephone: (071) 467 7100.

Fax: (071) 255 1472

ADVERTISING

Advertisement Director: Colin Pegley

Advertisement Manager: Jim Slater

Jackson Rudd & Associates Ltd.,

2 Luke Street, London EC2A 4NT.

Telephone: (071) 613 0717

Fax: (071) 613 1108

APPOINTMENTS AND RECRUITMENT

Advertisement Manager: John Pughe

2 Luke Street, London EC2A 4NT

Telephone: (0689) 872500

PUBLISHERS

Published Monthly by

INSTITUTE OF PETROLEUM

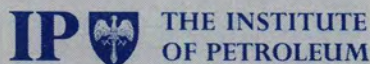
A charitable company limited by guarantee

Director General: Ian Ward

61 New Cavendish Street, London W1M 8AR

Telephone: (071) 467 7100.

Fax: (071) 255 1472



THE INSTITUTE OF PETROLEUM

For details of membership, including Petroleum Review at no extra cost, please apply to the Membership Department.

The Institute of Petroleum as a body is not responsible either for the statements made or opinions expressed in these pages. Those readers wishing to attend future events advertised are advised to check with the contacts in the organisation listed, closer to the date, in case of late changes or cancellations.

© Institute of Petroleum

Printed by Eyre & Spottiswoode Ltd, London and Margate.

US MAIL: Petroleum Review (ISSN 0020-3076 USPS 006997) is published monthly for US\$130 per year. Second class postage paid at Middlesex, New Jersey.

Postmaster: send address changes to C&C Mailers International, PO Box 177, Middlesex, New Jersey 08846, USA.



ISSN 0020-3076

MEMBER OF THE AUDIT BUREAU OF CIRCULATIONS

CONTENTS

- 298 **NEWS IN BRIEF**
- 299 **NEWSDESK**
- 304 **ANNUAL GENERAL MEETING**
- 306 **IP PRESIDENT DAVID VARNEY GIVES ADDRESS**
- 309 **PRIVATISATION**
Will future privatisations proceed smoothly?
- 312 **GAS PIPELINES**
Speedy progress on UK Continental Interconnector
- Across the sea to Ireland
- Proliferation in South East Asia
- 318 **FORECOURT MARKETING SHOW**
- 320 **MIDDLE EAST**
How big are the gas reserves?
- Emphasis on gas projects
- Iran lacks funds to finance gas plans
- 326 **FORTHCOMING EVENTS**
- 328 **DR SUBROTO STEPS DOWN**
- 330 **RUSSIA**
Yuri Shafranik outlines his strategy
- Capital requirements for energy
- 335 **EDUCATION AND TRAINING**
- 337 **INSTITUTE NEWS**
- 343 **PEOPLE**



COVER PHOTO

New IP President DR Varney, Managing Director, Shell UK Ltd Downstream Oil

31 May

Russia has demanded the right to veto any Caspian oil deals between its former Soviet neighbours and the West. The declaration could stall negotiations between BP and Azerbaijan over a \$7 billion oil deal.

Conoco received consent from the UK government to develop the Ganymede and Callisto gas fields in the southern North Sea.

Lasmo scored a minor victory over hostile bidder, Enterprise Oil, by announcing the discovery of a new find in the Espinal block, Colombia. The company estimates that combined recoverable reserves from this find and an earlier discovery close by could be 50-150 million barrels.

1 June

Mobil has confirmed a virtual abandonment of its Dutch operations. Gas exploration and all major investments are to be scrapped, although gas production in the Dutch North Sea will continue.

Conoco has awarded McDermott's Ardersier yard near Inverness with the contract to build an 820-tonne jacket and 1,100-tonne deck for the Ganymede field, together with a 450-tonne reception module. Worth £5 million, the order will create 250 jobs.

2 June

BHP Petroleum has signed a deal with Russian joint stock companies, Rosshelf and Gazprom, to carry out joint geological evaluation and appraisal of the Prirazlomnoye oilfield in the Pechora Sea.

Enterprise Oil announced that its North Sea Nelson field has reached peak production of 160,000 b/d, less than four months after first oil.

Marine construction companies, McDermott International and Offshore Pipelines, have announced plans to merge into one jointly-owned firm.

3 June

The Takeover Panel has warned Lasmo not to keep repeating allegations that Enterprise Oil breached UK accounting rules. Its claims were described as 'excessive' and 'emotional'.

6 June

GATX Terminals has acquired an 18-tank petroleum storage facility in Florida from BP.

HSE's Offshore Safety Division has relocated part of its southern operations unit from London to Norwich. The move involves 28 inspector posts.

Amoco has confirmed the discovery of a major new field off the east coast of Trinidad, with an estimated one trillion cubic feet of natural gas.

The Argentinian government confirmed it is in favour of selling its remaining 20 percent stake in YPF. Economy Minister Domingo Cavallo said the resources should be used to develop the interior of the country and that a final decision would be taken in two to three months.

7 June

BP's 25,000 b/d North Sea Thistle platform was temporarily shut down after a small gas leak was discovered in the production module.

Vietnam has approved plans for the construction of its biggest container and tanker port yet, in the southern province of Vang Tau. The \$900 million Sao Mai-Ben Dinh port has the financial backing of Japan.

8 June

Union Carbide is considering appealing to the European Court after the EC approved a merger of the polyolefins businesses of Royal Dutch/Shell and Montedison. The US chemical company believes the new \$3 billion joint venture breaches competition rules.

Mentor Engineering, part of McDermott Marine Construction, has been awarded a three year contract by Amerada Hess to maintain and operate four subsea workover control systems for the Scott, Ivanhoe/Rob Roy and Hudson fields.

Diamond Offshore is to expand its rig fleet by purchasing three semi-submersibles from Lauritzen of Denmark.

9 June

Ecuador has awarded international exploration rights over two

million hectares of Amazon rain forest in its seventh round of oil auctions. Amoco and Mobil are among the successful bidders.

Two Norwegian unions, Nopef and the Norwegian Association for Supervisors, have threatened strike action for 1 July over the hiring of non-union workers.

Elf Enterprise Caledonia announced that production had resumed on the North Sea installation, Piper B, five weeks after a minor explosion shut the platform down.

10 June

Lasmo has followed Elf Enterprise's example and issued a writ against the Inland Revenue for £33 million. The tax dispute is over interpretations of provisions in the 1990 Finance Act on interest paid in rebates in previous years.

14 June

Firing another salvo in the takeover battle, Lasmo published an independent assessment of its assets, which puts the value of its shares at between 180 and 211p each. Enterprises's original offer valued the shares at 126p each.

14 June

Exxon could be facing \$16.5 billion in damages after a federal jury in Alaska found the company guilty of recklessness in the 1989 Exxon Valdez disaster. According to lawyers for the plaintiffs, Exxon executives were aware that the captain in charge of the vessel that day was prone to periodic bouts of drinking.

14 June

Siemens has clinched a £400 million turnkey contract from National Power to construct a gas-fired power station at Didcot, Oxfordshire.

15 June

British Gas has hit out at the OFGAS transportation and storage price formula proposals, claiming they will significantly curtail investment. Chief Executive Cedric Brown also claimed that the development of a fully competitive market could now be hindered.

15 June

Kvaerner Holding UK has been given the green light by Grampian Regional Council to build a £6 million offshore

service complex at Kirkhill, Dyce. The company's entire UK operations are to be consolidated at the site and 400 new jobs created.

Phillips Petroleum is to change the route of the planned pipeline between the new Judy-Joanne development and Norpipe in order to keep the pipe within British waters. The decision is in response to tensions between Norway and Britain over the Frigg Treaty.

Enterprise Oil launched a final, raised bid for Lasmo, valuing its rival at almost £1.6 billion. The all-paper offer disappointed shareholders, however, who were hoping for a cash sweetener.

16 June

Brent blend rose above \$17 a barrel for the first time since last September, partly in response to fears of a military confrontation in Korea.

British Gas is to set up a new business unit, Pipeline Integrity, which will inspect, maintain and repair pipelines worldwide. The company will be formed partly out of the £2 million acquisition of the pipe-cleaning company, Kershaw International.

16 June

Nigeria's debts to foreign joint venture companies operating in the country have been reduced to \$300 million, junior oil minister Umaru Baba told the OPEC conference in Vienna.

18 June

Gas Natural has acquired 91 percent of Enagas from the state-owned company, Instituto Nacional de Hidrocarburos. The \$375 million takeover promotes Gas Natural to the fourth largest gas company in Europe.

18 June

The Kuwait Investment Authority has finally denied that the true buyer of a £1 billion stake in BP seven years ago was the Kuwait Petroleum Corporation. The denial follows an accusation last year that Kuwait misled the British government in order to receive £600 million in tax refunds.

20 June

Mitsubishi Oil has announced the discovery of an oil find near the mouths of the Mekong River, Vietnam, which could lead to production of around 130,000 b/d.

Yemen oilfields increasingly threatened by conflict

The Yemeni crisis looks set to have severe repercussions for more than two dozen international companies with stakes in Yemeni oil concessions.

Although oil facilities have not been damaged and staff have been successfully evacuated from key areas, the conflict between the central government in Sanaa and secessionist forces in the south already involves the oilfields. Sanaa's northern troops have secured control of the original Shabwa area in the former South Yemen. Their pressure on Aden, site of the southern Yemen refinery, has caused southern leaders to consider the possibility that they may have to quit their presumed capital and withdraw to new bases among the oilfields of the Hadhramaut.

When the war broke out in early May, it was far from clear that it would result in outright secession by the southern forces of Ali Salem al-Beidh, Vice-President in the supposedly unified government of Yemen. It was still very much a question of whether a unified Yemen would have room for the more secular traditions of the south, as well as the increasingly Islamist political forces in the north. But on 24 May, the fourth anniversary of official unification, Mr al-Beidh declared the south's secession. He now presides over a de facto state with considerable energy resources: the bulk of Yemen's new discoveries since the original Hunt/Exxon development in the north have occurred in what was, and may again be, South Yemen.

As of early June, both principal sources of Yemeni oil exports – the 190,000 b/d output from Marib and Can-Oxy's 150,000 b/d from Masilah were reported to be continuing. While northern forces appear to have firm

control of Marib, the position of the south is more precarious.

Northern forces were reported to be no more than 80 miles from the Masilah export terminal of Ash Shihir, having already captured one coastal terminal on the Indian Ocean coast, the Shabwa oilfield outlet at Bir Ali. Although southern crude from Masilah was still reported to be reaching Aden, it would appear that there was no assured land link between Aden and the Hadhramaut.

Much will now depend on the attitude of external players. Saudi Arabia has a foot in both camps. A Saudi company, Nimr, operates the Shabwa concession and it is Nimr's former Vice-President for Yemeni affairs, Faisal bin Shamlan, who has now been appointed the new oil minister in Sanaa. His predecessor, Salih Abu Bakr bin Hussainoun, is now the south's oil minister.

On the other hand, there are signs that the Saudis are worried about the strengthening of Islamist forces in the north. There have also been assertions in the past, when tension over Saudi Arabia's claims in the disputed border regions was at its height in 1992, that the Kingdom might support the secession of the Hadhramaut.

If the new southern secessionist forces do manage to make their independence stick, they will naturally lay claim to all the territory formerly considered to be South Yemeni. This



Yemeni fortress and mosque

will, of course, involve reaching a settlement with Saudi Arabia on a vast swathe of disputed territory, but it will also imply either the agreed withdrawal of northern forces from Shabwa or a continued state of war between the two countries. And, not least, it will also reopen the vexed question of the small patch of territory between the Marib and Shabwa fields. It was the dispute over this area that first led to talks on joint development and then to the (apparently) ill-fated Yemeni declaration of full unity four years ago.

French go-ahead for bio-fuel plant

The French government has given the go-ahead for the construction of a bio-fuel production plant at Nogent-sur-Seine in the Champagne-Ardenne region.

The FFr400 million plant, scheduled to enter service at the end of 1996, will produce 100,000 tonnes per year of bio-fuel made from rape seed methyl esters.

An association of crop growers' co-operatives is to finance and run the plant.

France has made bio-fuels

exempt from an excise tax levied on petroleum products and subsidises the production of rape seed and beet crops on fallow land for energy purposes in order to help farmers cope with cultivation restrictions imposed by the reformed Common Agricultural Policy (CAP).

Agriculture Minister Jean Puesch recently announced the creation of a scientific body, Agriculture pour la Chimie et l'Énergie (AGRICE), whose mission is

JP Kenny Gibraltar contract

JP Kenny has won the construction management and supervision contract for a pipeline which will cross the Straits of Gibraltar. Europe Maghreb Pipeline Ltd (EMPL) has awarded the contract

to develop bio-fuels. It brings together state agricultural research body, INRA, the Institut Français du Pétrole, crop growers' associations and industrial groups such as Total and Rhone Poulenc.

which includes the provision of all construction management personnel, as well as systems to oversee on behalf of EMPL the performance of the main offshore construction contractor, Saipem.

The award of this contract is a hat trick for JP Kenny following the completion of the preliminary phase by the company in a joint venture with Sofregaz and Beicip and the detailed engineering in a joint venture with Intecsca.

BP contracts out helicopter logistics to Bristow

BP is to transfer day-to-day responsibility for its North Sea logistics operations to Bristow Helicopters.

The handover, which is due to take place on 4 July, is the latest example of an increasing trend amongst the major oil companies to contract out this complex area of management. Bristow will handle everything from accommodation, medical examinations, next-of-kin records and safety training through to flight bookings and co-ordination of flight programmes. BP will continue to act as a focal point for ad hoc flights and as arbitrator between the various rigs.

The largest helicopter operator in the North Sea with 58 percent of the UK market, Bristow already manages North Sea helicopter logistics for Amerada Hess. Two of Hess's logistics experts now work directly from Bristow's offices at Dyce.

Bristow has also begun assisting Mobil with its logistics management and is currently in discussions with two more major oil companies over providing a similar type of service.

According to industry sources, this latest deal will save BP £1.5 million pa. Mobil could save up to £250,000 pa if it followed suit.

Mr Tony Jones, Bristow's Aberdeen manager, described the new arrange-

ments as a win-win situation. 'By handing over the administrative tasks to us, the oil companies avoid duplication of effort and gain a considerable reduction in their overheads. At the same time, we're protecting our market share.'

This market share is under threat less from local competition than from Europe. KLM Helicopters, for example, now has an operating licence for UK waters and is already carrying out ad hoc flights in the southern North Sea.

Service companies, such as Brown & Root and Wood Group, also pose a threat, according to Mr Jones. 'They are already providing supply ship support and I don't believe it will be long before they are getting into helicopters too.'

Both Bond and British International Helicopters (BIH) confirmed a similar trend amongst their own customers towards relinquishing logistics responsibilities. 'We've always carried out the logistics for one major customer but others are now following suit as they see the cost-savings,' said Mr Hayden Barrett, Commercial Manager at BIH.

The offshore operators have long expressed a wish to reduce helicopter costs in the North Sea. In 1993, plans for Texaco and Amerada Hess to funnel their logistics operations through Elf Enterprise Caledonia's facilities at

Bristow's heliport ran aground when Elf moved over to BIH.

Last year a new company also emerged on the scene, with plans to create the world's first offshore logistics centre, handling all personnel needs on the UK Continental Shelf. Aberdeen Logistics (ABEL) promised savings for operators of up to 25 percent and was granted planning permission on a 10-acre site at Dyce Airport (see *Petroleum Review*, September 1993).

According to the company's financial adviser, the scheme still has a 'good chance of success'. Initial funding has been provided by three entrepreneurs, and backing is now being sought for the £10-15 million logistics complex. Construction could start as early as the beginning of 1995.

Industry support over the past year has remained strong, said ABEL Director Calum MacLean, who denied that the helicopter operators had stolen any of his thunder. 'A centralised logistics centre is an essential pre-requisite to the successful introduction of harmonisation and standardisation.'

As yet, there is no harmonisation of flights within the industry. 'The oil companies still want their flexibility', said Bristow's Tony Jones, 'but it might happen one day for regular crew flights.'

Water clean-up at Stanlow

Shell UK has begun a £35 million water clean-up project at its Stanlow manufacturing complex in Cheshire, in what amounts to the company's biggest single environmental investment to date.

The project is designed to reduce radically the trace oil and dirt in water outflow and maintain higher oxygen levels in the Manchester Ship Canal, the River Goway and Thornton Brook – the three waterways to which outflow is discharged.

'In preliminary trials, the water treatment project succeeded in removing up to 95 percent of the oil and dirt traces in Stanlow's discharged water', said a Shell spokesman.

The environment has been a particularly key issue at the plant since 1989 when a pipeline leak polluted a 20 km stretch of the River Mersey.

Shell's petrol launch fuels battle between majors

A war of words has developed between two of the major oil companies over the quality of their newest fuels, with both sides claiming the superiority of their product.

In March, Texaco launched New Clean-System³, claiming its ability to reach inside the combustion chamber gave it a 'unique advantage' over competitors. (See *Petroleum Review*, May issue). Less than three months later, Shell has announced its own New Improved Advanced Petrol, which it claims outclasses New CleanSystem³.

'Texaco's petrol cleans part of the combustion chamber – so what?', said a Shell spokesman. 'What is actually important is what the fuel does for the motorist.'

The company claims its latest product gives an average increase in fuel economy of nine extra miles per tankful, 10 percent quicker accelera-

tion in the 30-50 mph speed range and an 11 percent reduction in hydrocarbon and nitrogen oxide emissions.

These statistics, claims Shell, are based upon 2.3 million miles of road tests on different makes and models of cars and 4,500 hours of laboratory bench tests.

'Texaco uses nice words like "contributes to" and "helps" but, unlike Shell, it lacks the demonstrable and quantified on-road data to back up its claims,' said a spokesman.

Texaco has refuted this accusation, claiming that their tests included over seven million miles of road trials and showed, amongst other improvements, a 22 percent reduction in emissions.

'To the best of our knowledge', said Mr Wilson Berry, Managing Director of Manufacturing and Marketing, 'New Clean-System³ is still the only petrol to clean right through to the combustion

chamber, helping cars achieve greater economy, lower exhaust emissions and improved performance.'

This is the second dispute over CleanSystem³ between the two companies. In April, Shell lodged a complaint with the Broadcast Advertising Clearance Centre over the multi-million pound advertising campaign surrounding the new fuel. According to Shell, there is no industry-recognised test for measuring combustion deposits but Texaco insists it has developed its own scientific and repeatable test. 'The fact that one was not in existence already', said a spokesman, 'only proves the pioneering nature of the fuel.'

The BACC is still re-examining the evidence provided originally by Texaco.

BP declined to comment on whether it too intended to launch a new fuel onto the market.

France buys Norwegian gas

Gaz de France (GdF) has signed a major supply agreement with the Norwegian Gas Negotiating Committee (GFU), which includes Statoil, Norsk Hydro and Saga Petroleum.

Under the terms of the new agreement, which extends over more than 20 years, Norway will provide France with additional natural gas supplies from 1996, which will progressively reach a peak of four billion cubic metres per year (cu m/y).

Under the Troll gas sales agreement, for which deliv-

eries started in October 1993, France is to receive up to 8 billion cu m/y of gas from Norway. It also purchases gas from the Ekofisk, Statfjord, Heimdal and Gulfaks areas.

GdF estimates that France will be receiving 13 billion cu m/y of natural gas from Norway by the year 2000. This, it says, will help meet domestic demand which increased by four percent in 1993 and is expected to continue to grow.

Norway supplied France with around 6 billion cu m of natural gas last year.

'Long-term confidence in North Sea'

As many as 90 new fields could be developed in the North Sea over the next two decades, according to Grampian Regional Council's annual review of oil and gas prospects.

This authoritative report has once again predicted a positive long-term future for the North Sea, with significant production expected well into the next century.

Around 6,000 oil-related jobs are expected to go in the

Grampian area over the next 12 years, according to the report's author, economist Alan Campbell. But the majority of these losses will be restricted to the offshore sector.

Operators were warned not to neglect the small service companies. 'Otherwise', said Mr Campbell, 'eventually when one of the operators comes across a problem, they may find the service companies no longer exist'.

Middle East gas 'grossly under-utilised'

Reported reserves of natural gas in the Middle East are likely to be a 'gross underestimate' of true levels, according to the Centre for Global Energy Studies (CGES).

The claim runs directly counter to the traditional view that the Middle East has always overestimated its reserves, either for political reasons or because reserves could not be produced economically at current gas prices.

According to the CGES, oil reserves in the Middle East are more than twice as large as gas reserves on an energy-equivalent basis, yet in the world as a whole oil and gas reserves are roughly equal.

Research by the Centre also reveals that the ratio of non-associated to associated gas in the Middle East is far

lower than in most other regions of the world. 'Non-associated gas reserves are about twice the size of the reserves of associated gas, whereas in the world as a whole they are 5.7 times as great.'

It is only recently that many of the Middle East countries have begun exploring specifically for gas, according to the CGES. In 1992, the Middle East produced just 0.3 percent of its gas reserves, the lowest proportion in the world. This compared to 1.4 percent in the former Soviet Union, 3.5 percent in Western Europe and 8.6 percent in North America.

The CGES predicts that in the future the Middle East is likely to account for a far larger share of the world's gas resources than the 32

Birthday Honours

Robert Evans, Knight Bachelor, former Chairman and Chief Executive, British Gas – for services to the gas industry and to export

Ronald Garrick, Knight Bachelor, Managing Director and Chief Executive, Weir Group, for services to industry and to public life in Scotland

John Edward William D'Ancona CB, Department of Trade and Industry

John Colin Leslie Cox CBE, Director General, Chemical Industries Association, for services to the chemical industry

Peter Ibbotson OBE, Director of Construction and Engineering, J Sainsbury, for services to energy efficiency

John Herbert Lace OBE, former Chief Executive, Babcock Energy, for services to engineering and to public life in Renfrewshire

Arthur David Melzer OBE, Managing Director, Premier Oil Pacific, for services to the oil industry

Yvonne Olwen Barton MBE, Manager, gas sales and negotiations, British Gas exploration and production, for services to civil engineering

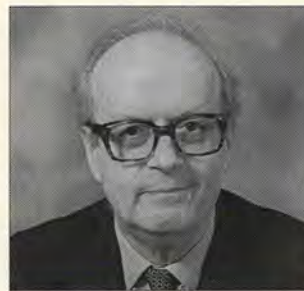
John William Clough MBE, Chief Executive, Energy Action Grants Agency, for services to energy efficiency

Reneira Hope Barbara Goonesena MBE, Senior Librarian, Department of Trade and Industry

Neil Hopkins MBE, Production Services Manager, GEC Meters, for services to industry and to energy efficiency

BP Chairman honoured

Lord Ashburton, Chairman of BP, has been appointed a Knight of the Garter, the highest order of British chivalry. The 24 members of the ancient Order are chosen personally by Her Majesty The Queen. He was formally invested by The Queen on 13 June.



percent it currently holds. However, there are still many barriers to development.

Domestic consumption, for example, is very low – in 1992 it was less than the combined consumption of France and Germany.

The CGES also forecasts continuing problems for the Middle East in accessing Western gas markets. 'Natural gas prices in Europe

will have to rise...but this is unlikely as long as gas prices remain linked to those of oil.'

The most significant developments have taken place in countries where foreign investment has not been ruled out, according to the Centre. The United Arab Emirates, Qatar and Oman seem to be leading the way, principally through a series of proposed LNG projects to supply Asian markets.

Question mark hangs over future of Bosphorus

The future of the Bosphorus as a major sea lane for international oil traffic remains an open question following the International Maritime Organisation's approval of new safety regulations for the Straits.

New regulations virtually require that all ships should report their presence to the Turkish authorities and that qualified pilots should be used when passing through the Straits. Ships are requested to observe a traffic separation scheme and those that are too large to do so – in essence those of more than 200 metres in length and/or a draught of 15 metres – should notify the Turkish authorities in advance and restrict themselves to passing through the narrow channel in daylight under supervision from Turkish traffic control.

Such measures are broadly in line with proposals put forward by Turkey earlier this year. However, Turkish proposals for even tougher requirements concerning vessels of more than 200 metres, including, if necessary, outright banning of passage, were not approved.

Before the IMO Maritime Safety Committee approved the new package, Russia accused Turkey of seeking to violate the 1936 Montreux Convention on freedom of navigation through the Dardanelles and the Bosphorus. Turkey denied this, saying it was seeking to implement practical rules to ensure navigational and environmental safety, as it was entitled to do under international law.

Turkey's main argument is simply that the Straits cannot physically cope with heavy and sustained large tanker traffic. The Bosphorus includes four acute bends, two of them in just over a mile at a point at which it is only 700-800 metres wide. The size of modern supertankers means there is also a problem with their draught.

The Committee's new recommendations are almost certain to secure the automatic approval of the IMO itself and, at least officially, they would be expected to enter into force on 24 November. However, Turkey said it intends to implement them from 1 July.

Turkey wants the issue of tanker traffic through the Straits to be resolved before an expected upsurge in the outflow of oil from the Russian terminal at Novorossiysk to Mediterranean and European markets. Agreement has been reached in principle between Ankara and Moscow for a bypass pipeline but, in the meantime, there will be heavy use of the Straits by tankers of more than 80,000 tonnes and this will entail considerable disruption to other traffic. Turkey has regarded tanker traffic in the Straits as a major issue for more than a year, but the matter came into considerably sharp focus on 13 March when a 130,000 tonne Cypriot tanker, the *Nassia*, collided with a freighter, blocking the Bosphorus to major traffic for five days (see *Petroleum Review*, April issue.).

BP takes stake in Quiriquire

BP has signed an agreement with Maxus Venezuela to participate in the reactivation of the Quiriquire unit.

The agreement gives BP a 45 percent stake in the onshore unit, which is situated 450 kms east of Caracas, Venezuela. Maxus will operate the unit with a 50 percent interest and Otepi Consultores' interest will remain unchanged at five percent.

Existing wells are due to be reactivated, two more exploration wells drilled and a 3D seismic acquisition programme carried out during a \$36 million, three-year project.

The Unit includes the Quiriquire Shallow field, which was discovered nearly 70 years ago and has produced around 750 million barrels of oil, and the Quiriquire Deep field, which was discovered in 1951 and has produced six million barrels per day of oil.

BP Energy brings CHP to Kent paper mill

A combined heat and power plant, serving the Chartham paper mill in Kent, was officially opened last month by Neil Hamilton, Parliamentary Under-Secretary of State for Corporate Affairs. He told his audience that 'CHP makes good commercial sense.'

When the boilers at Chartham, the world's largest manufacturer of translucent papers, needed either refurbishing or replacing, the company took the decision to outsource the supply of power and steam and introduce CHP. Mr Simon Brissenden, Logistics Director of Chartham (part of the Bowater Group), said, 'I believe in focusing on our core business, which is specialist paper manufacture – not building or running power stations to meet our

round-the-clock energy needs.'

BP Energy won the £4 million contract to refurbish the existing boilerhouse, design and construct the



'World's quietest CHP plant'

new CHP plant and for the next 10 years to operate and maintain it, including supplying fuel. The combined cycle CHP plant now in operation can deliver 6 MW of electricity and 18 tonnes of steam an hour, thus meeting the entire needs of the site. If the grid should fail, the plant is able to continue operations in isolation, in what is termed 'island mode'.

The new boilers are gas-fired, with provision for the use of gas oil if required. The substitution for heavy fuel oil and the considerably improved thermal efficiency (the energy plant is now 80 percent efficient) brings environmental benefits in the reduction in CO₂ emissions.

The paper mill dates back to 1730 and owes its

location to the availability of water from the adjacent River Stour. However, it now finds itself in a picturesque conservation area with housing very close by. For this reason BP Energy went to great lengths to satisfy very strict noise limits set by the local planning authority. The additional noise reduction features cost £200,000. The gas turbine, gear box and generator are housed in a steel structure lined with noise-absorbing material and even the air intake and outlet are fitted with silencers.

The result is that, while noise levels are obviously excessive for anyone standing next to the turbines inside the boilerhouse, outside the building one can hear only the background hum of the paper mill itself. BP Energy believes it has built the world's quietest CHP plant.

World Petroleum Congress

The success of the 14th World Petroleum Congress held in Stavanger, Norway, is attributed to the hard work put in by the Norwegian oil industry and the congress organisers. No one doubted that this would be the case - after all it was only a few short months since the Norwegians organised another memorable and most enjoyable event, the Olympic Games.

'The Norwegian commitment to organising a high quality WPC has never been in doubt', said Paul Tempest, Director General of the World Petroleum Congresses.

'This was a good Congress, very well organised by excellent hosts,' declared Dirk van der Meer, the newly elected president of the World Petroleum Congresses, as he closed the Stavanger meeting.

That 11 ministers were among the 2,350 delegates from 80 countries registered beforehand showed the high esteem in which this Congress was held. Plenary speakers included Ms Gro Harlem Brundtland, Prime Minister of Norway, Dr Subroto, OPEC Secretary General, Mr Constantine S Nicandros, President and Chief Executive Officer, Conoco Inc, Mr Alexander Putilov, President, Rosneft, and Mr Serge Tchuruk, Chairman and Chief Executive Officer, Total SA.

The technical exhibition, staged in conjunction with the Congress, covered 3,000 square metres and comprised 75 stands from 35 countries. National and international companies, governmental bodies and institutions all took stands. The Institute of



Petroleum organised a stand on behalf of the British National Committee. This was manned throughout the exhibition by Roger Sparrow, IP Membership Services Director. Considerable interest, particularly from visitors from the former Soviet Union and eastern Europe, was shown in the British oil

industry and the range of services offered to those who become members of the Institute.

The Stavanger meeting is over but the WPC organisation presses on with its plans for Beijing in 1997, while Australia, Austria and Canada are campaigning hard to be chosen as the venue for the year 2000.

from here...



to there...



wherever next?



There is still only one choice in oil industry distribution software – TOPAS2. Now TOPAS2+ offers added functionality for the gas sector.

Powerful Functionality

All the functionality of TOPAS2 and more. The new TOPAS2+ features include total control over the movement of bottled and bulk liquid gas, effective management and control of storage tanks, multi-company capabilities and an integrated multi-national accounts receivable system.

Proven Software

The leaders in oil industry bespoke and package solutions, we've installed in over forty countries, our client portfolio spans the globe.

Oil and Gas Expertise

Sixteen years of developing oil industry solutions and a proven track record of success in implementing international systems make Topas unique.

Quality Support

All solutions carry the total quality backing of our dedicated team of specialists. We're here to offer training, consultancy, communications technical support and implementation, helping you to derive maximum benefit from your investment.

TOPAS₂₊

Topas (UK) Ltd, Lacemaker House, Chapel Street,
Marlow, Buckinghamshire SL7 3HQ, United Kingdom.
Telephone +44 (0) 628 475111, Facsimile +44 (0) 628 474883



Callithea SA, Tour Fiat, Cedex 16,
F92084, Paris La Defense, France.
Telephone 33 1 47 96 20 87, Facsimile 33 1 47 96 20 58

Institute of Petroleum's Annual General Meeting

The 81st IP Annual General Meeting took place on 7 June 1994, with the President CM Smith CBE, in the chair.

He gave the President's Report, outlining how when he became president two years ago, he had set three objectives. A good deal of progress had been achieved on the first - to support the implementation of the objectives and strategies agreed by the Institute in order to move towards the achievement of its Mission. He believed that the IP had successfully maintained its independence, providing a forum for industry discussion on controversial issues such as taxation.

The Institute had succeeded to some extent in obtaining a greater recognition of its role in the upstream area but he believed that there was still some way to go.

A Netherlands Branch had been set up and cooperation with other bodies in Europe was being actively promoted. However, the process of developing a European network was likely to take longer than expected.

Mr Smith thanked the members and chairmen of IP committees, the Director General and other IP staff,

and colleagues on the Council and Management Committee for their support over the last two years.

Mr DR Varney, Managing Director, Shell UK Ltd Downstream Oil, was elected as President for the years 1994-96. Mr DH Simons, Human Resources Manager, BP Oil UK Limited, was elected as Honorary Secretary for the coming year and Mr D Sharp, Controller, Esso UK plc, was re-elected as Honorary Treasurer for a second year.

Four members retired this year - Dr TH Farmer, Messrs KJ Fleming, PF Jordan and TM Lazenby. In accordance with the terms of the revised Constitution agreed last year, the number of Council Members has been reduced. This year two nominations were put forward for two vacancies as Ordinary Members of Council. Both were elected for a term of three years - Mr PH Haar, Operations Supervisor, Fawley Refinery, Esso Petroleum, and Mr IM Fotheringham.



Mr Charles Smith presents the badge of office to his successor as IP President, David Varney.



Mr Ian Fotheringham has been Honorary Secretary for the past six years, ending his term in office at this AGM. Throughout this period he devoted much time and effort to the Institute. Apart from his membership of Council and the Management Committee, he is an active member of the Finance and P & I Committees. He is also a Management Trustee of both the IP Pension Fund and Benevolent Fund.

The election of two Additional Members of Council for a term of three years was approved - EA Blair, President, Hamilton Oil Co Ltd, and WSH Laidlaw, Managing Director, Amerada Hess Ltd, while DL Setchell, Managing Director, Gulf Oil, was re-elected in the same category.

Two officers from IP Branches were elected to represent the Branches on Council - Dr P Miles of the Northern Branch and Mr A Jagannathan of Stanlow Branch.

The Report of Council was presented by IP Director General Ian Ward and subsequently adopted.

The Accounts were present by the Honorary Treasurer, Mr D Sharp, and adopted. Auditors Ernst & Young were re-appointed as auditors for the coming year.

At the end of the formal proceedings, Mr Smith presented the Eastlake Medal to Dr TH Farmer for his exceptionally long and meritorious service to the Institute.

Awards of Council, each commemorated with a large cut-glass rose bowl, were given to Messrs IM Fotheringham, J Ramsay Spence and PA Taylor.

A further Award of Council will be presented at a branch meeting in Scotland later in the year to Mr Ralph Beer of the Edinburgh and East of Scotland Branch. A member of the branch committee for nearly 30 years, he served on the programme committee and was responsible for organising various events in Scotland.



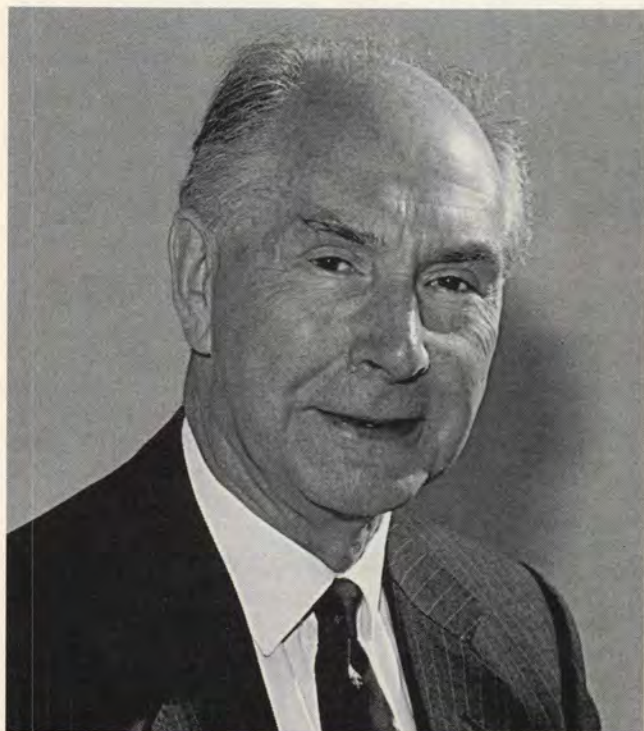


Mr Sam Laidlaw was elected an Additional Member of Council.

Mr Paul Arthur Taylor - better known as 'Pat' - was elected to student membership of the Institution of Petroleum Technologists in 1934, whilst studying in the Department of Oil Engineering at the University of Birmingham. He remained a member through periods spent in Venezuela, Colombia and Trinidad. To date he has supported the IP for 60 years. He served on the Membership Committee for 20 years. Last year, failing health forced his resignation from the committee.



Mr David Sharp was re-elected as Honorary Treasurer.



Dr Tom Farmer received the Eastlake Medal, last presented in 1988. He joined the IP in 1968 and later became a fellow. Seven years ago he received an Award of Council when he retired from the chairmanship of the London Branch. However, when problems subsequently occurred, he again became the branch's chairman and retired for the second time last year. During this time he also served as Chairman of the Branches Committee and as a most effective member of Council. He continues to be a member of both the Membership and Publications and Information Committees as well as playing an active role in many other facets of the Institute's work. He is the General Secretary, Solvents Industry Association.

Mr J Ramsay Spence is a Director of the John Wood Group and an IP fellow. He was one of the founder members of the Glasgow-based West of Scotland Branch. Since the early 1980s, he has been of member of the Aberdeen Branch, of which he was Chairman in 1990-92. He introduced the 'Aberdeen initiative' - a successful personal invitation approach to increasing membership. Over the years he was a tireless champion for the IP, frequently chairing branch committee and technical meetings and representing the Institute at official external, civic and academic functions, dinners and meetings.



IP's role in a two-speed world

David Varney - IP Presidential Address

For the petroleum industry, change is in the blood. Think of what has happened over the past few decades. For a quarter of a century from 1950 demand rocketed and Britain's refining capacity grew 13-fold. In the 1970s, two oil shocks raised prices from \$3 to \$40 a barrel and demand slumped. The rapid development of North Sea oil and gas resources – a huge technical and commercial achievement – turned Britain into the world's fifth largest producer. The industry then had to cope with a price collapse which left real oil prices at a third of their peak. Recently, the structure of petrol retailing has radically altered.



With this background, it is rash of me to suggest that the industry faces a period of particular and difficult change. But I think that it is probably true and will require all the flexibility and resilience that we have already demonstrated.

We hear a lot now about a possible two-speed Europe, but the petroleum industry, I believe, faces a two-speed world. In developing countries – particularly in Asia – demand for energy is growing sharply as a result of population growth, industrialisation, urbanisation and rapid economic development. But in mature, developed economies, increasingly concerned with the environment, energy demand seems likely to remain relatively flat.

Oil demand in developing countries could treble over the next three decades. Gas demand could grow six times. If that occurs the additional requirement would amount to some 65 million daily barrels oil equivalent – two thirds of the present world consumption. That would require a huge investment of money and effort in new

production, transportation, refining and distribution facilities. A recent survey identified 64 refinery projects already underway in developing countries – adding a capacity equal to 40 percent of Western Europe's.

That survey of refinery projects found only two very small projects in Western Europe. Here, by contrast, oil demand is forecast to rise only slowly, if at all, over the period – although gas demand could grow by perhaps 50 percent. At the same time, the upstream sector of our industry will have to cope with the increasing maturity of the North Sea as an oil and gas province.

Before I look at the consequences of this for our industry, let me touch on the wider economic environment. We live in an increasingly global marketplace. Barriers to trade and investment flows have fallen while modern telecommunication allows information to be transferred instantly around the world. The globalisation of financial markets allows investors to pursue the most profitable investments wherever

they can be found. At the same time advances in information technology have made it easier for new competitors to challenge mature Western industries and for companies to transfer work to wherever it can be done most cost-effectively. In short, we face great competitive challenges.

Challenges up and downstream

Britain's upstream industry strives to extend the lives of large, first-generation North Sea fields, now in decline, and to find cheaper ways of developing new smaller fields – at much lower oil prices than in the first phase of development. The downstream oil industry faces stagnant demand, overcapacity and pressure from new competitors – taking advantage of changing social patterns and cheap fuel supplies. Despite the inevitable squeeze on margins, it must also accept costly new environmental burdens.

To meet these challenges companies must become much more efficient –

reducing manpower, focusing efforts, cutting out waste and duplication, developing and applying new technologies and improving quality. We have, I believe, achieved a great deal. But the battle has only just begun. In Europe, we have to adjust to operating in a market without growth. Environmental demands will not go away. The North Sea will inevitably become increasingly mature. We will have to compete for investment funds with the opportunities of new resources and expanding markets elsewhere.

Such an environment will be very demanding but is not all gloom – it offers both opportunities and threats. Our ability to take advantage of the former while avoiding the latter will depend on two things. Firstly, our own skill, judgement and energy. Secondly, the degree to which the regulatory framework in which we operate supports or inhibits enterprise.

Role of the Institute

I believe that the Institute of Petroleum, as a unique, independent centre of technical expertise in all aspects of our industry, has a very important role in assisting us to achieve both of these things. However, just as companies are having to adjust to changed circumstances, so must the Institute.

As companies in the industry reduce manpower and focus on core activities, it is clearly difficult for members to devote time to the Institute – to attend meetings or, more crucially, to take part in the essential work of committees and working parties. But equally the demands on the Institute are increasing. This dichotomy can only be overcome by effective management of our limited resources to gain maximum impact in a few, key areas.

Self-regulation

Let me suggest two areas which I think are particularly important. The first is to assist the industry to make the continuing case for self regulation in the UK and in Europe, and to develop the common technical standards and codes on which this can be based. The second is to help develop the professional standards of individual employees to help them meet the increasing demands of their work.

There is increasing political desire to enact new health, safety, environmental, employment and commercial regulations. Conversely, as the competitive pressures on companies increase and they get leaner and more focused, their ability to tolerate burdensome, prescriptive, bureaucratic regulation diminishes. Fortunately, there is a growing understanding among legislators of the extent of the economic chal-

lenge Europe faces – led by our own government. There is a growing willingness to look at alternative ways of raising standards.

I believe that the increasing complexity of business systems, and the rapid and unceasing change all businesses face, requires a process of industry self regulation within a framework of standards, commitments and guidelines established by government. The aim must be to encourage a process of continual improvement, in line with industry's investment cycles, rather than to expect sudden shifts in response to short-term political pressures.

The recommendations of the Cullen Report on North Sea safety have been praised very often. I make no apologies for repeating the message. The resulting 'safety case' system which puts the onus on platform operators formally to demonstrate that they understand and are able to manage all the risks of their particular facilities and operations is the right way to proceed. I do not believe that the innovation which has been necessary to allow continuing development of our North Sea resources at low oil prices would have been possible within codified, prescriptive, all-embracing safety regulations. Nor would safety, which is much more to do with human interaction and the quality of management than with hardware, have been improved.

Environmental issues

We see the problem most clearly in the case of the environment. This may appear to have been forever the most topical and newsworthy of issues. In fact we are only beginning to grapple seriously with a subject of very great complexity – involving an understanding of natural processes, health effects, advanced technology, and business and social dynamics. The initial response has been a series of knee-jerk measures based on limited understanding of the science, of the practicalities, of the costs, of the trade-offs and of the overall benefits.

Fortunately, the economic implications and limited utility of such an approach are now being appreciated and we are groping towards a more rational and systematic process. I believe that this must be based on several clear principles.

Firstly, we must fully understand the nature of the problems through systematic scientific analysis. Secondly, we must subject all suggested remedies to rigorous cost-benefit analysis covering the life-cycle of products and processes. Thirdly, from this basis we must decide on priorities – trying to do everything at once will achieve little and do great harm. Fourthly, we should work towards long term goals not short-term impulses. Fifthly, everything we do should be aimed at stimulating the innovative drive of free competitive

businesses as the only means of developing and commercialising new 'greener' processes and products.

Systematic analysis

The Institute has a vital role in supporting the systematic technical analysis which is the foundation of progress – utilising the industry's understanding of its own processes and products. The epidemiological studies of the Health of Oil Refinery and Distribution Workers, carried out under the auspices of the Advisory Committee on Health, are a good example. Their findings can help counteract some of the alarmist stories about benzene we see in the press.

The whole question of air quality and the impact of vehicle emissions, and those associated with distribution and refuelling, is naturally of profound importance to the petroleum industry. There is a justified public concern about air quality and the impact on health of a cocktail of emissions from various sources, including vehicles. Unfortunately, however, the debate is coloured by limited understanding and often personal prejudice. The Institute can provide a balanced appreciation of the impact of vehicle emissions and the progress of efforts to reduce them.

The Institute also has an important role in assisting the industry to grapple with the practicalities of implementing new environmental regulations.

Much of the new legislation comes, of course, from Europe and it is important that the industry throughout the community speaks as much as possible with a common voice and a wide perspective. Links with like-minded organisations across Europe must be developed and new contacts forged within the Commission and national agencies. More overseas branches of the Institute, like the one in the Netherlands registered last year, are an important target.

Professional standards

That brings me to the second key task of helping develop the professional standards of individual employees in this industry. That becomes increasingly important with the changing nature of work and careers. None of us can now rest comfortably on a single specialism mastered in the early stages of our career. To make an effective contribution in today's companies we must have both specialist skills – kept constantly up-to-date – and a wide knowledge of the business. And when lifelong careers can no longer be guaranteed, it is prudent always to ensure that our portfolio of skills is readily marketable.

Membership of the Institute, particularly where there is an active local branch, is an important means of developing professionalism. The programme of conferences and discussion groups,

the monthly Petroleum Review and the extensive library in New Cavendish Street are all designed to help us improve our understanding of our industry. It is up to us to make full use of these facilities.

With the current state of the industry, it is a testament to the value of membership that the number of individual members has continued to grow, a significant proportion based overseas. Membership is now approaching

8,000, some 15 percent more than five years ago. But we must work hard to increase membership, particularly among younger employees and students – the fact that companies have recently been reducing manpower does not alter our need to continue to attract the brightest and best qualified young people into our industry. We will not meet the great challenges we face if we do not.

For over 80 years the Institute has

been serving the industry and its members. The vital task which we all face is to communicate the value of the Institute throughout our own industry and outside. We must secure an appreciation of the Institute's role in helping to regulate our industry's affairs so as to meet the public trust that, while creating society's wealth and providing essential energy supplies, we maintain the highest operational and commercial standards.



IP THE INSTITUTE OF PETROLEUM

Environmental Management Implications for the Oil Industry

19th October 1994

To be held at the Institute of Petroleum

Papers will include:

- ▲ **EC Approach to Environmental Policy and the Eco Management and Audit Scheme**
Dr B Delogu, Commission des Communautés Européennes, DG XI
- ▲ **Features of a Good Environmental Management System**
Ms Ruth Hilary, Centre for Environmental Technology
- ▲ **Auditing and Verification**
Dr S Baverstock, Environmental Auditors Registration Association
- ▲ **An External Perspective on Environmental Management**
Frau K Taschner, European Environmental Bureau
- ▲ **Integrating EM Into the Business**
Mr Alan Marples, Arthur D Little
- ▲ **Company Experience**
Mr R Shipway, Lindsey Oil Refinery Limited
- ▲ **Company Experience**
Mr David Harries, Manager Quality Assurance & Environment, Texaco Ltd., Pembroke Refinery
- ▲ **Company Experience**
Mr J A C Bell, Divisional Director Distribution Esso Petroleum Company Limited
- ▲ **Communicating and Reporting the Environmental Performance of an Organisation**
Mr Klaus Kohlhase, British Petroleum Company plc

For further information, and a copy of the registration form, please contact, Caroline Little, The Institute of Petroleum, 61 New Cavendish Street, London W1M 8AR. Telephone: 071 467 7105/6. Fax: 071 255 1472.

IP THE INSTITUTE OF PETROLEUM

Microbiological test methods for the petroleum industry and users of petroleum products

A 'Hands-On' Workshop at the University of Hertfordshire
21 September 1994

The introduction of 'greener' petroleum products will inevitably lead to more in-use problems due to accelerated biodeterioration and possible associated corrosion. Even without these changes there has been an increase in spoilage of some products, particularly distillate fuels. New regulatory initiatives are restricting or controlling the use of traditional anti-microbial chemicals (biocides) whilst others are drawing attention to direct or indirect health hazards from micro-organisms.

All of these changes will result not only in the introduction of more standard laboratory-based microbiological tests for petroleum products but also an increasing need for non-microbiologists to run simple on-site tests for micro-organisms and biocides.

With this in mind the IP's Microbiology Committee has invited academic microbiologists and commercial organisations to demonstrate their techniques, instruments and test kits at a one-day work-shop at the University of Hertfordshire. Demonstrators have been particularly asked to make their presentations relevant to the oil industry's needs and to allow, where possible, delegates to conduct the tests themselves.

Following registration Dr Barry Herbert will present an overview on 'Laboratory and on-site microbiology tests'. After this delegates will be free to visit about 30 displays.

For a copy of the registration form, please contact Caroline Little,

The Institute of Petroleum, 61 New Cavendish Street, London W1M 8AR

Tel: 071 467 7105/6 Fax: 071 255 1472

Will Wall Street and the City of London continue transforming the international oil patch?

By P S Adam

The prospect of choppy and declining share markets may, in the months and years ahead, jeopardise plans to sell off certain state-owned enterprises, particularly if investor enthusiasm for initial offerings remains weak.

Oil and gas privatisations may, however, be somewhat immune from the effects of negative developments in equity markets. Firming crude prices (up over 20 percent from earlier this year) could well offset the possible dampening effect of subdued share activity on the transfer of government-owned oil and gas enterprises from the public sector to private investor groups, to other companies and particularly to the public directly through offerings of stock.

The possibility that stock markets will force governments to abandon privatisation plans is remote; political support for and thus governments' commitment to the process remains strong. A turn-about in investor sentiment could, however, drive down the prices governments receive in sales of state-owned enterprises and cause authorities to postpone some of them. Though probably not indefinitely.

An uncertain investment climate, while bothersome, is in any case likely to have only a limited impact at this point on the transformation Wall Street and the City of London are bringing about in the oil and gas sector, as well as other areas – a process which will not only affect specific industries but also trading patterns in capital markets worldwide.

Still, continued privatisation will turn, ultimately, on the receptivity of equity investors in the United States and, to a somewhat lesser extent, the United Kingdom. Recent US capital market activity – specifically, waning investor interest in initial public offerings following a bout of turbulence

brought on by rising interest rates – does not augur well for plans to offer the public shares in state enterprise.

US underwriting entering doldrums?

Before interest rates started to climb earlier this year, underwriting activity in the United States was robust; new equity and debt issues reached a peak level of \$122 billion last June. Now, monthly volume has fallen to under \$40 billion, its lowest level since January 1991, just before victory in the Gulf War set off a bull market in the United States. Just-released figures from the Securities Data Company show that in May underwriters managed to sell only \$4.6 billion in stock, down from a peak of \$13.8 billion in November of last year.

US stock prices are, however, relatively high, with the Dow Jones industrial average only 5 percent below its peak and the Russell 2,000 index of small stocks off just 7 percent (June 3); both well above levels at which companies were eager to sell stock last year. But of five initial public offerings that Wall Street underwrote between 30 May and 3 June, only one managed to get a price per share within the range forecast in the original prospectus; and that one had to cut the size of the offering.

Whether a sated US investor appetite for new issues is temporary remains to be seen. If not, the impact on the process of privatisation, which has been bringing about a transformation in

oil and gas activity in many parts of the world, is bound to be significant – at least over the next year or so.

Privatisation dependent on major US and UK capital markets

The financing requirements of private oil and gas concerns are such that they require access to the major international capital markets. Other industries with similarly voracious appetites for capital include aerospace, drugs, automotive, telecommunication and computers, finance and non-oil natural resources such as timber and mining – precisely the areas of commercial activity governments have, in the past, sought to own and/or regulate highly in order to preclude foreign control, which reliance on private capital of course makes possible. Various countries, most of them formerly socialist, have reversed course and want to enter into an enlarged international free enterprise system. Their governments have put state-owned enterprises up for sale, relying on the major, once-detested, international capital markets to facilitate the process.

Privatisation is a generalised trend but the United States is the only country in the world whose capital markets offer sufficient liquidity to absorb a significant portion of public offerings in such enterprises. The process of issuing shares in state companies to the public has and will continue to depend on the market for equities in the United States and in a more limited way, in the United Kingdom.

A cursory glance at the prospectuses of privatised oil and gas concerns such as YPF, Argentina's major national oil and gas concern, and Repsol, Spain's hydrocarbon company, both of which sold shares to the public last year, reveals clearly how dependent privatisation is on Wall Street and the City of London:

- Repsol share offering (11.6 percent of the company); total proceeds, \$829 million; total number of shares offered, 35 million; US portion, 14.5 million shares; UK portion, 8.45 million shares. (Figures from prospectus)
- YPF share offering (59 percent of the company); total proceeds, \$4 billion; total number of shares offered, 150 million (both totals difficult to estimate exactly because of pension bond exchange and repurchase rights that were part of underwriting); US portion 65 million shares; International portion (outside of Latin America and United States - coordinated by London and to be traded there), 35 million shares. (Figures from prospectus)

The YPF deal was particularly noteworthy because of its size and sophistication. In addition to offering shares for cash, holders of Argentinian pension bonds could, based on a complex set of formulas, exchange their certificates for stock. The YPF underwriting was also the third largest non-US offering ever; behind only British Telecom and British Petroleum.

The size of these flotations, large as they may be, however, just a drop in the barrel.

Scope and size of privatisation

According to a report issued by Morgan Stanley and Co., from 1990 to 1993 various governments privatised \$40 billion of commercial enterprises. Energy sector enterprises accounted for 25 percent of that total, (\$10 billion) and that is just the beginning; approximately \$200 billion worth of privatisations of all types of enterprises are on the docket worldwide. In Europe alone (excluding Greece) governments will be selling off about \$25 billion in oil and gas-related assets over the next few years. This figure represents about 25 percent of the total value of European government-owned industries going on the auction block.

Oil and gas privatisation deals in the pipeline include: Italy's ENI (including AGIP, SNAM, and Nuovo Pignone); Scandinavia's Neste and Norsk Hydro; France's Total and Elf; Austria's OMV; Greece's Hellenic and EKO refineries and petrochemical facilities; Peru's Petroperu; Ecuador's Petroecuador and Colombia's Ecopetrol.

Shifting forces

The current slate of government-owned entities scheduled to be sold off are part of a second wave of privatisation to have swept across the international

investment scene. The first took place in the mid-1980s as part of a political trend which started in the United Kingdom with government sales of BP and British Telecom.

Economic as well as political forces have prompted the more recently-planned sales of government-owned entities. In formerly socialist countries, both industrialised and developing privatisation continues as part of a process of conversion to free enterprise in which enterprises are allowed to access private capital and foreign investment enhances economic development. This is true, to a lesser extent, in developed countries as well. But their governments' plans to sell off state-controlled enterprise have increasingly become driven by a need to curb the growth of public budget deficits.

This newer phase of privatisation activity was planned at a far less favourable time when many economies were in recession, stock markets were volatile and governments, particularly those whose countries' economies are natural resource-oriented, were under financial pressure; declined tax receipts coinciding with increasing social spending prompted by high unemployment.

And now that these plans are moving towards completion, the investment and economic climate has turned once again, somewhat unexpectedly and not favourably. The US economy has in recent quarters been robust and major non-US economies appear now to be recovering. But economic expansion has brought on the prospect of inflation and driven up interest rates. Intended to hold inflation in check, tightening monetary conditions have roiled the markets for equities and debt. However unfavourable the timing, governments have little choice and seem to be proceeding with privatisation plans. Getting large amounts of cash from successful sell-offs of state assets is the only way they can both restrain public borrowing and stimulate recovery.

Rationale for privatisation

The arguments for privatisation and the pitch financial institutions make to investors are compelling. Prior to sale,

state-owned companies have had to become efficient and ready to compete. The senior petroleum analyst at one of the top bracket Wall Street outfits involved in the share flotation of YPF put it this way: 'Before YPF went public, payroll had to be reduced; it was - by 80 percent. From here on in, if it ever becomes a dumping ground again for political hacks, this will be reflected immediately in the share price. YPF's cost of capital will go up,

and they'll have a tougher time making a go of it.' And the days are over for oil companies' involvement in politicians' pet projects; another investment

'The arguments for privatisation and the pitch financial institutions make to investors are compelling'

banker made the following observation: 'A while back French politicians made Elf (which is still 50.8 percent owned by the French government) take over a perfume outfit. Full privatisation will put an end to this sort of thing.'

Fundamental values have attracted investors in oil and gas privatisation deals. With respect to YPF, the cost per barrel of reserves, reflected in the offering price, was approximately \$1.90 per barrel for crude and natural gas reserve equivalents - highly favourable by international industry standards. And as for Repsol, its pre-eminence as the largest industrial company in Spain and experience in one of the potentially fastest growing markets in the world caused investors to snap up shares. Both issues were heavily oversubscribed.

But that may not be the case in the future. Aside from equity markets less favourable to initial public offerings, generally, other factors may preclude future oil and gas privatisations from proceeding smoothly. The largest planned petroleum company privatisation of all, that of

ENI (with an estimated total value of more than \$12.5 billion, according to Morgan Stanley Inc.) has been put on hold many times, attribut-

able, most feel, to scandals involving senior executives at Italy's major state-owned enterprises and other, somewhat related, political uncertainties. Brazil, another place where privatisation has been considered seriously, still suffers from chaotic economic and political conditions making the prospects for sale of government-owned enterprises there uncertain - for oil and gas and other enterprises.

And privatisation has not proven 100

'Fundamental values have attracted investors in oil and gas privatisation deals'

percent successful across the board. The current market capitalization of Singapore Telephone and Telegraph, one of the largest developing country privatisations, seems to many analysts to be significantly out of line with those of other internationally traded telecommunications firms. Should these shares decline sharply, it would have an impact on the entire privatisation slate — including natural resource deals.

Effects of privatisation

Privatisation has transformed the character of several different concerns and in so doing has changed the way hydrocarbon and other industrial sectors function in many areas of the world. It has also affected trading patterns on and among various exchanges where shares and debt instruments are traded. Should privatisation continue on as massive a scale as planned, its impact will prove truly monumental.

With respect to the firms themselves, access to private capital allows companies once constrained by government ownership to attempt to become major players with a global reach. Privatisation has made outfits like Repsol and YPF much more efficient. It could, depending on how plans proceed, have the same effect on Petrobras, OMV and ENI and a host of others. One or two might possibly transform themselves into truly world-class competitors up there with Shell, Exxon etc....

Private ownership is a two-edged sword however. Access to capital markets and freedom from political and national constraints mean that companies must survive without umbilical cords linking them to state treasuries and in many cases operating in domestic markets which are no longer protected. Authorities have, as part of the process of privatisation, had to revise regulatory regimes and practices to allow these companies to compete head to head with others on their home turf. Some of these outfits may not withstand the rigours of domestic and/or international competition.

And the most demanding challenges facing these recapitalised entities, hydrocarbon and non-hydrocarbon alike, may well prove to be different from those to which they are accustomed. Managing their newly privatised assets is a task for which they have been preparing themselves. Handling their liabilities — the type of financial management required to secure capital will be for many unexpected and could be difficult in the

extreme, particularly if the interest rate environment changes dramatically from what it has been in the interval in which these privatisations were conceived, planned and carried out.

Moreover, in an environment where oil companies are for the most part price takers in markets for refined products as well as for crude, where everyone has equal access to technology and markets, replacement of reserves and costs of capital will become, more so than ever before, the factors which determine who succeeds and who falls by the wayside. Newly privatised entities may take a while to reorient their approach — some may not be able to.

The international hydrocarbon industry is, in any case, likely to become increasingly

fragmented and competitive by privatisation. But the repercussions of this recapitalisation of oil and gas entities will be felt far beyond the edge of the international petroleum sector. In the process of industry privatisation some of the smaller exchanges where shares of these firms are traded will be likely to become more sophisticated and transparent and at the same time tied to the major exchanges.

YPF's newly-established pre-eminence on the Buenos Aires exchange illustrates this. To be eligible for listing on the major exchanges, YPF has had to meet international standards of financial disclosure. It has become a bellwether for the market in Buenos Aires and will help bolster confidence in the market there. At the same time, the total capitalisation of the Buenos Aires stock market is

less than \$20 billion and only about 20 percent (\$4 billion worth of its shares), float. The total international market value of YPF's shares roughly equal that. This top-heaviness leaves the entire stock market there extremely vulnerable to volatility on markets abroad. Should YPF start to plunge or soar on any of the major markets, the effect on the market in Buenos Aires would be amplified significantly making the market there, under certain circumstances, an adjunct of those in London, New York etc. Traditionally, various share markets in different countries have traded independently, each reflecting local economic and political conditions.

This may break down in the wake of privatisation which is likely to reinforce the links between major and minor equity markets.

What's past is prologue?

There is uncertainty ahead. But the stock market response to privatisation has never been certain — a fact which in the first major government sell-off clearly demonstrated. It was the Iron Lady of Europe, Margaret Thatcher, who originally set the privatisation ball rolling with sale of the British government's 44 percent stake in British Petroleum. The underwriting which was set in the late summer and early autumn of 1987 was interrupted by the international 'Market Meltdown' of October. BP shares skidded to levels below the offering price. The success of the offering was thrown in doubt as smaller financial institutions participating in the underwriting were threatened with bankruptcy. The Bank of England had to establish a floor price for outstanding BP shares to ensure the new offering — and the solvency of certain participating institutions. The flotation went ahead and was successful.

Less developed countries, however, do not have central banks or treasuries with sufficient financial muscle to come to the rescue in such a way. They would be dependent on the authorities, probably in the United States, to do something similar if market conditions at the time of a privatisation underwriting warranted. Sales of shares in oil and gas companies as well as other government enterprises can continue only so long as the major markets provide favourable conditions or authorities can manipulate them to do so. Authorities' powers are, in any case, limited. Investor sentiment, which is far stronger, can change

quickly and without warning. That's what allows the markets' participants to always have the last word, which is what privatisation, in a nutshell, is

all about.

It is good, but not a sure bet, that US and UK investors will continue to buy the shares governments plan to sell in their state-owned enterprises. And as long as they do so industries, among them oil and gas, will continue to be transformed dramatically, impacting not only how certain industries in various parts of the world operate but the underlying patterns in which capital flows among different markets.

In any case, caveat emptor, caveat vendor, caveat investor.

'Private ownership is a two-edged sword...'

'It was the Iron Lady of Europe, Margaret Thatcher, who originally set the privatisation ball rolling...'

Green light for Continental connection?

By Susannah Cardy

The UK government may have adopted a multi-speed approach to Europe but when it comes to linking Britain with the Continental gas grid, it is most definitely in the fast track. With such strong backing from the Department of Trade and Industry – albeit in the form of moral support not hard cash – and with expressions of interest from over 20 companies, can anything now stand in the way of industry plans to build the UK-Continental Gas Interconnector?

The countdown has begun. Britain's gas industry is now just three months away from deciding whether an ambitious £290 million project to build a gas interconnector from Bacton, Norfolk to Zeebrugge, Belgium should be given the go-ahead.

Between now and the autumn, the 20 or so potential users must convert their enthusiasm into solid commitment and sign on the dotted line. The deadline for 'interested parties' requiring both capacity and equity in the line is mid-October. Those companies interested in capacity alone have an extra month's grace.

The driving force behind the plans is, of course, the tantalising prospect of

exploiting shortfalls in the European gas market. Analysts at Wood Mackenzie Consultants estimate that Continental demand could increase by as

much as 55 percent over the next two decades, leading to a supply gap of 12.7 trillion cubic feet (tcf) by 2010. As much as 40 percent of this shortfall, they say, could be contributed by the United Kingdom and Norway.

The Interconnector design concept is for a 215 kilometre pipe which would transport at least 15 and possibly 20 billion cubic metres a year

(bcm/y) of gas to the Belgian transmission system. According to industry sources, the seven sponsors – BP, British Gas, Conoco, Elf, Norsk Hydro, Statoil and Distrigaz of Belgium – have already invested £5 million in the project. The largest expense has been offshore survey and conceptual design work, which is due for completion this summer.

Britannia threat

So far, so good, but is the Interconnector the only way forward? Early this month, a crucial decision is expected over separate plans to build a dedicated pipeline between the huge

Britannia gas field and a Continental landfall.

According to Wood Mackenzie, this would be a better economic option for joint operators, Conoco and Chevron,

which (despite Conoco being part of the Interconnector sponsor group) are rumoured to have adopted a rather 'lukewarm' attitude towards the project.

'It does appear to make more sense to build a pipeline from a Central North Sea field straight to Europe rather than shipping the gas to the UK, treating it, piping it half way round the country and then shipping it to the Continent,'

one WoodMac analyst told Petroleum Review. 'By the time it hits Zeebrugge, it's going to be uncompetitive.'

If the Britannia field partners opt for the direct approach, the Interconnector could find itself in deep water. The crucial question would then be whether the project could survive without the support of the largest gas prospect in the Central North Sea. 'If they build the dedicated pipeline,' said one analyst, 'the Interconnector won't happen.' Wood Mackenzie also believe it is unlikely. 'Although having said that, the vibes that we're getting from both the Interconnector partners and the government are that it will still go ahead,' said an analyst.

BP's Paul Reed, who is Commercial Director on the Interconnector project, denies that it is dependent on any one field for its survival. He also refutes the idea that a dedicated line is a more attractive economic proposition. 'I would be very surprised if a 6bcm project could match the economies of scale of a 15bcm line, particularly when it has a relatively short plateau.'

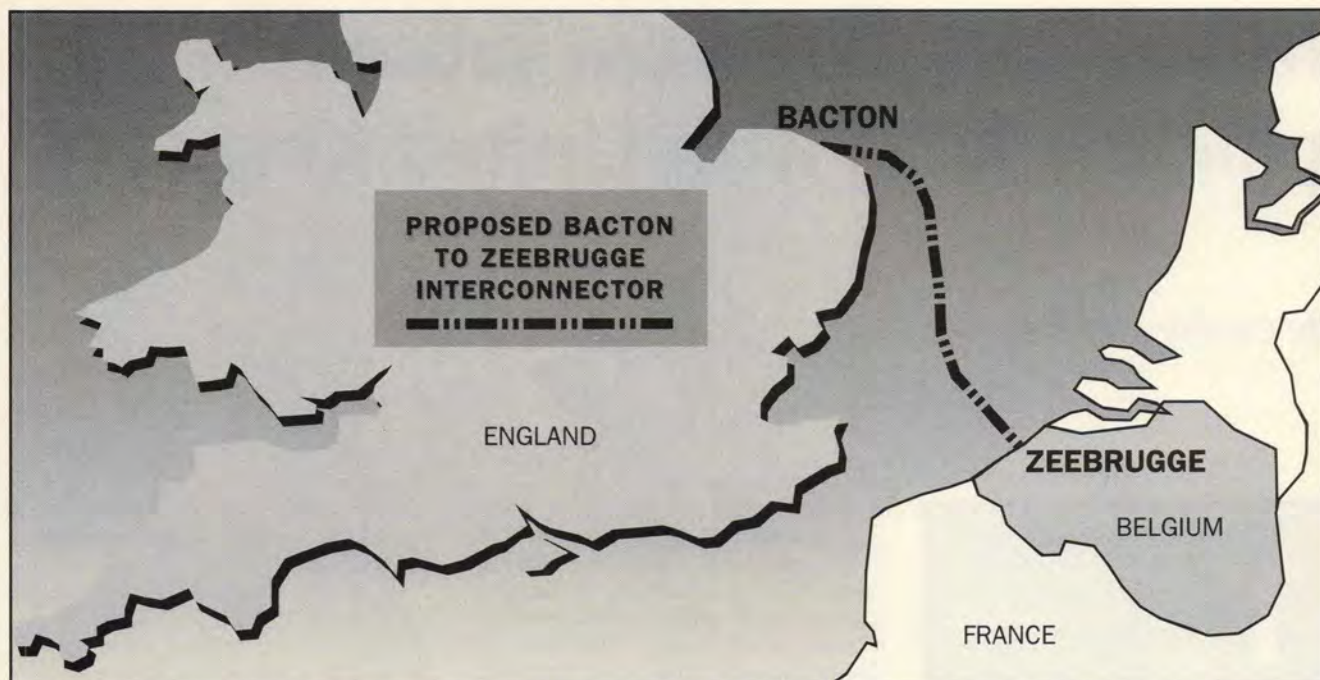
'Based upon our original estimates, the net present cost of the Interconnector tariff for 1bcm of gas over 20 years will be around £15 million – that's a relatively low-cost insurance policy for many upstream companies with a large portfolio,' he said.

However, Mr Reed does admit that the Interconnector could face problems if other large reservoirs were to be given access to the proposed Britannia pipe. 'I guess if they were to make the line economic, they would have to find other fields to join them. That may then affect the size of the Interconnector, but it wouldn't stop us building it,' he said.

Political pressures

Such confidence perhaps reflects the fact that there are other vital factors at play here. The Interconnector's trump card is its flexibility. Although it will begin life as an export line, it is of

'The vibes that we're getting from both the Interconnector partners and the government are that it will go ahead'



course capable of reverse flow and in 15, 20, perhaps even 25 years from now, Britain will need to begin importing gas. 'A direct line means that the gas is lost forever from the UK,' said Mr Reed, 'whereas with an Interconnector you can allow price and the market to determine where the product actually ends up.'

With the future of the market so uncertain, the sponsors believe their project can play a key role in stabilising prices. 'By matching supply and demand, the Interconnector will smooth out the peaks and troughs and keep UK gas prices in line with the rest of the Continent.'

By promising increased competition and restrained prices, the Interconnector also wins the whole-hearted support of the government. According to Wood MacKenzie, the industry is under fairly strong political pressure to make this project work. 'The Department of Trade and Industry wants the Interconnector as a release valve in case anybody gets their volumes wrong and for when we eventually need to begin importing,' said an analyst.

Political pressure could well mean, therefore, that Britannia's field partners decide against a direct pipeline to Europe. Instead, gas may be piped to Teesside through the Central Area Gas Transmission System (CATS). 'The odds are about 60/40 between CATS and a dedicated pipe,' according to Wood MacKenzie. (Despite press reports to the contrary, Wood MacKenzie insists there is still sufficient spare capacity in CATS.) If Teesside wins the day, the success of the Interconnector is virtually assured.

The Interconnector has other advantages too. Its appeal extends beyond

the major UK producers to a wide range of other customers. 'It offers economies of scale to all projects, allowing the smallest of fields to access the Continent,' said Mr Reed. It is also attracting interest from Continental firms, such as Ruhrgas and Gaz de France.

If anything, the sponsor group believes that the Interconnector will be larger than the 15bcm first anticipated. Once the key companies are committed, the prediction is that several others may decide to jump on the bandwagon. 'There are firms sitting on the sidelines who aren't particularly looking for the success of the project but who, if it goes ahead, would rather be part of it than not,' said Mr Reed. A late rush could take capacity to over 20bcm.

If all goes to plan, cost estimates will be available mid-summer. By October, the sponsor group will know whether the project has the go-ahead; by November it will be in a position to confirm the actual size of the pipe.

The only delay

seriously envisaged by the sponsors, according to Mr Reed, is the date of first gas. 'Because some of the large Central North Sea projects have slipped back over the past couple of years, there have been suggestions that 1998 may in fact be a better year for start-up than 1997.... And we're quite happy to listen to our initial customers on that.'

IP THE INSTITUTE OF PETROLEUM

The Tanker Market Entering a New Era ?

5th October 1994

To be held at the Institute of Petroleum

Papers at this conference will consider the major commercial and technical uncertainties facing the marine transportation of oil. The recent Donaldson Report on the Braer accident together with other regulatory and environmental developments will be considered as well as the commercial pressures created by an ageing international tanker fleet and continuing low freight rates.

For a copy of the registration form, which will be available shortly, please contact Caroline Little, The Institute of Petroleum, 61 New Cavendish Street, London W1M 8AR. Tel: 071 467 7105/6. Fax: 071 255 1472.

Ireland benefits from subsea pipeline links with United Kingdom

By Geoffrey Mayhew

This year is an historic one for both Northern Ireland and the Republic of Ireland in the pipeline supply of natural gas.

For the first time Ireland has been linked to the United Kingdom by a sub-sea gas pipeline, which the state owns; and, for Northern Ireland the decision has recently been made by British Gas to spend £136 million in building a subsea gas supply line, again a first across the Irish Sea, to Belfast.

The Ireland Minister for Transport, Energy and Communications, Mr Brian Cowen TD, has said that as a result of their pipeline Ireland's isolation from the European energy market is drawing to a close.

Northern Ireland

The Northern Ireland project is being carried out for British Gas through its wholly-owned subsidiary, Premier Energy Holdings Ltd.

Mr Richard Giordano, Chairman of British Gas, referred to the project in his annual report in April when drawing attention to British Gas' reservoir of skills and experience, which he wishes to develop increasingly worldwide. He said, 'The penetration of gas as a fuel of choice in many parts of the world is very modest. This is particularly true in newly developing countries or in those fully developed countries where supply

has been limited. A good example of the potential linkage of all these skills is the development of the Ballylumford project in Northern Ireland. We purchased Ballylumford power station in County Antrim in April 1992 from HM Government. We have recently approved a project for £136 million to build a gas transmission pipeline across the Irish Sea for transporting our own gas from southwest Scotland to the Ballylumford plant.

'We plan to convert the power plant to gas firing. The large gas requirements of this power plant will enhance the economies of scale in the transmission pipeline and enable us to profitably exploit opportunities for the distribution of gas in the domestic market in Belfast'.

Ballylumford, a 1,080 MW power plant, provides up to 50 percent of Northern Ireland's electricity. It is currently oil-fired and after conversion to gas firing, which will be completed in

1996, will retain the facility to switch back to heavy fuel oil firing should that be necessary.

Two advantages were seen in the conversion of the power station to gas firing and the linking of Northern Ireland by a pipeline to the UK gas network, in order to provide the fuel. Northern Ireland would then have access to a clean fuel for electricity generation. As a consequence, there would be the prospect, at some time in the future, of an additional fuel, natural gas, for domestic, commercial and industrial users.

The question of supplying natural gas direct to consumers other than the Ballylumford power station is currently the subject of viability studies, well in advance of the time when the gas pipeline from southwest Scotland will be operational.

The preparatory design work on the pipeline is well ahead. The laying of the subsea interconnector is expected to



Lay barge

begin in June 1995 and to be completed in August 1996. The pipeline will start from the existing transmission system in Dumfries and Galloway. Of the total length, 135 km, to Islandmagee where the power station is situated, 42 km will be subsea. The 24 inch diameter pipe will be coated with concrete to provide protection and stability on the sea-bed.

British Gas (Premier Energy Holdings) has no plans to buy other power stations in Northern Ireland. They consider that the purchase, conversion and supply of Ballylumford as a very important contribution to the infrastructure of the province. The overall cost amounts to some £300 million.

Republic of Ireland

There were decades on conjecture about the right time to build the interconnector between the Republic Ireland and the United Kingdom (see *Petroleum Review*, December 1992). The decision was made in 1992 and the first delivery of natural gas from the United Kingdom came seven months ago.

The line was laid between north County Dublin to Moffat in Scotland, passing west of the Isle of Man. Of its 290 km length, 204 km are subsea. It is 24 inches in diameter. At present the line is delivering gas at 70 Bar and is expected to do so until the turn of the century and has the facility to provide line pack up to 110 Bar initially. At a later stage a compressor will be installed in Scotland to increase throughput.

The gas the line transports is supplied under a security agreement made by Bord Gais Eireann (BGE) with National Power and a purchase agreement with British Gas. The gas is being used in the Dublin area. BGE is sure that the interconnector will open up new opportunities in gas marketing for it and the Ireland Energy Department has noted that, should further indigenous reserves be found offshore, they would be able to use the pipeline to export gas. They are hopeful that the 1992 licensing terms and petroleum taxation regime will produce such finds.

The possibility of the use of the pipeline by large gas suppliers under contract to BGE also exists.

The Irish government decided to build the pipeline to ensure a future of expansion for the growing gas industry in Ireland when the present Kinsale Head and Ballycotton gas fields are



The gas pipeline from the Republic of Ireland to southwest Scotland and, further north, the pipeline to Northern Ireland, planned by British Gas


depleted. The greater availability of gas the pipeline would provide for the domestic sector was also seen as an advantage in that it would give householders a choice of fuels and exert a downward pressure on all fuel prices. Importantly, it would contribute to cleaner air.

The Department of Energy sees the scope for more gas usage in Ireland to be extremely large, particularly in the immediate future for electricity generation – as in Belfast. There is considered to be a case for using gas in existing power stations in Dublin.

As the interconnector passes through UK and Irish waters, an Agreement for cooperation was signed by both governments before the project went forward.

This worked excellently, it is reported from both sides. The agreement also provided an access to the pipeline by the competent authorities in Northern Ireland and the Isle of Man for the transmission of gas on commercial terms.

The project was expected to cost IR£290 million but was completed substantially below budget. One of the largest and most important engineering projects ever undertaken in the state, the interconnector was the work mainly of Irish engineers and technologists.

The European Union will contribute grant aid of about £91 million to the Republic of Ireland pipeline cost, while the EU Regional Development Fund will also provide substantial financial aid to the Northern Ireland project. 

Pipelines to power South East Asia

By William Scholes

European, North American and Australian pipeline companies are busy building pipelines to transport natural gas to power stations throughout South East Asia. Many countries, such as Thailand, Malaysia, Singapore and Indonesia, have economies expanding at more than eight percent a year. Cambodia and Laos are awaiting energy development. Myanmar will not only benefit from the global economic expansion but from the flourishing economies of nearby Thailand and Malaysia which are now investing in neighbouring countries, while their national petroleum companies are starting to operate worldwide. It is the ever expanding rush of industrialisation, urbanisation and the move to raise living standards throughout the region that is accelerating the need for more power stations, both gas and coal-fired, throughout South East Asia.

Vietnam

Late last year it was announced that Hyundai Heavy Industries of South Korea had won the contract to install Vietnam's first offshore gas transmission pipeline. The line will run 107 kilometres offshore and 16.5 km onshore from the White Tiger (Bach Ho) field to a power station at Ba Ria, near Vung Tau. The pipeline now under construction is the first phase of a \$US400 million gas pipeline system.

Under a separate contract yet to be awarded, Vietnam plans to extend the onshore pipeline from Vung Tau to Ho Chi Minh City, a distance of 130 km. The work at Bach Ho is for PetroVietnam, the Vietnamese national oil and gas company, and Vietsov Petro, the Vietnamese-Russian joint venture enterprise. The Bach Ho field currently produces some 110,000 barrels of oil per day. Associated gas production of approximately 80 million cubic feet per day is currently flared.

The majority of oil and gas structures in Vietnam are concentrated in south Vietnam in the Mekong Delta area. Ho Chi Minh City and the nearby port city of Vung Tau are the centres of activity. The offshore infrastructure is wholly associated with the Bach Ho field where eight platforms gather oil and gas production and transport the stream to a floating production and storage facility.

Plans to exploit the gas are under way, with Vietgas, a subsidiary of PetroVietnam, recently established to co-ordinate the natural gas projects.

The small onshore Tien Hai gas field in North Vietnam currently produces some 17 million cubic feet per day, which is mainly used for local power generation. A small gas turbine is operating near Haiphong, fuelled by the Tien Hai gas.

BHP Petroleum had hoped to be a large supplier of gas from the Dai Hung (Big Bear) development in the Con Son Basin off the southern coast of Vietnam. The field is now being developed by a joint venture led by BHP Petroleum and including PetroVietnam, Petronas Carigali, Total Petroleum and Sumitomo Corp.

BHP will be producing oil from Dai Hung by October but earlier hopes that the project would also yield significant volumes of natural gas have so far come to nothing. Oil reserves are now estimated at between 100 million barrels and 500 million barrels, with some analysts estimating the most likely figure at 200 million barrels. Oil production will start in October at a daily rate of 25,000 barrels to 35,000 barrels.

Hong Kong gas on way

Pipeline laying started late last year for the 707 km Yacheng 13-1 to Hong Kong subsea gas trunk pipeline in the South China Sea.

According to pipeline authorities, it is the longest offshore pipeline ever constructed within a single lay season and with one lay vessel in a continuous programme.

The Yacheng 13-1 gasfield is situated 90 km southwest of Snaya, on the southern

coast of Hainan Island. Arco China Inc. is the operator of the project on behalf of partners China National Offshore Oil Corp (CNOOC) and Santa Fe International Corp (SFIC).

The pipeline installation contract was awarded in three sections - the main trunk-line, now under construction; the Pearl River mouth/Hong Kong approach; and a separate line from the Yacheng 13-1 process platform to Sanya.

Installation of the main line is now well under way by a joint venture between Saipem and European Marine Contractors (SEJV). The latter company is equally owned by Saipem and Brown & Root.

The Yacheng-Hong Kong 28-inch diameter line is second only to the North Sea's Zeepipe 1 system in offshore pipeline length, also installed by EMC's semi-submersible laybarges. Pipeline laying is moving ahead using the Semac 1 semi-submersible pipelay barge and completion was scheduled for completion by June.

The main customer for Yacheng gas is Castle Peak Power Co. Ltd of Hong Kong (Capco), a company held 40 percent by China Light & Power Co. Ltd of Hong Kong and 60 percent by Exxon Energy. Under the gas sales contract, the consortium will deliver first gas to Capco by July 1996 and reach the full contract amount of up to 670 Mmscfd gas by 1999.

A total of four 600-MW generating units will be installed by Capco at a new power station under construction at Black Point, near Tuen Mun in the northern New Territories of Hong Kong. One 600 MW unit will be brought on stream each year between 1996 and 1999. Each will be capable of being fired by either natural gas or industrial diesel.

Under a separate sales contract, some 50 Mmscfd gas will be delivered to Sanya on Hainan Island, where a 1,765 tons per day urea plant will be built.

Performance to date on the Arco China Hong Kong Gas Trunk Line to Yacheng 13-1 has led to SEJV being awarded the additional work for the project. The pipeline work is part of a \$US 1.2 billion gas project for onshore and offshore facilities. The new work includes the pipeline from Arco

China's offshore facilities to Hainan Island and a continuation of a 28 inch diameter line across the Pearl River Estuary, to be laid by Saipem's Castro V ft pipelay vessel.

The work commences at the starting point of the main trunkline - some 60 km southwest of Hong Kong - and continues to the Black Point in the Hong Kong New Territories. The Castro V is scheduled to begin work in August.

The first project, using EMC's Semaac 1 semi-submersible lay barge, calls for laying a 14 inch diameter 100 km pipeline from the platform to the Hainan Island. The work includes shore approach, platform tie-in, an intermediate tie-in for compression facilities and flooding, gauging and hydrotesting. The Semaac 1 is scheduled to begin work in July.

The second award involves laying the final 70 km of the 28 inch diameter trunkline. The main part of the trunkline underway with SEJV is now nearing completion.

Thailand pipelines

In Thailand work is well under way on the second Erawan-Mab-Ta-Pud offshore pipeline and a new Mab-Ta-Pud-Bangkok onshore line.

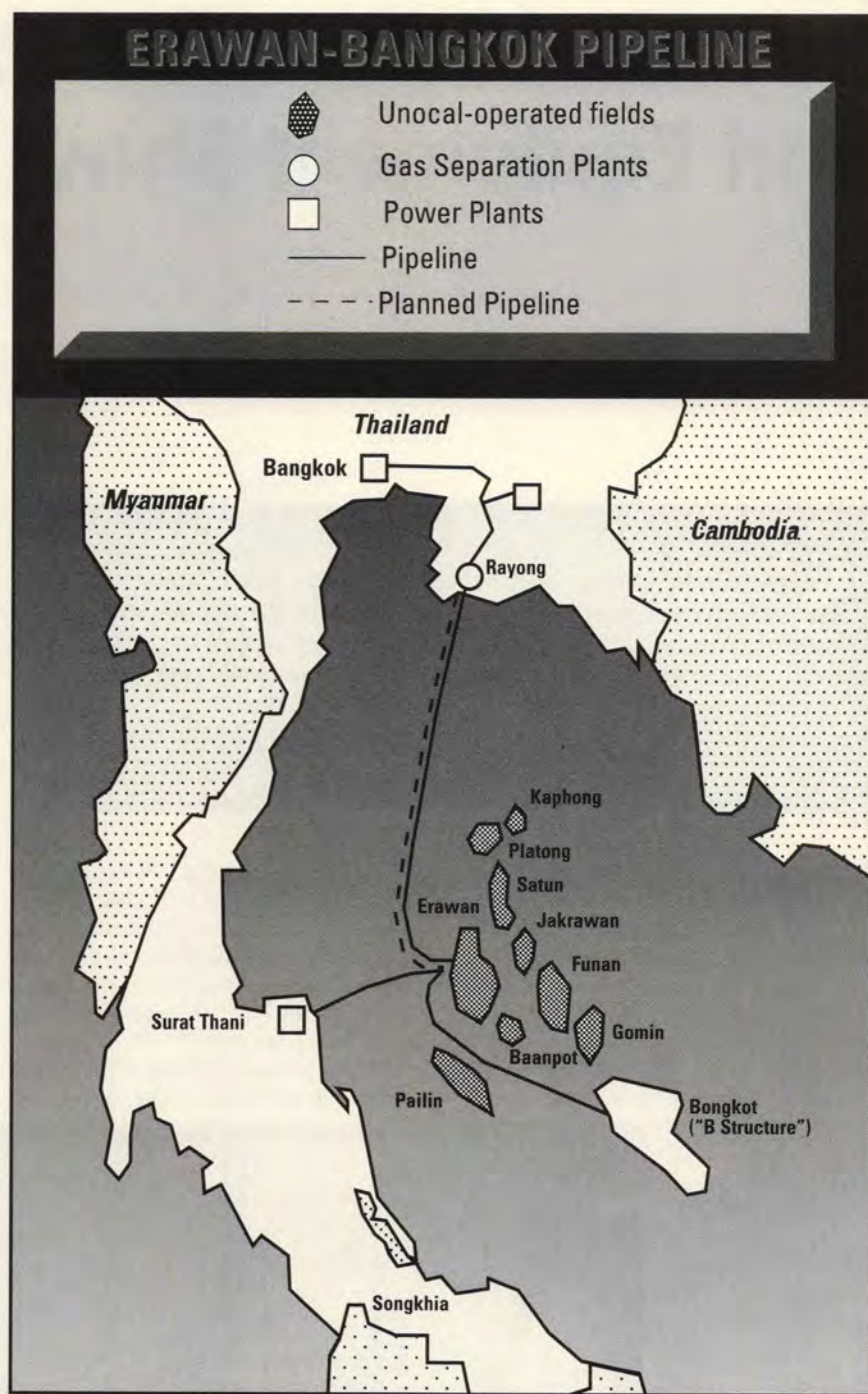
The offshore section will be 36 inch in diameter and run 425 km from Erawan's main production platform to the receiving terminal at Mab-Ta-Pud. The new onshore line will be 28 inch and run 110 km to the Bangkok area.

The new offshore line is scheduled to be completed in 1996 and will raise the transmission capacity to 1,200 Mmscfd, from 800 Mmscfd at present.

The project consultant for the work is Bechtel. The total project cost is estimated at \$US671 million, and loan support has been given by the Asian Development Bank (\$US100 million); the European Investment Bank (\$US46 million); the Export Import Bank of Japan (\$US100 million); and the World Bank (\$US154 million). Commercial borrowings will account for the rest. Contracts for line pipe and for pipe coating have been awarded; still to come are contracts for cathodic corrosion protection and pipelay.

A 100 km onshore line is planned from Bang Pakong power station to a new power station to be built by Thailand power utility, EGAT, at Wang Noi, Ayutthya. The capacity of the line would be 500 Mmscfd, to supply the planned 1,200-MW combined cycle plant. The proposal has been approved by the Petroleum Authority of Thailand (PTT) and is now being considered by the Thai Government.

Thailand's next major pipeline project could be a link to Myanmar's Yadana gasfield, operated by Total. The parties are still negotiating a price for the gas but in the meantime PTT is studying a



possible route for the line.

Other pipeline projects include a Surat Thani Bangkok connection and a Vietnam-Thailand link, both still in the concept stage.

The commissioning of the Bongkot to Erawan line, as well as the following Erawan-Bangkok line, will allow gas from the Malaysia-Thailand joint development area to be developed. The distance from the JDA to Bongkot is only some 150 km but development will depend on the results of an appraisal programme by Triton later this year.

Offshore output

Unocal Thailand is developing the offshore fields in the Gulf of Thailand. It delivered its two trillionth cubic feet of

natural gas to PTT in February. Unocal has supplied 40 percent of Thailand's electricity needs since 1982.

With its joint venture partners Mitsui Oil Exploration Co. and PTT Exploration and Production Public Co. Ltd, Unocal is currently planning the further development of the Jakrawan field, its eighth offshore field. After Jakrawan, the long-term capital reinvestment plan then includes the development of the Pailin field in Block 12/27, located south of the Erawan field.

In 1993 Unocal Thailand produced an average 747 Mmscfd of natural gas and 27,215 barrels daily of condensate from eight offshore fields: Erawan, Baanpot, Satun, Platong, Kaphong, Funan, Surat and Jakrawan.

Successful Forecourt Marketing and Equipment Show

By Carol Reader

Smiles and optimism permeated the whole atmosphere of the Forecourt Marketing Show last month. Not only were the exhibition organisers, Blenheim, pleased – both the number of visitors and of stands were up – but also the exhibitors were happy.

For instance, Rikki Hunt, Managing Director of Burmah, described the show as 'a great success'.

This year the Forecourt Marketing and Equipment Show, now held biennially, was held alongside the Forecourt Shop and Convenience Retailing Exhibition. A natural partnership, though it did seem wise to keep the free offers of ice-cream, hamburgers and crisps physically apart from the pumps, gauges and car washes.

During the three days of the show over 10,000 people came to visit the 186 stands at the NEC outside Birmingham. This year the show saw its largest ever number of exhibitors with a corresponding high level of first-time exhibitors.

Of particular note was a special section devoted to security measures.

There were 18 stands showing a variety of features and devices to improve safety on the forecourt and in the shop. These

included television cameras, intruder alarms, night pay windows, security lighting, panic buttons and safes from such well-known names as Chubb, Firemaster Extinguisher and

Sensormatic CamEra. Ritzenthaler was demonstrating its rising mobile armour security screen, designed to protect staff against physical and ballistic attack – at the press of a button it shoots up in front of a cashier in an amazing 0.5 second.

Also in this section was the stand of BOSS, the acronym of the British Oil

Crime Prevention Centre and the Association of Chief Police Officers, offers advice and guidance to retailers on a practical level to combat forecourt crime – shoplifting, drive-offs, as well as burglary and armed robbery which currently costs the industry £50 million annually.

The oil companies were represented by Burmah, Gulf, Jet, Texaco, Total and UK Petroleum, each with a big stand reportedly doing good business.

As per usual, companies took the opportunity provided by the show to launch new products or updates. Among these launches were Wayne Autocourt's new 'piccolo' range of petrol pumps and fuel dispensers, aimed at low volume retail sites. These extend the size range of its existing series of pumps. Veeder Root was showing new more cost-effective driver controlled delivery systems – the DCD 350 which interfaces directly with the TLS-350R tank gauge and the DCD Ui (universal interface) which can connect to other tank gauges (for these products, see Petroleum Review, June 1994).

Martin Gafinowitz, Sales and Marketing Director, Veeder Root, told Petroleum Review that he would be launching a new state-of-the-art stock reconciliation system called 'Automatic Statistical Reconciliation' towards the end of the year. Based on a vast statistical analysis of forecourt sites' reconciliation database, this would provide



IP stand

Industry Service Station Security Committee, which was promoting its initiative, the Forecourt Watch reward scheme, launched in 1992. BOSS, working closely with the Home Office

tion system called 'Automatic Statistical Reconciliation' towards the end of the year. Based on a vast statistical analysis of forecourt sites' reconciliation database, this would provide



Veeder Root

extremely accurate, real-time leak detection, with the aim of pinpointing losses and hopefully eliminating them.

Making its debut on the ICL Edacom stand was the Edacom 90, a powerful new petrol retail automation system designed to incorporate multiple Point of Sale terminals, a PC-based sales server and a database server.

Meggitt PLC had a vast stand, incorporating five companies that now form part of the Meggitt group – Microlec, Forecourt Facts, Triscan, Lectronic and Land Restoration Systems – which in previous years each had their own stand.

PetroTechnik Ltd introduced a new double containment pipework system which is suitable for all pipework systems up to 110 mm outside diameter. Manufactured of polyethylene, this enables off-set fill, vent, suction or pressure lines to be double-contained, as is often required at high-risk locations.

Land Restoration Systems was one of the companies at the NEC involved in the remediation of contaminated land, particularly service station sites. New technologies are being developed to address these problems, enabling owners to rectify the situation and continue their operations. In fact land contamination was the subject of a one-day symposium, held during the show, with presentations from the Department of the Environment, the National Rivers

Authority, the Institute of Petroleum, the Petrol Retailers' Association, Shell Retail and Grimley JR Eve.

Another company doing similar work was Prestige Aire 2001 Ltd, which has developed a novel system to effect an immediate cure to problems arising from soil gases such as methane, carbon dioxide and petroleum fumes. Using positive pressurisation the Posisump System produces a

viding a temporary or permanent solution for land contamination problems. The system has been endorsed by the London Fire and Civil Defence Authority. An added bonus is that on the domestic level the system also excludes pollen and dust, thereby helping asthma sufferers.

During the show the winners of the 1994 Forecourt News Awards were announced. Winners included:

<i>Oil company of the year</i>	TOTAL
<i>UK oil company of the year</i>	POWER
<i>Best site support</i>	MURCO
<i>Best marketing support</i>	ESSO
<i>Shop innovation</i>	TEXACO
<i>Best shop programme.....</i>	ESSO'S SNACK 'N' SHOP
<i>Best corporate image</i>	GULF

clean air blanket beneath the affected property which prevents any gas from accumulating and putting the property at risk. The units can be used for domestic or industrial purposes, pro-

The last award, for best training in the industry, was not awarded because the judging panel felt that current standards of training did not justify it. No comment!



How much gas is there in the Middle East?

By Dr M Takin, Centre for Global Energy Studies

Two opposing views are presented on the reserves of natural gas in the Middle East. Some say they are overestimated: some say they are underestimated.

Overestimated?

Firstly, some argue that Middle East gas reserves are smaller than those reported in various publications. The 'proved reserves' definition is rather precise and the emphasis is on viability under current technical and economic conditions. The published figures for proved reserves for the Middle East are not, strictly speaking, based on the rigorous requirements for reserve estimation.

Factors adversely affecting the accuracy of the reported reserves could be economical and/or institutional/political. If the available resource could not be produced at the prevailing prices, it cannot be categorised as 'proved reserves'.

It is reported that even some national oil companies operating in the Middle East are not prepared to increase their gas production for domestic industries at the existing prices. Furthermore, some gas export projects have been delayed or shelved because of disagreement on price and the failure to secure finance. Therefore, the technically recoverable quantity of gas that the engineers estimate is not the 'proved reserve' of gas.

Two other points also shed doubt on the economics of the reported proved reserves. Gas prices in real and in nominal terms have been falling since the early 1980s but no downward revisions of reserves were announced in this period. Furthermore, intra-Middle East gas trade is very limited and even domestic residential and commercial use of gas is not that widespread.

Institutional/political factors could also have led to an exaggeration of Middle East gas reserves announced by



Dr Manouchehr Takin

authorities. Seeking justification for a higher budget and/or securing finance are some examples.

Analysts' comments are noted on the increase in oil reserves in the second half of the 1980s, apparently intended to boost country quota allocations within OPEC. The very limited extent of intra-Middle East gas trade could also be caused by political rather than economic factors.

It is emphasised that an important cause of confusion regarding the size of oil and gas reserves in the Middle East is the lack of information. Thus, sometimes it is not even clear if the reported reserves refer to the gas 'in place' or the 'recoverable' gas, or if they also include non-hydrocarbon gases. In the Middle East, information on reserves has been treated on an unnecessarily confidential basis. On occasions, the confidentiality is treated almost as a state security issue.

Or underestimated?

In the second view-point on reserves, it is argued that instead of being over-estimated, Middle East gas reserves - at least 'technical reserves' - are under-estimated!

During the many years of exploration in the Middle East, activities were aimed at finding oil. Gas discoveries were considered uninteresting, or even as dry holes, and companies finding gas used

to relinquish their licence areas. Exploration specifically for gas is relatively recent. Similarly, deep drilling - which is more likely to discover gas - is relatively new in the region.

In the past, stupendous quantities of associated gas used to be flared in the Middle East oilfields; gas was not considered to be valuable. Generally, the gas discoveries were not delineated and information on their reserves were often preliminary and could have been under-estimated.

Comparison of the size of oil reserves with gas reserves (in oil equivalent terms) shows the Middle East basin to be particularly 'oily'. In a comparison with the rest of the world, it is argued that this feature could be due to limited exploration in the past, suggesting the scope for more gas discoveries in the future. Simplified estimation of the ratio of non-associated gas to associated gas also suggests that greater volumes of non-associated gas could still be discovered in the Middle East.

Global size

Thirdly, a review of the available data on reserves shows that Middle East gas reserves are very significant on a global scale.

The Middle East is second in the world, next to the group of countries in the former Soviet Union. Within the Middle East, Iran has the largest reserves, holding just less than half the total gas reserves of the region. Moreover, some countries are relatively poor in gas; intra-Middle East gas trade would be natural under this situation.

The production data of gas indicate a different pattern. Unlike its reserves, Middle East's gas production is less than many other parts of the world. Although this region holds more than 30 percent of the world's total gas reserves, it contributes only less than 6 percent of world production. In fact Middle East has the lowest production if taken relative to its reserves. In 1992, it produced only 0.3 percent of its gas reserves - the lowest in the world, while the former Soviet Union and Eastern

Europe produced 1.4 percent, Western Europe 3.5 percent and North America 8.6 percent!

In summary, although gas reserves in the Middle East are indeed significant, production is limited; the region's gas resources are noticeably under-utilised.

In particular, the components of gross production are examined. It is noted that although gas is still being flared, this practice has been drastically reduced. Gas re-injection is relatively widespread in some countries such as Iran where production in the oilfields requires pressure maintenance and re-pressurisation.

In some countries most of the gas reserves are in fact associated gas, for instance in Saudi Arabia. It is noted that the utilisation of associated gas has had a higher priority than the utilisation of non-associated gas. The dependence of the production rate of gas on the production rate of oil led to concerted efforts aimed at the development of the known non-associated gas fields and the discovery of new ones in order to augment the production of associated gas.

The production of associated gas is generally more costly than that of non-associated gas. However, it is emphasised that the development of non-associated gas is also costly and very capital intensive. In particular, with their larger size, a major problem of these projects is the provision of the required heavy front-end investments.

Supply of gas

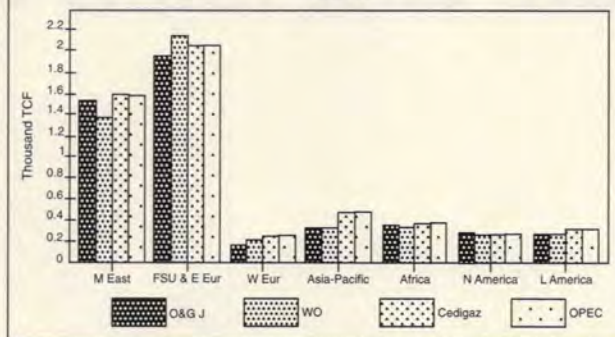
Fourthly, there is a big difference between production on a stream-lined basis and reserves in the ground. Having 'reserves' of gas - indeed its 'proved reserves' - is not equivalent to the 'supply' of gas.

This is more serious with respect to gas than to oil. The development and production of natural gas is more dependent on the commitment of investments and expertise. In addition, the produced gas has to be processed to a greater extent, and its transportation is more complex than oil, requiring gas pipelines or liquefaction and re-gasification plants and LNG tankers.

More importantly, the development of a gas field cannot be undertaken independently of its customers. The complete chain of field development,

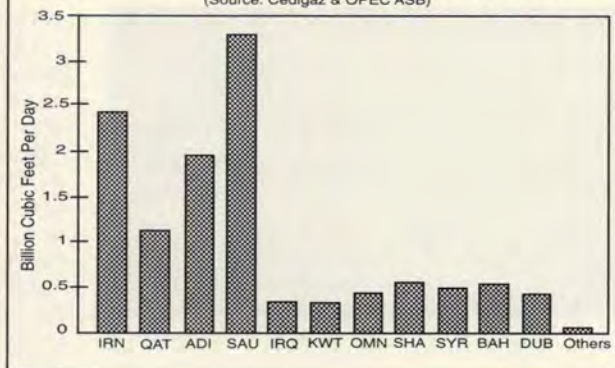
PUBLISHED PROVED NATURAL GAS RESERVES

End 1992



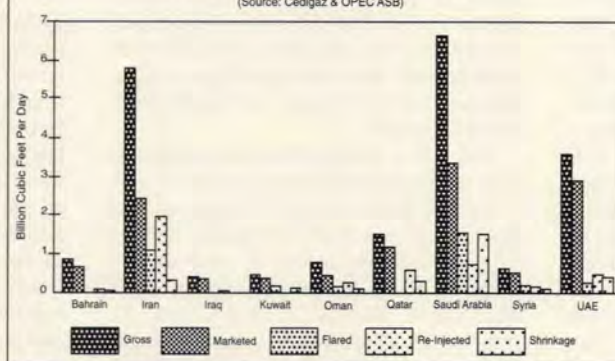
MARKETED NATURAL GAS PRODUCTION 1992

(Source: Cedigaz & OPEC ASB)



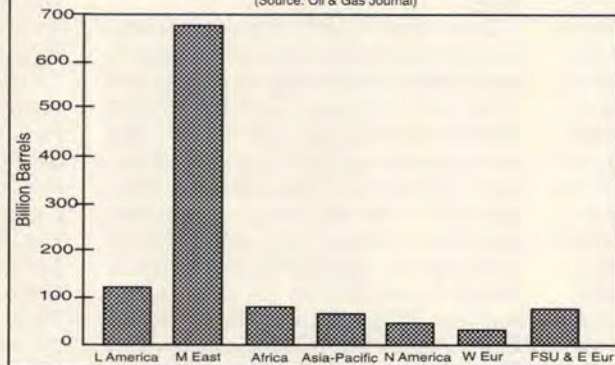
NATURAL GAS PRODUCTION 1992

(Source: Cedigaz & OPEC ASB)



OIL RESERVES, END 1993

(Source: Oil & Gas Journal)



surface facilities, processing, pipeline or LNG installations, requires greater investment and longer-term commitment. Before commencing development activities, agreement should be reached between the parties on the

price of gas and commitments should be made for the life of the project which often extends over many decades.

Conclusion

In summary, gas development projects are characterised by heavy investments, relatively long lead time before the commencement of production, project life of two or more decades and the need for long-term commitments by producers, consumers and financiers.

The consensus view is that, in the coming decades, demand for gas will grow in the industrialised countries but more strongly in the developing countries. The local gas resources are not sufficient for meeting this growing demand; future shortage of natural gas is expected in many parts of the world and a growth in international gas trade is inevitable.

The Middle East is expected to supply the world's future oil requirements. It also has more or less a similar position with respect to gas. The only other region with potential gas supply capability is the former Soviet Union, particularly Russia. I believe the Middle East's position could be more promising.

However, although we could be certain of its huge gas resources, the paradox is their under-utilisation.

Is the under-utilisation problem economical? Prices or pricing mechanisms do not justify gas production, processing and transportation. It is also possible that the projects are feasible but the heavy capital could not be provided.

Is the under-utilisation problem institutional? Unfamiliarity and inertia have existed in accepting gas for domestic use and undertaking long-term commitments for development and trade.

Is the under-utilisation problem political? There exist fears and concern for instability and conflicts, cessation of supply (or demand!) and for the adherence of governments to the terms of agreements over the long term. Such concerns introduce uncertainties for the members of the gas chain from producers to consumers and any outside investors.

The views expressed here are the author's and do not necessarily reflect those of the CGES.

This paper was presented to a conference organised by Middle East gas consultants in Abu Dhabi in March.

The Middle East looks to gas

By John Roberts

The Middle East – defined as the region from Iran to Egypt – possess 31.5 percent of the world's known gas reserves. Yet it produces barely 5 percent of world output. With gas seen as a clean fuel that is increasingly favoured for environmental reasons, a number of countries in the region – most notably Qatar, Iran, the UAE and Oman – are looking to develop their gas resources with a view to shipping them overseas as LNG or piping them directly to new markets.

To these potential major suppliers should be added a number of other countries interested in exploiting their gas reserves. Iraq has considerable long-term potential, while Egypt and Yemen have also looked at export projects. Eventually, and particularly if some kind of a Gulf gas grid is developed, Saudi Arabia might become a significant supplier as well. Even this list is not exhaustive. Syria is developing its own gas resources for internal consumption. And closer relations with Jordan might open up a modest export market.

The principal focus, however, is the concentration of gas around the entrance to the Gulf. The four existing or potential exporters in the region have put forward a plethora of plans which tend to either complement or duplicate each other. Qatar and Oman are both developing major export-oriented LNG projects with the goal of supplying the Far Eastern market. Oman, Qatar and Iran have all put forward proposals for piping gas to the Indian subcontinent. The UAE is expanding its own LNG facilities and is at the centre of proposals for a local pipeline grid to serve the Arab producers of the Gulf. Iran proposes an ambitious internal network of pipes to ring the country with spurs that would take gas in from the Gulf to the southwest and from Central Asia to the northeast and to push it out to Turkey and Europe in the northwest and to Pakistan and India in the southeast.

There is a considerable logic to all these projects. What is lacking is any

sense of coordination, which is vital given the enormous expense that each of them entails. Oman has already come to the conclusion that it cannot proceed with both the development of an LNG facility and the construction of its proposed deep sea pipeline to India. The latter project is now on hold, effectively scrapped.

There is a market for such schemes. The International Energy Agency has projected that demand for gas in East Asia could rise from 29 million tonnes of oil equivalent (mtoe) in 1990 to 102 mtoe in 2010, while demand in South Asia could likewise increase from 23 mtoe to 57 mtoe. Japan, in particular, is looking for a major increase so that gas' share of the energy market rises from 15 percent in 1988 to 26.5 percent in 2010.

One of the world's biggest markets, the industrialised states of Europe, is expected to seek to diversify its gas imports to reduce dependence on Russian and Algerian supplies. The IEA estimates the market there could grow from 229 to 425 mtoe between 1990 and 2010. France's Total has estimated that Europe faces a gas supply gap of between 90 and 130 billion cubic metres a year (2.95 to 4.3 trillion cubic feet) by 2010. Yet it should also be noted that as oil producing nations of the region focus on gas production, their biggest customer is likely to be themselves. The same IEA forecast (World Energy Outlook, 1993) foresees a possible increase in gas consumption within the Middle East from just 84 mtoe in 1990 to 385 mtoe in 2010.

The region's reserves, however, 1,535.5 trillion cubic feet (tcf) of proven gas reserves out of a world total of 4,885.4 tcf, means that it does possess the ability to deliver to both regional and global markets – so long as financing can be found. At present, the region exports just 120 billion cubic feet of gas. A report by UK energy consultants Gaffney Cline and Associates has suggested that by 2010 this figure could rise to 2.6 tcf.

The following is a round-up of specific projects under discussion by the regions gas producers:

Qatar

Qatar is involved in a number of major projects and schemes. The first 2 million tonnes per year (mtpy) train at the original Qatargas LNG project at Ras Laffan is due to come on stream in January 1997, while the second mtpy train should be operational by the end of the year. Moreover, agreement has just been reached with Japanese purchasers for output from a projected third 2.0 mtpy train which is open early next century. The entire project is essentially dedicated to meeting the needs of the Japanese market. The project's main contractor, Chiyoda, began construction work on the site in April. The foreign partners in this joint venture, sharing a 35 percent stake, are Total, Mobil, Mitsui and Marubeni.

Qatar's second major project, commonly known as Rasgas, is the 70/30 joint venture between Qatargas and Mobil, also located at Ras Laffan and officially called the Ras Laffan Liquefied Natural Gas Company. Rasgas has made fast progress, securing outlets for between 4.4 and 4.9 mtpy of LNG from South Korea and Taiwan. Talks are still continuing on whether the latter will purchase 2.0 or 2.5 mtpy. The project's initial target is no less than 10.0 mtpy with further expansion anticipated to meet subsequent demand. First deliveries are currently scheduled for 1997 although it will take some years to reach full capacity. Pre-qualification for the estimated \$3

billion main construction contract was announced in May.

While these two projects look certain to progress satisfactorily, a third large LNG project, the proposed Eurogas scheme, was shelved at the start of the year on grounds of price. Italy's state-owned SNAM, which was to have had a 30 percent stake in the venture, insisted that the price should be no more than the cost of gas reaching Italy by pipeline. Eventually, the Eurogas failure could prompt a change of strategy with regard to Qatari gas exports to Europe.

The Gaffney Cline Study argues that while LNG shipments would be likely to cost around \$255 per million btu, a pipeline from Qatar to North Africa to Italy could supply gas at a cost of \$2.30 per million btu. There is, of course, an even cheaper option. Gaffney Cline has estimated that gas could be delivered to Europe from Iran via Turkey and Greece at a cost of \$185 per million btu. Since the bulk of Iran's gas reserves are directly adjacent to those of Qatar, cooperation would, of course, reduce costs considerably for both suppliers. Last October, following talks between their respective energy ministers, Tehran announced that Qatar and Iran wanted to cooperate 'in all fields, including technical, related to gas.' Tehran has made similar statements in the past and little cooperation has ensured, not least because of the formidable political obstacles so long as Qatar's partners in the Gulf Cooperation Council, notably Saudi Arabia and the UAE, remain at odds with Iran.

In addition to the LNG projects, Qatar is also at the centre of a pipeline scheme that would aim to pipe Qatari gas to Pakistan and, in the process, create the nucleus of a regional gas pipeline network. The \$3.2 billion scheme, put forward by the Sharjah-based Crescent Petroleum, is aimed at supplying 1,600 cf/d from the giant North Field to Pakistan via an onshore section across the UAE to Fujairah and then a subsea route along the continental shelf off Iran to the Pakistani ports of Gwadar and Gadani. Crescent, which says it has secured approval from the relevant governments, has been joined in the venture by two other equity partners, Trans-Canada Pipelines and Brown & Root - the latter also being appointed the project's turnkey contractor. The scheme's completion is projected for 1998. Development of the project has coincided with reports that the UAE, Qatar and Oman are considering the possibility of linking up their gas gathering systems. The problem has recently come into focus as Dubai ponders how to secure a fresh source of gas for reinjection into its declining oilfields. The logical solution, proposed by Conoco

as a field operator, is for gas to be pumped in from a neighbouring Iranian field, Sirri. But this poses political problems, hence the interest in developing alternative approaches.

In late 1993 and early 1994, Israeli and Qatari officials discussed the possible supply of LNG from Qatar, with Israel perhaps acting as a transit point for more general exports to the Mediterranean area. Such plans may eventually come to fruition but Qatar has made it clear that no positive action will be taken in the absence of a comprehensive Middle East peace.

The UAE

In April, a third production train came on line at the giant Adgas plant on Das Island, raising capacity from 2.6 mtp/y to 5.0 mtp/y with output committed to Japan for the next 25 years under a 1992 agreement with the Tokyo Electric Power Company. Tepco is also a considerable purchaser of Abu Dhabi's LPG output. Abu Dhabi is currently engaged in raising gas output from 1,806 mcf/d in 1992 to around 3,800 mcf/d by the end of 1995, when production capacity at the Bab field's gas processing plant at Habshan is raised from 540 mcf/d to 1,865 mcf/d. More than half the increase will concern gas brought up from non-associated reservoirs.

Oman

Oil Minister Said bin Ahmed al-Shanfari said in May that Oman only possesses sufficient gas reserves and cash for one of the two major projects under consideration. The government was therefore allocating the gas from its new discoveries in Saih Rawl, Saih Nihayada and Barik to the LNG project being developed by Petroleum Development Oman in association with Shell, Total, Partex, Mitsubishi, Mitsui and Itochu. It was also disclosed that although the project was due to start operating in 1998, the scheduled start-up date has been put back to 2000. This is probably because the project was not marketed so long as the pipeline remained under active consideration. However the LNG scheme's costs have fallen considerably from the \$9 billion initially estimated. The cost of downstream facilities and gas carriers is now estimated at around \$4 billion with ancillary costs amounting to around \$1 billion.

Practical economics may also have had something to do with the Omani decision. At a gas conference in Abu Dhabi in March, Shell International Gas Managing Director Roland Williams argued that a break-even point for gas exports in the form of LNG, as against gas requiring deep-water pipelines, could come after only

1,000 kilometres. The Omani project to India would have been close to 2,000 kilometres.

Saudi Arabia

Saudi Arabia in 1992 discovered a new gas reservoir on the Red Sea coast near Jizan. This is most likely to be developed for local use since demand for gas, both as fuel for power and as feedstock for petrochemical plants is rising. But the Kingdom is short of capacity to process gas and the priority will therefore be on developing its internal gas facilities to meet local market requirements during the rest of the decade. However, given the Kingdom's possession of the world's third largest proven gas reserves, (184 trillion cubic feet) an export role cannot be ruled out in the long run.

Egypt

'The decision has been taken that we will export gas,' Oil Minister Hamdi al-Banbi said in May. The most likely prospect is a short pipeline to Israel and Palestine, a project discussed by Israeli and Egyptian ministers over the last year but which will require further progress in the Palestinian peace process before it can be put into effect. Mr Banbi said there have been no formal negotiations with either Israeli or Palestinian officials on the matter but that it was being studied. Egypt has also received a request from Turkey for gas and in 1993 a senior Egyptian gas official mooted the idea of the eventual sale of gas by pipeline to Greece. Such a project seems premature unless further reserves are discovered to take the total above the current 21 tcf level. In any case, Mr Banbi says, gas exports will not start before 1998. Meanwhile the principal advantage Egypt expects to derive from increased gas output is the release of extra oil for export - the government hopes for up to 100,000 b/d by 1997.

Yemen

The US Enron Corporation was widely reported to have secured the approval of the Yemeni government for its plan to construct an export-oriented LNG facility, although even before Yemen plunged into civil war in May, there was considerable doubt about the firmness of the agreement. Hunt and Exxon, which developed North Yemen's original oil reserves and from whose concession area much of the gas is found, had out forward its own proposals and Enron's firm nomination to carry out the project remained in some doubt. The civil war, of course, makes the Yemeni project academic anyway, but it is significant that such a modest oil exporter should nonetheless have

felt it possible to take seriously a project on this scale. One of Enron's advantages was that it also had plans for the construction and operation of LNG fuelled power stations on the west coast of India, for which Qatar is the most likely supplier.

Syria

Syria is looking to gas to fuel new power plants but is hampered by the fact that its resources are generally far

from its population centres. There is considerable potential for developing gas-based petrochemical industries but further economic liberalisation and progress towards a peace treaty with Israel will almost certainly be required before Damascus can secure the requisite foreign investment.

Iraq

Iraq is, of course, the joker. Its proven natural gas reserves amount to 3.1 tril-

lion cubic metres (around 102 tcf) which may be smaller than those held by Saudi Arabia or the UAE but are almost on a par with those of Algeria. Moreover, Iraqi sources say their reserves are grossly underestimated. Before the Kuwait crises Iraq was a modest gas exporter - to Kuwait. This trade may be hard to revive but any post-Saddam regime will likely take a close look at trying to restore the country's financial fortunes by exporting gas as well as oil.



Iranian gas faces problems

By Colin Barraclough

With the announcement of his second Five Year Plan, Iran's President Rafsanjani promised once again to develop the country's natural gas industry. Yet a reduction in hydrocarbon export earnings combined with a worrying foreign debt repayment bill, has put investment funds at risk, turning Tehran's investment planning into little more than a wish list.

In 1989, President Rafsanjani committed himself to the development of Iran's gas industry in his first Five Year Plan. The government authorised borrowing of up to \$3.2 billion to invest in the development of the northern and southern Pars fields, the latter jointly with Qatar. In early 1993, Iran's oil ministry produced a 20-year plan to raise gas production to 850 million cubic metres a day, or 310 billion cubic metres a year, with the help of massive hard currency financing from oil export revenues. Oil Minister Gholamreza Aghazadeh confidently estimated that Iran would have 50 bcm available for annual export by the turn of the century.

In the last months of 1993, President Rafsanjani announced his second Five Year Plan, which will take the country up to March 1999. The plan envisages hard currency expenditure of \$3.8 billion for gas development for 1994-99, a \$600 million increase over the previous development plan. At the same time, the National Iranian Oil Company (NIOC), which controls gas production, has budgeted for \$16.6 billion investment from central government resources and \$9 billion from foreign sources. Mindful of the souring of the

Iranian economy, the Majlis has yet to ratify the plan.

At first glance, Iran's gas reserves are substantial enough to supply both the domestic market and a healthy export trade. The country boasted known reserves of some 20 trillion cubic metres in early 1994, second only to Russian reserves. The December 1993 discovery of a new gas field 50 kilometres west of South Pars will add a further 566 billion cubic metres (bcm) to the total.

The country's huge gas resources undoubtedly indicate an enormous potential for piped or liquefied gas expansion, including export, but the principal constraint will remain the huge capital costs involved in gas-gathering schemes and the problem of raising finance. The Majlis is committed to reducing total foreign commitments by \$1.5 billion in 1994-95, while potential foreign investors, already sceptical of the Islamic Republic's long-term political stability, have been further discouraged by a law passed in early 1994 requiring foreign contractors to award 30 percent of local work to Iranian subcontractors.

At the same time, Iran has been forced to reschedule some \$9 billion worth of short-term external debt in the first months of 1994. Agreements

signed with Japanese and European creditors have won Iran a breathing space, but multi-billion dollar repayments are set to restart in 1996. The rescheduling has caused Germany and Japan, long Iran's biggest creditors, to shy away from opening any new finance while the repayment crisis remains so acute. Furthermore, crude oil export revenues, which traditionally form the backbone of Iran's hard currency income and have covered Iran's foreign obligations, have dropped from \$17.3 billion in 1990-91 to a projected \$10.15 billion in 1994-95. Analysts' predictions of a sustained trough in world crude oil prices continuing well into 1995 look set to keep Iran's oil export earnings disappointingly low.

Of course, NIOC could boost gas production by increasing the efficiency of collection, but greater output would not necessarily imply that any gas will be available for export. Tehran continues to favour higher profile - and politically more sensitive - oil production. In early 1994, rumours that oil output dipped below Iran's OPEC quota of 3.6 million barrels per day had NIOC hurrying to defend the sustainability of its oil production. The indications in Tehran are that increased gas output would be re-injected into the oilfields in order to prevent such rumours from stirring again.

Furthermore, Iranian gas - indeed, gas supplied by any Middle Eastern country - could only be brought successfully to market at prices over \$4 per million British thermal units (btu). Yet gas will only command such a price when crude oil is selling at \$20 a barrel or more, and few analysts would stake their reputation on predicting such a figure in the foreseeable future.

PLANNED INVESTMENTS – THE WISH LIST

Medium term:

Expansion of the IGAT-2 pipeline from fields in the south to Astara on the Azerbaijan Caspian Sea border. Saipem ran this project.

Installation of two compressor stations on the 40" and 42" IGAT-1 pipeline.

Construction of a 380 km 30" pipeline between Rasht and Neka. This would effectively be a western extension of the existing 800 km 30" and 36" Sarakhs-Neka line and would allow a link-up between the northeastern fields and the southern fields as well as supplying fuel to the northern cities. Turkmenistan wants Iran to connect this to its own network.

Extension of the 275 km 30" Northwest pipeline, now serving Astara and Ardabil to Tabriz and Orumieh.

Extension of the 276 Km West pipeline to Arak and Hamadan.

Construction of a 370 km pipeline from west of Isfahan to Yazd.

Construction of a 390 km 24" pipeline from Cheshmeh copper plant and cities in Kerman province.

Implementation of a gas flaring reduction project in the onshore southern fields and the offshore fields around Kharg Island. The \$1-2 billion project will involve the reinjection of associated gas. It may also be used for domestic market.

Long term:

Construction of oil and gas export pipelines through Iran from Turkmenistan to Turkey. Construction costs estimated at \$1.9 billion.

Renovation and/or construction of pipeline from Iran through Azerbaijan, Ukraine and on to Russia and Europe. Volumes estimated at 25 bcm a year.

Construction of a \$3-4 billion pipeline eastwards through Pakistan and India as far as Calcutta with a capacity of 36 bcm/y.

Construction of a 100 km pipeline to Armenia. Initial flow would reach 2 bcm/year with the possible inclusion of compressors at a later stage.

Development of South Pars field. Prospects of rapid development collapsed early this year.

Development of North Pars field. Royal Dutch/Shell completed a feasibility study but development plans have been hindered by discussions on equity transfer.

Status

Nearing completion

Under consideration

Under consideration

Under consideration

Under consideration

Under consideration

Under consideration

Talks with World Bank on a \$250 million loan broke down in 1993. Iran is looking for private finance.

Agreements signed. No resolution of funding problem.

Agreements signed in February 1993. No progress due to political upheavals.

New Delhi signed an in-principle agreement with Tehran in January.

In-principle contract under discussion.

Tehran is looking for further buy-back financing arrangements and is expected to award contracts on a piece-by-piece basis.

A 'priority' project for NIOC.

There has been some interest in Iran's newly revitalised Free Trade Zones. A liberal investment code published in October 1993 covering Qeshm, Kish and Chah Bahar allows for 100 percent foreign ownership of local companies or projects, full profit repatriation, and a 15-year holiday for foreign companies. The question of looser visa regulations – even the waiving of Iran's strict visa requirement – has yet to be clarified, but Indian and Pakistani state-owned companies have shown an interest in tapping Qeshm's gas fields.

However, even such schemes have been thrown into disarray by the Iranians' financial constraints. The cost of getting the gas to European or Asian markets would run into the hundreds of millions of dollars, and Tehran would be sorely pressed to find such financing on the open market. International institutions such as the World Bank are reluctant to defy US government pressure on extending loans to 'strategic' Iranian projects. Tehran's desire to export significant quantities of gas to

the world market will thus remain a long-term aim.

There is still pressure to expand the domestic market. At present, gas provides 33 percent of the country's energy needs. According to official figures, gas production capacity reached 66 bcm in the 1993-94, with refining capacity somewhat behind at 40 bcm per year. Power generation consumed 38.9 bcm in 1993, while the NIOC reinjection consumed most of the remaining 27.1 bcm.

High demand is present in both markets. President Rafsanjani is encouraging domestic energy users – both industrial and residential – to switch to natural gas in order to lighten the demand for oil-based products such as kerosene. Most of the hoped-for \$3.8 billion mentioned in the second Five Year Plan is intended for domestic cooking and heating needs. At present, gas is piped to some 12 million consumers in 180 towns and cities, and the plan envisages expanding that network by one quarter. At the same time,

NIOC estimates that it will need over 48.7 bcm of gas for reinjection purposes by 1998-99.

Iran has had some success at converting established industries to gas power. Liquefied gas has been introduced for cars – the first liquefied gas service station opened in the capital in 1992 – and the government imported 20,000 taxis from South Korea and Sweden which operate on the fuel. Cleaner for the environment than regular gasoline, the fuel will eventually be used for government and private cars sold in Iran.

The overall picture, however, remains disappointing. If hard currency earnings do increase during the period of the second plan, Iran's gas industry may get its \$3.8 billion. But the majority of the resources will almost certainly be devoted to domestic expansion, primarily for the use of NIOC. Fifteen years after the revolution and despite President Rafsanjani's best intentions, the government in Tehran is still muddling through.

FORTHCOMING EVENTS

July

3rd-6th

Birmingham: 'LNG 11'. Details: The Event Organisation Company, 8 Cotswold Mews, Battersea Square, London SW11 3RA. Tel: (071) 228 8034 Fax: (071) 924 1790

5th-6th

Budapest, Hungary: 'Gas Processing and Storage in the Former Soviet Union and Eastern Europe'. Details: Business Seminars International Ltd, The Old Court House, Hurst Green, East Sussex TN19 7QP. Tel: 44 71 490 3774 (Int.) or 071 490 3774 (UK) Fax: 44 580 860304 (Int.) or 0580 860304 (UK)

5th-6th

Aberdeen: 'Successfully Implementing & Measuring TQM in a Low Cost Culture'. Details: IIR Ltd, Industrial Division 28th Floor, Centre Point, 103 New Oxford Street, London WC1A 1DD. Tel: 071 412 0141 Fax: 071 412 0145

5th-7th

London: 'Undersea Defence Technology Conference & Exhibition'. Details: Rachel Belsham, Nexus Business Communications Ltd, Warwick House, Azalea Drive, Swanley, Kent BR8 8HY. Tel: 44 (0)322 660070 Fax: 44 (0)322 667633

6th-7th

London: 'Successfully Managing & Developing Mature Oil & Gas Fields'. Details: IIR Ltd, Industrial Division 28th Floor, Centre Point, 103 New Oxford Street, London WC1A 1DD. Tel: 071 412 0141 Fax: 071 412 0145

11th-12th

Chicago: 'Gas Distribution Engineering'. Details: Susan Robertson,

Co-ordinator, Industrial Education. Tel: 312 949 3881 Fax: 312 949 3879

12th-13th

London: 'Maximise Profitability in the Energy Sector'. Details: IIR Ltd, Industrial Division 28th Floor, Centre Point, 103 New Oxford Street, London WC1A 1DD. Tel: 071 412 0141 Fax: 071 412 0145

12th-14th

Oxford: 'Transport Solutions for Sustainable Cities'. Details: Chris Kaighin, Department of Continuing Education, Lancaster University, Storey Institute, Lancaster LA1 1TH. Tel: 0524 849494 Fax: 0524 849499

August

23rd-26th

Norway: 'Offshore Northern Seas'. Details: Conference Secretariat, Offshore Northern Seas, PO Box 410, Gunnar Warebergsgt. 134001 Stavanger, Norway. Tel: 47 51 53 55 45/46 Fax: 47 51 55 22 70

September

5th-16th

London: 'Reservoir Development & Management Planning a 2-week short course'. Details: The Continuing Education Centre, Imperial College, 558 Sherfield Building, London SW7 2AZ. Tel: (0)71 594 6881/2 Fax: (0)71 594 6883

11th-16th

Atlanta, Georgia: 'General Education Courses: Basic Corrosion, Cathodic Protection - Theory & Data Interpretation, Protective Coating and Linings'. Details: NACE

Headquarters.

Tel: 713 492 0535 ext 81.

13th-15th

Southampton UK: 'Computer Aided Design, Manufacture and Operation in the Marine and Offshore Industries'. Details: Liz Johnstone, Wessex Institute of Technology, Ashurst Lodge, Ashurst, Southampton SO40 7AA. Tel: 44 0703 292853 Fax: 44 0703 292853

15th-16th

Southampton UK: 'ICE Technology 94'. Details: Liz Johnstone, Wessex Institute of Technology, Ashurst Lodge, Ashurst, Southampton SO40 7AA. Tel: 44 0703 293323 Fax: 44 0703 292853

18th-28th

France: 'PEL's 26th International Petroleum Executive Seminar'. Details: Miss L A Bolton, Education Administration, Petroleum Economics Ltd, Piercy House, 7 Copthall Avenue, London EC2R 7BU UK. Tel: 44 071 638 3758 Telefax: 44 071 638 3708 Telex: 225573 PETEC G

19th-24th

Berlin: 'THERMIE Exhibition - Promotion of European Energy Technology'. Details: OPET-CS Communications Documentation Section. Fax: 32 2 7715611

19th-21st

Manchester UK.: 'Valves and Actuators, Applications and Developments'. Details: Lorraine Cookham, Independent Technical Conferences Ltd, PO Box 452, Kempston, Bedford. MK43 9PL. Tel: +44 (0)234 854756 Fax: +44 (0)234 841375

21st

Manchester: 'Seminar on Sampling'. Details: John Cowles, Linda Catterson, Jean Anderson. Tel: 081 943 7476/7423/

7552

27th-28th

London: 'Achieving Cost-Effective Maintenance'. Details: IIR Ltd, Industrial Division 28th Floor, Centre Point, 103 New Oxford Street London WC1A 1DD. Tel: 071 412 0141 Fax: 071 412 0145

26th-30th

Singapore: 'Corrosion Asia 1994'. Details: Angie McCoy, NACE International. Tel: Houston 713/492-0535 ext 228 Fax: 713/492-8254

26th-28th

Cyprus: 'Middle East Strategy to the Year 2007'. Details: APS Conferences, PO Box 3896, Nicosia, Cyprus. Fax: 357-2 350265

27th-28th

Aberdeen: 'Human Factors in Offshore Safety, Their Importance in Safety Case Preparation'. Details: Louise Pasha, Business Seminars International. Tel: 44 71 490 3774 Fax: 44 71 490 8932

27th

London: 'Pipeline Seminar to Focus on the Problems of the 1990s'. Details: SEN, 2 Marlborough Street, Farringdon, Oxon SN7 7JP. Tel: 0367 242525 Fax: 0367 241125

28th-29th

Sydney: 'International Ship Quality Conference'. Details: Ms Jessica Wong, Conference Co-ordinator, Synergy Conventions, PO Box 64, Double Bay NSW 2028. Tel: 61 2 369 1242 Facsimile: 61 2 387 5482

28th-30th

Hanoi, Vietnam: 'Vietnam Oil & Gas Expo '94'. Details: Ms Janice Li in Hong Kong. Tel: 852 5117427 Fax: 852 5110692

1994 Offshore Northern Seas Meeting the challenges of change

By Nina Heggelund

Dialogue is a key word for the Offshore Northern Seas Exhibition & Conference (ONS) taking place in Stavanger, Norway from 23-26 August. Dialogue between politicians and the petroleum industry at large, dialogue between oil companies and supply industry, dialogue between established petroleum producers and upcoming nations like Azerbaijan and Kazakhstan.

Unlike other exhibitions and conferences, ONS has not limited itself to being a show-case for technology. ONS unique asset is the participation by the international oil companies, both at the exhibition and in the conference. The fact that all the North Sea operators are represented with corporate stands means that the technological innovations and solutions of the supply industry are presented side by side with their customers' presentations of present and future needs and challenges. In addition, each of the conference's technical sessions includes so-called Review Papers presented by oil company representatives and 'Response Papers' from the supply and contracting industry. 'The basic idea is to create a dialogue for a better understanding of the market's requirements for technology and services', explained ONS Conference Manager May Lis Thorsson to *Petroleum Review*.

The main theme for the ONS this year is 'A

Changing World - A Changing Industry'. Under this theme high-level industry executives, government officials and politicians from all over the world will address the political and economics issues that will influence the petroleum industry in future years. The issues range from European energy policy, the former Soviet Union Republic's role in the world's energy markets and forecasts on world economics through changes in OPEC's strategies in the oil market and the challenges of management in a changing political and business environment.

'The ONS Conference is divided in a general session followed by several technological sessions. In this way we hope to provide an overall understanding of strategic issues combined with a detailed recognition of future technological needs. We believe this is the best way to approach our future challenge of meeting the world's increasing demand for energy under conditions characterised by change and uncertainty', said Mrs Thorsson.

During its 20 years, ONS has grown from being mainly focused on the North Sea activities to a truly international event. This biennial show and conference is now being recognized as one of the most important meeting places for the world's petroleum industry. Recently, this international profile has been added to by several upcoming oil producing nations. Both pro-

ducers, transporters, explorers and officials from Russia, Kazakhstan and Azerbaijan have chosen ONS as the place for meeting colleagues, customers and advisers from the western world. Several of the state-owned oil and gas companies in the former Soviet Union republics will participate at this year's event - many of them meeting the western petroleum society for the first time.

A special session on the new upstream changes of Russia, Azerbaijan and Kazakhstan will update the ONS delegates on developments in this part of the world and provide a better basis for understanding and dialogue between east and west.

The ONS'94 exhibition has been fully booked for several months. Some 950 exhibitors have booked every inch of the almost 18,000 net square metres of indoor and outdoor space. So, if your company is not on the exhibitors list already, your only hope for future participation is to make immediate reservations for the 1996 event. However, the conference programme was only recently released and there is still some hope of being included in the delegates list if you act fast. If you want to register or to receive further information, you can contact the conference secretariat by fax (+47 51 55 22 70) or by telephone (+47 51 53 55) 45).



THE INSTITUTE
OF PETROLEUM

ARTHUR
ANDERSEN

ARTHUR ANDERSEN & CO. SC

Tax and accounting issues in the oil and gas industry

A series of seminars on the complex and changing financial issues facing the petroleum industry is being held for those new to the industry or needing an update.

- | | |
|----------------------|--|
| ■ 12 September 1994: | UK oil and gas taxation - an introduction |
| ■ 10 October 1994: | An oil company's balance sheet after FRS4 and FRS5 |
| ■ 14 November 1994: | Vital signs: financial and non-financial performance measures for downstream oil |
| ■ 12 December 1994: | Taxation implications of transactions |

The seminars will be held from 5.00 pm - 7.00 pm with speakers from the industry and Arthur Andersen's energy practice.

For more information contact:

Glyn Fullelove
Arthur Anderson
1 Surrey Street
London WC2 2PS
Tel: 071 438 5260

To register contact:

Christine Copues
Institute of Petroleum
61 New Cavendish Street
London W1M 8AR
Tel: 071 467 7104

Dr Subroto steps down

By Carol Reader



After 10 years as Minister of Mines and Energy in Indonesia and six years during which he has been the supremo with the smiling face who has headed the administration of the Organisation of Petroleum Exporting Countries (OPEC), Dr Subroto is finally giving up office and returning to academic life in Indonesia.

Anticipating problems in choosing a successor as OPEC Secretary General, Dr Subroto told *Petroleum Review* last month that, if asked, he was prepared to continue in office on a temporary basis until a successor had been found. However, that has not been necessary.

But, as predicted, when the OPEC ministers met in Vienna on 15 June, they failed to obtain the required unanimity, being unable to settle on either of the two nominations – Mr Hossein Kazempour Ardebili, Iranian Ambassador to Japan, and Mr Alirio Parra, former Venezuelan Oil Minister. The Iranians wanted their own nominee, while the rest of the OPEC ministers backed Mr. Parra. Since unanimity was impossible, the ministers were forced to appoint as stop-gap acting Secretary General, Libyan Oil Minister Abdalla Salem el Badri, who is currently OPEC President. He will hold office until November this year, when the next OPEC conference will try again to agree on a successor to Dr Subroto who is now going to give up his high profile post.

Addressing a Dutch audience

Talking on 3 June in Wassenaar, near The Hague, on the occasion of a lun-

cheon organised by Friso Endt's Business Report, Dr Subroto reviewed the 34-year history of OPEC and his six years as Secretary General, before outlining his view of the oil industry in the 21st century.

He then went on to describe the current world oil outlook with some optimism. Oil demand has begun to move upwards to such an extent that overproduction by his organisation would no longer be a problem.

He said that he believed the economic growth and recovery now evident in the United States, Europe and southeast Asia would lead to an extra 1 million barrels per day increase in

demand for oil in 1995. Everyone is agreed that this rise in demand was likely – with increases in population figures and in industrial growth virtually certain, especially in the Far East and southern Asia.

Since non-OPEC producers were not in a position to boost production (Norway and the United Kingdom were, in his view, going to boost output this year but not in 1995), the extra oil supplies would have to come from OPEC members.

However, several OPEC member states, such as Indonesia, Qatar, Gabon and Libya do not have meaningful spare capacity. This would make it easier to decide which other members would be allocated an increase.

In the meantime he pointed out that

OPEC had set its production ceiling at 24.52 million barrels per day (mb/d) last September, maintained the same figure in March, while at the same time extending it through to the end of this year. According to Dr Subroto, OPEC output was keeping very close to this ceiling, with a further 300,000-400,000 b/d for Iraq. So confident is OPEC of a smooth run to the end of the year that no intermediate OPEC meeting is planned for September, as has been the



Abdalla Salem el Badri, Secretary of the People's Committee of Energy in Libya, who has been appointed both OPEC President and acting Secretary General of OPEC for a six-month period until a long-term appointment is made.

case in recent years.

While oil prices had fallen sharply at the end of last year and during the first quarter of this year, with Brent falling below \$13 per barrel (a five-year low), Dr Subroto now forecast that the current upward trend in crude prices, with Brent now over \$17 per barrel, should continue, as long as stocks remain low and provided OPEC output does not get out of hand. 'We expect a steady recovery in prices,' he said.

He stressed his view that the organisation should concentrate on long-term issues because of the rapid changes in geopolitical developments, technology and environmental concerns. The main problem, as he saw it, was the consuming countries' bias against oil – increasing taxes on oil and subsidising coal and nuclear energy. His main gripe concerned the use of such taxes merely as revenue earners.

Returning to themes expressed on earlier occasions, he reiterated that OPEC needed to increase capacity in the next few years by 9-10 million b/d, representing capital expenditure of some \$80-90 billion. There were three possible sources of funds:

- From its own operations but this was dependent on the oil price. If it was low, nothing could be set aside.
- Equity financing from the major oil companies but they wanted a good rate of return. Fortunately, it was now technologically possible to reduce the cost of finding oil. In this case, the companies might be interested, say, in joint ventures.
- Financial markets.

Addressing the Wassenaar lunch, attended by 80 top executives repre-



Alirio Parra is the preferred nominee of the majority of the OPEC ministers for the post of Secretary General of the organisation. From November 1992 to June 1993 he was OPEC Conference President. He is former Minister of Energy and Mines of Venezuela. From 1975-90 he was a Director of Petroleos de Venezuela SA. He has also been Managing Director of Petroleos Venezuela (Europe) SA, based in London. In 1989 he was President of the International Association for Energy Economics.

senting a wide cross-section from the Dutch oil world, including ambassadors and government officials, Dr Subroto denied that OPEC was a cartel in the strict meaning of the word – the power to force the market to accept its demands. Generally speaking, as producers of the most internationally traded commodity, OPEC members strongly support the improved liberalisation of world trade.

'OPEC is not a cartel and that is the way it should be. It is a voluntary group of sovereign states which are attempting to improve the stability of oil supplies and to seek a secure and reasonable income for their oil. We are doing this not through coercion but through

cooperation and compromise, both within OPEC and with other market participants.'

That the organisation was not and never will be a cartel can be seen clearly in its statutes which spell out its principal aims – to coordinate and unify the petroleum policies of member countries; to find ways and means to ensure the stability of prices in order to eliminate harmful and unnecessary fluctuations – bearing in mind the need for a steady income to all producing nations; efficient economic and regular supplies to all consumers and a fair return for all investors in the petroleum industry.

Dr Subroto said, 'The international oil industry has yet to find a workable alternative to the stormy cycle of glut and shortage which is the result of uncoordinated selfishness among oil producers. But we are trying.'

In order to generate discussion among those present, an oil company spokesman was invited to reply to Dr Subroto. This task fell to Mr Henny de Ruiter, Member of the Board, Royal

Dutch Petroleum Co. and Member of the Board of Royal Dutch/Shell Group of Companies. He agreed with Dr Subroto that demand is forecast to increase into the next century but that for the biggest producers oil will not be enough to provide for economic growth. He said, 'Once Iraqi oil is absorbed into the market, production quotas will become less and less necessary.'

Contrary to some expectations, Mr de Ruiter's view of the future largely tallied with that of Dr Subroto who beamed benevolently throughout his speech. Rather than the expected sparks, it was compliments that flew around the elaborate dining-room of Kasteel 'De Wittenburg'.



'We know the ultimate objective of our reforms'

In this article the Russian Fuel and Energy Minister, Yuri Shafranik, airs his views on prospects for the development of his country's fuel and energy sector.

Prices

Everyone is talking about world prices now. We have set ourselves the task of adopting world prices and many commodities in my country are now sold for world prices. However in 1990 it would have been more appropriate to think about the correlation of prices rather than their level. There is the price of a ton of oil, a ton of grain and the price of gold and the other prices should be set on their basis. It is world practice and this proportion is roughly the same everywhere. This proportion should have been made mandatory for at least five years so that every factory and plan manager knew how much he had to pay for energy now and how much he would have to pay for it in the future. He should have known that in advance.

What is happening now? Most end-products are sold for world prices, while the prices of energy and fuel have not been freed. They are still regulated. In some cases the price regulation is harsh, in others it is softer. Price regulation is softest in the oil sector but oil prices are regulated in any case. As a result, in leading Western countries energy costs account for 35 percent of a commodity's price, whereas in this country energy costs account for 15 percent of the commodity's price. It's cheap and consequently, it's wasteful.

No Russian commodity can compete with its Western counterpart in terms of energy consumption. Take ammonia, for example: the production of one ton of ammonia in Russia requires the consumption of 400 kilowatt-hours of electricity, whereas in the rest of the world, no more than 80 kilowatt-hours. The same applies

to metal and machinery. Sometimes the gap is not so wide but there is always a gap. This is the main problem with the low profitability of our industrial exports.

Yet another major problem is non-payment. As you may know, electricity prices in Russia differ from region to region. The lowest prices are in the Krasnoyarsk Territory and Irkutsk Region. The price of electricity in the neighbouring Kuzbass Region is higher.

However, it is the regions where energy prices are lowest that owe us the biggest debt. Many enterprises do not pay merely because they do not want to. Fifty percent of all non-payments are in the fuel and energy sector, which employs five million workers. Until recently we were powerless to change the situation. Now, thanks to a government resolution, we can punish any debtor enterprise, except the defence and some other vitally important facilities, by cutting off its energy supply.

If the energy prices are not liberalised, sooner or later oil and gas production will come to a halt, because the sector will have no money to modernise or expand production. The production of oil and gas requires the biggest capital investments, so sooner or later we shall have to lift all price controls on oil and gas.

Exports

Last year the Russian fuel and energy sector increased exports by 13 percent. We have regained some of the markets we lost. Foreign trade turnover in the sector has grown by 23 percent but the prices have fallen, so the actual increase was around 19 percent.

The debt problem is a major problem here too. Take Ukraine, for example. There was a lot of debate about whether we should stop supplying oil to Ukraine or not. A lot of pressure was put on me. It is so simple to look like a patriot. I could have cut off supply and someone might have called me a hero. As it is often the case in this country, one who does not do anything is better off than the one who sweats his guts out. I could have kept Ukraine without Russian oil until it had paid its debts. In the meantime, during the last three months Ukraine has bought two

million tons of petroleum products in Rotterdam and at a price a little lower than we charge for our oil.

If I were president of a private company, I would tell you this; like it or not, for two years I shall supply half of all oil on credit. This is a common practice in the world, because the worst thing is to lose your market. Losing a market is as bad as a crime for any company and for any country. That is why we are walking on the edge of a knife. Incidentally, Ukraine's debt for oil has not grown since last September. We would index-link these debts to inflation or work out any other compromise agreement rather than lose Ukraine as our major buyer. In any case, the government will help us.

Other countries forgive us our debts and reschedule and restructure them. This is taken for granted in this country. This is normal practice. All that fuss about Ukraine has distracted public attention from the fact that Russian enterprises owe us a great deal more. True, we have made major concessions to Ukraine as far as gas is concerned.

However, in 1992 and 1993 we raised the price of gas to the European level and that was a major success for Russia. One should not underestimate it. Without making a fuss about it, we started selling gas to our neighbours at European prices. Why should we spoil everything now and lose our customers?

In addition, Ukraine has begun to give us some property as payment for part of her debt. Now it is to give Russia a controlling block of shares at the Lisichansky combine, which comprises the former Soviet Union's three best oil refineries and this will enable us to supply petroleum products directly to Rostov and the Stavropol and Krasnodar Territories. We can now refine and pump this oil to Russian ports and sell it to other countries. This is far more profitable than building a new refinery at a cost of one billion roubles.

Attitude to Western capital

It is often alleged that we do not let Western oil companies into our territory. Why, on earth, should we wel-

come them with open arms? We have to fight hard to win any positions abroad, and thus far we have been able to get places where it is necessary to lend a great deal of effort. The world remains divided. Our first three independent companies right away hit the list of the world's leaders in this field. Friendship is one thing but the laws of the market are another. It is only natural that these companies are unwilling to let their rivals in. I have more than once asked my Western colleagues why they think that everything should be easily accessible in our country. They have to work hard to compete against others in their own countries. So, let them fight for a place on our market.

By and large, they agree that the general trend is quite favourable. There have been new investments lately and the legislature is being gradually improved. I am not talking of political stability but of economic aspects.

We should not divide the process of investments into Western and non-Western. If investments produce expected results, it really does not matter who invests and what they want to receive. The problem is that with the present level of taxes, it will soon be unprofitable to produce oil in Russia for Russian and foreign companies alike.

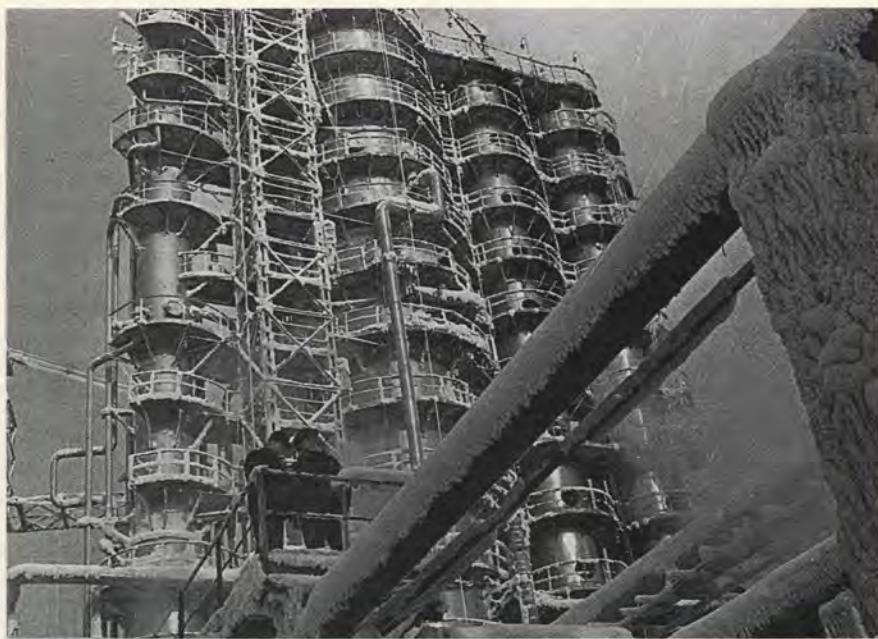
Do foreign investments create a risk that we may lose control over this industry? I am not afraid of taking risks; I believe in myself. But we need a prudent approach. It is possible to mortgage some things and sell others and still remain in control. But while we talk of risks, production continues to drop and jobs are disappearing. This is where the real danger comes from. Upwards of 70 percent of orders for the Sakhalin project will remain in Russia – representing billions of dollars in net profit and new jobs for our workers.

Fuel and Energy Sector and State

Russia has the most efficient power engineering industry in the world and the best environmental record in terms of harmful discharge per kilowatt of electricity. Each kilowatt of electricity is used most efficiently in Russia. In general, power engineering is one of the

few industries which continue to perform smoothly and effectively in our country. There were practically no power failures last winter, even though the industry received only 30 percent of what was due to it in the past six months. If we had acted strictly in accordance with the rules of the market, many would have suffered.

So, consumers fail to pay. And what about investments? Our industry accounts for almost 50 percent of the budget's revenue and for only 6 per-



Oil-refinery in Angarsk, Siberia

Photo courtesy of Novosti

cent of its expenditure (coal and other subsidies included). Last year we received only 3 percent of all credits. As a result, investments fell by 16 percent in Russia as a whole and by 28 percent in its fuel and energy sector, an industry in which projects begin to pay back what has been invested in them earlier than in seven years.

We are not allowed to make money independently, either. Direct taxes amount to more than half of the price of gas, over 60 percent of the price of oil and 75-plus percent of the price of oil products. Local companies have to pay taxes amounting to more than 80 percent of their earnings.

As a result of the production slump, demand for energy has also reduced, though not as radically as the output of other industries. Nevertheless, we should actively invest in the development of reserve capacities. Other countries keep from 20-25 percent of their energy capacities in reserve, while we had only 3-5 percent of reserve capacities in 1990 and thought that we did not need a surplus. But there is no market without surplus. In addition, a surplus is a very strong anti-inflation factor. A surplus of commodities always results in the reduction, not growth, of prices. However, we need investments

at least to keep records of the surplus which we have.

Do you know that it is already unprofitable, in principle, to sell oil products in Russia? Some complain that a certain company delivered crude oil in Rotterdam, while our oil refineries stand idle. Such a situation will persist as long as excise duties and taxes make it more profitable to transport crude oil to Rotterdam and refine it there rather than in Russia.

I am not distancing myself from the rest of the government. We have managed to accomplish some things and failed to do others. Lately we have drafted about 40 important documents and about a dozen of them have been adopted. I must say that our industry has a programme and we know what to do and how to pursue reforms. Many legislative proposals, including a law on oil and gas, amendments to the law on natural resources and a law on energy saving, have already been approved by the

government. The production-sharing regulations which have been endorsed by the President's decree are to be approved by the parliament.

We have worked out our approach; the fullest possible preservation of production capacities, encouragement of good work, conversion into joint-stock companies, creation of large companies and orientation to final results. Our companies will work directly with service stations without intermediaries. Right now we have four large companies. There will be at least 10 of them by the end of the year. It goes without saying that we need money and resources to invest in the development of production. In addition, we will do our best to get to the oil and gas fields of other countries, including Vietnam and Nigeria. We have signed an agreement with Azerbaijan on the development of the Caspian shelf, which is very rich in oil. Another important project is the consortium for the construction of a pipeline from Tengiz, Kazakhstan, to the Black Sea. As you see, we know what we are going to do and how we will do it.

This is an abridged version of an article which appeared in Rossiiskaya Gazeta.



External financing priorities for the Russian oil industry

By Dr Andrei A Konoplyanik

The Russian oil industry has been passing through a difficult period of development. One of the most effective ways to achieve stabilisation could be to encourage foreign investment. What are the major forms of external financing?



Three major forms of external financing for the energy sector in Russia can be considered – technical assistance, hard currency loans and direct foreign investments.

Technical assistance

Technical assistance has been allocated usually by the governments of Western countries and by the international financial institutions. This explains why it is not aimed basically at purely commercial results but is oriented mainly towards the acquisition of system transformations in the economy of the recipient of such aid.

In my view, technical assistance should not be considered as an important source of finance for energy projects in the same way as loans or direct investments. But it can be directed at the realisation of the pre-investment phase of such projects and also at the spread of market-type ideology by the recipient country (for instance, through the organisation of conferences and seminars).

Hard currency loans

In credit policy the major emphasis should be paid to the transition from debt financing to project financing, where loan repayment will be guaranteed not by the recipient government but by the project itself and its economic attractiveness and creditworthiness.

Recently, the Ministry for Fuel and

Energy of Russia has been developing 13 major foreign credit projects valued at over \$10 billion of which eight credit projects valued at over \$5.7 billion are to be channelled to the Russian oil sector (see Table 1). The opening of the financing for the majority should take place this year – financing for the World Bank/EBRD/Netherlands's Oil Rehabilitation Loan opened last November.

Because of the excessive risks in the Russian business climate and the fall in Russia's rating as a borrower on the international financial market, we might succeed in attracting foreign loans firstly from international financial institutions and the state financial bodies of industrially developed countries but less successfully from private commercial banks.

That is why the first major credit project that we were seeking to start during the 1993-94 'winter weather window' was the so-called 'Oil Rehabilitation Project' of the World Bank and other co-financiers. This aims to provide three Russian oil production associations (Kogalimneftegas, Varieganneftegas and Purneftegas) with loans to finance the import of equipment for the revitalisation of the idle oil wells, the utilisation of associated gas and the reconstruction of oilfield gathering lines.

This loan is one of the first 'new-type' credit projects in Russia. It demands a sovereign guarantee from the government of Russia but in its

internal organisation this loan has been structured using a project-financing approach. Thus, the World Bank's Oil Rehabilitation Project can be treated as an intermediary form of foreign loan and as a step towards a project-financing approach.

In my view, the Oil and Gas Framework Agreement, signed with the US Exim-Bank, is another strong step forward in the same direction. This agreement aims to provide \$2 billion or more in the form of direct loans and/or loan guarantees to oil and gas production associations and refineries in Russia to help to finance the import of US goods and services. A general framework has been defined according to which individual projects should be incorporated into this agreement.

The selection of projects will be organised on a project-financing basis. Particular projects will be undertaken on the basis of the individual model agreements in the 'Oil and Gas Framework Agreement'. This agreement will represent an intermediate stage in the change-over from debt financing to project financing (see Table 2).

Direct foreign investments

Until now practically the only legal form for direct foreign investments in the USSR/Russia was a joint venture (JV) organised in a special Soviet/Russian style. The experience of the last five years proves that this form of relationship between a host country and potential investors is not the most effective model for mining industries including oil and gas extraction. That is why we are trying now to adopt the traditional form of international petroleum agreements that have proved their practicability over time.

Particular forms of oil and gas production agreements are defined by the priority and time-horizons of the tasks to be solved.

The top priority task from the short-term point of view is to halt the decline in oil production. This requires the revitalisation of idle oil wells. These totalled over 32,000 in the second

**TABLE 1
LIST OF FOREIGN CREDIT LINES**

<i>Donor country/Head financial agency</i>	<i>Credit value \$ billion</i>	<i>Other donors participating in the credit line</i>
World Bank		
1. Oil Rehabilitation Project	866.3	EBRD, government of the Netherlands
2. Second oil project	1,000	...
3. For critical import for the coal-mining industry (within the framework of the 'Rehabilitation Loan' for the Russian Federation)	50	-
4. Project on associated gas utilisation	1,300	-
European Bank for Reconstruction and Development		
5. For rehabilitation of idle wells	300	-
6. Project on gas-distribution network development and gas-saving	550	Ruhrgas, International Financial Corporation
USA (Export-Import Bank)		
7. Oil and Gas Framework Agreement	2,000	-
8. On equipment purchase for Russian oil industry with Lafkin company	100	-
Canada		
9. On equipment purchase for Russian oil industry	54.2	-
Japan (Export-Import Bank/Ministry for International Trade and Industry)		
10. On equipment purchase for Russian gas industry	700	-
11. On equipment purchase for Russian oil industry	700	-
12. On equipment supplies by Mitsui company to LUKOIL	700	-
Italy (SACA Export-Import Agency)		
13. On equipment supplies for the reconstruction of gas pipelines	1,700-2,000	-

would be provided by the right to export part of the oil produced.

The Presidential Decree N 1403 of November 1992 on the details of the privatisation of fuel and energy enterprises provided foreign investors with the legal opportunity to reinvest their profits into the stocks of newly created Russian joint-stock oil companies and privatised enterprises in the domestic oil business.

The licence for resource management can be provided to the foreign company that wins the tender. But in the case when the licence for a discovered field has been already given to the corresponding Russian company or production association, the foreign company might (should) create a JV with that Russian licence holder. Such an experience has been demonstrated recently during the first Khanti-Mansi tender.

The new, different approach provides foreign investors with the opportunity to participate in the development of not only marginal fields and areas but also in the development of high-productivity fields and prospective territories (such as Priobsky field in the Khanti-Mansi region). This will provide an opportunity to speed up development of and production from those fields and maximise economic rent collected for the Russian state.

In this area of cooperation the foreign partners are likely to be major vertically integrated oil companies. The major form of their participation in the field development should be joint operation agreements (JOAs) and different forms of risk contracts. In my view, the most attractive for Russia among the latter would be a production-sharing contract (PSC).

At the same time, in the majority of cases, it is not so much an equity-participating foreign investor for joint production that is needed. It will be preferable for the Russian licence holder to sign a loan agreement, structured on a project-financing basis, with a financial institution (see Table 3).

In the long term the downward trend in oil production can be halted only through exploration and development of prospective oil provinces. The dominant forms of contract for foreign investors should be mainly risk contracts. Again as in the earlier instance, the most attractive type of such contracts should be a production-sharing agreement which allows the allocation of all costs and risks to the foreign partner and provides repayment of these costs from the oil produced (see Table 3).

Until very recently there was no diversified legal basis for the implementation of production-sharing agreements in Russia. Their legality was only mentioned in the law 'On the Subsoil

quarter of 1993 – more than one-fifth of the total production wells. With an average daily oil yield of not less than 8 tonnes per well, the total annual volume of non-produced oil reaches about 40 million tonnes.

Because of the comparatively low cost of repair and revitalisation (\$80-100,000 per well) the pay-back period is fairly short, making it more attractive for foreign capital despite the heavy taxation in Russia.

Western investors (and what is very important – small and medium-sized firms) can be involved here by means of pure service contracts. But generally it will be more attractive for this country and its production associations to obtain hard currency loans to finance purchases of necessary equipment to be maintained by the domestic producers themselves. The repayment of the loan in this case can be guaranteed by prospective export earnings of a portion of the incremental oil. This approach has been used in a series of loans being developed by the Ministry for Fuels and Energy (see Table 1).

In the medium term oil production

can be stimulated through the large-scale development of already proven fields which have not been yet developed through lack of funds. There are about 450 such fields with a maximum potential producing capacity of about

**TABLE 2
Evolution of organisational forms in providing Russian energy sector with external financing**

<i>Yesterday</i>	Debt financing
<i>Today</i>	Technical assistance Hard currency loans - debt financing - framework agreements Project financing
<i>Tomorrow</i>	Project financing

90 million tonnes a year. Foreign companies have been and would be involved in their development on a competitive and risk basis. The guarantees for repayment of their investments

TABLE 3
ENERGY POLICY CONCEPT FOR DIRECT FOREIGN INVESTMENTS INVOLVEMENT INTO THE RUSSIAN OIL INDUSTRY

<i>Time-horizon</i>	<i>Major activity for activity</i>	<i>Potential for cooperation</i>	<i>Potential foreign counterparts; prospective forms of external financing</i>	<i>First incremental oil expected</i>
Short-term	Revitalisation of idle oil wells	>32,000 idle wells Annual non-produced potential: - 90 mtoe (theory) - 40 mtoe (practical)	Small and medium oil-producing and service companies (pure service contracts); equipment producers and suppliers (purchase contracts); financial institutions (hard currency loans)	In some months
Medium-term	Development of already proven fields	450 fields Maximum production capacity 90 mtoe/year	Major oil firms and consortiums of large, medium and small firms (JOAs, risk contracts – mainly production sharing); financial institutions (hard currency loans)	In 3-5 years
Long-term	Exploration and production in new prospective areas	19 tenders and auctions until now, incl.: - tenders: Sakhalin II & III, Khanti-Mansi, Tomsk; - auctions: Komi, Khanti-Mansi, Magadan	Major oil firms and consortiums of large, medium and small firms (JOAs, risk-contracts – mainly production-sharing)	In 8-10 years

Resources' but corresponding regulating procedures did not exist. On 24 December 1993 the Presidential Decree N 2285 'On Production-Sharing Agreements' was signed which clarified some basic principles of their implementation and gave an order to the government for preparation of the corresponding regulatory procedures. At present a package of such legal documents has been drafted including a model agreement, regulation of its preparation and implementation and some other documents legalising not yet clarified questions related to PSCs.

In accordance with the law 'On the Subsoil Resources', the issue of licences for the right of the utilisation of the subsoil resources, and thus the involvement

of foreign investors in exploration and development of new fields, should be carried out on a competitive basis. Tender practice to date is limited but the tendering process has been developing. Six tenders and auctions both for the development of already proven fields and for exploration and development of new prospective territories have already taken place (see **Table 4**). Another 13 tenders and auctions have been started or are being developed, including such major ones as Sakhalin III, second Khanti-Mansi, Tomsk and Magadan. In this manner, through the system of tenders and auctions, foreign investors are gaining access to the exploration and development of Russian oil and gas resources.

Conclusion

The results of the December 1993 elections for the new Russian Parliament and the subsequent recent changes in the Russian government could significantly slow down the process of foreign investment involvement in the Russian economy and its oil industry. But nevertheless, if that slowdown or even an outflow of foreign capital from Russia takes place, some time will pass (two to three years presumably at the worst scenario) and Russia will then again open its energy economy to foreign investments. At that time the above mentioned priorities for its external financing will still be, in my view, basically the same. 

TABLE 4
OIL AND GAS TENDERS AND AUCTIONS

<i>Year</i>	<i>Russian region/ FSU republic</i>	<i>Tender or auction*</i>	<i>Field name</i>	<i>Foreign companies - the winners</i>
1991	Azerbaijan	Tender	Azeri	Amoco, etc.
1991	East Turkmenia	Auction	...	Bridas
1992	Kazakhstan	Tender	Karachaganak	Agip, British Gas, etc.
1992	Komi Republic	Auction	...	Occidental
1992	Sakhalin-II	Tender	Piltun-Astokhskoye, Lunskoye	Marathon, McDermott, Mitsui, Shell, Mitsubishi
1993	Hanti-Mansi Autonomous District	Tender	11 fields	Amoco, Shell, Urals-ARA
		Auction	3 blocks	Surgutneftgas, 'Rosa Mira'

* Tender – for the right of development of already discovered fields; auction – for the right of exploration and development of prospective territories

EDUCATION AND TRAINING

Vocational qualifications for the petroleum industry

The Petroleum Employers Skills' Council (PESC) deals with all general aspects of training for the downstream oil industry, including vocational standards - better known as National Vocational Qualifications. It is paid for by the industry but has government support for its actions and has a governing committee comprising of representatives covering a wide range of industry interests.

With the present emphasis on all aspects of education and training, it is busy looking after oil industry interests.

The following are some of the areas where it is currently active:

National Vocational Qualifications

○ Refinery Process Operations

Competence standards at level 2* for Field Operators and level 3* for Control Room Operators are currently being operated by most UK refineries. In addition, considerable interest in the standards has been shown from outside the United Kingdom.

○ Bulk Liquid Warehousing Operators

This standard at level 2 has been developed by PESC working with the Independent Tank Storage Association. A more basic level 1 standard is expected to be approved shortly.

○ Process Engineering Maintenance

This key standard, for engineering maintenance staff operating in process industries, was produced by a number of process industries to meet their requirements. Standards at levels 2 and 3 are now available.

○ Retail Forecourt

A standard, based on the National retail standards currently being operated by a large number of household name companies, has now been agreed for retail forecourt staff. The standard includes all aspects of forecourt and retail shop work, covering safety, hygiene, and handling fuel deliveries, including statutory responsibilities. The standard is expected to be ready for use very shortly.

○ Working Groups

In all the above areas, representative PESC working groups of industry technical specialists ensure that the standards are in accordance with industry requirements.

* There are levels 1-5 for N/SVQs, reflecting the complexity of the standards.

Other areas

A major PESC downstream oil industry mapping exercise last year identified key areas of training and standards' needs. Work is going forward in the following areas:

○ Lubricants

The British Lubricants Federation has set up a working group to commence work on vocational standards in lubricants plant operation.

○ Transport

The Motor Industry Training Standards Council recently published the national job competence standards for various road haulage operations at levels 1 and 2. These include driving. The more senior level 3 standards will be issued later this year. These are all 'generic' standards which every key industry sector is expected to adapt to suit their requirements. Our key industry interest is tanker operations and a working group is to be set up to undertake the necessary work.

○ Fire

The Home Office recently produced the standards for all levels of fire officers up to Chief Officers. A group of industry specialists will be shortly brought together to review what aspects of these standards are relevant to the petroleum industry.

○ Safety

The basic safety practitioner standards have been produced for consultation. They are expected to be published in the autumn. Again, as with the transport standards, these will be 'generic' or general standards applicable across the whole of British industry and there will be a need for them to be reviewed in the light of the petroleum industry's special needs.

○ Other generic standards are now available in a number of other key areas: sales and marketing administrative, commercial, management and supervisory, information technology, accounting, training and soon personnel. Many organisations have found it valuable to use these and other standards to assess their in-company training programmes and job specifications.

Information on the PESC standards and other topics is available from PESC. General up to date information on the current situation on N/SVQs is available from the National Council on Vocational Qualifications which publishes a booklet, The NVQ Monitor, a free publication available on request.

The Offshore Petroleum Industry Training Organisation (OPITO) has further increased its list of organisations which have been accredited to provide training in accordance with OPITO industry standards.

At a recent ceremony in Rotterdam, John Batchelor (Chief Executive of OPITO) presented three certificates to Peter de Jong (Managing Director of RISC Education and Training BV) covering:

Four-day Offshore Basic Firefighting

Four-day Offshore Basic Fire Teamwork

Four-day Offshore Basic Fire Team Leader

RISC is the second organisation outside the UK to receive accreditation; the Maritiem Training Centrum BV, which also operates in Rotterdam, has accreditation with OPITO to provide the complete range of OPITO industry standard courses involving survival.



EDUCATION AND TRAINING

NVQs: The next stage

When employers tell Marie Taylor, Director of Communications, National Council for Vocational Qualifications (NCVQ), that National and Scottish Vocational Qualifications are not for them, she asks them some simple questions:

'Why don't you want to know whether your staff are performing effectively? How can you tell your good employees from the bad, the motivated from the apathetic, the reliable from the shirkers, the skilled from the unskilled?'

'To my mind,' she adds, 'this is what the VQ system is really about.'

With VQs at levels 1-4 now in place and covering 80 percent of the workforce, NCVQ is ready to embark on a new phase of promotion: 'To use a marketing analogy, the product is on the shelf. We now want to help employers and staff deal with the pragmatic issues involved in putting the system into practice.'

According to a recent Institute of Manpower Studies report, said Ms Taylor, over 89 percent of employers currently using NVQs intend to continue doing so. But the same report shows that take up among smaller firms is poor, with at least one in five employers saying that they want to see evidence of the benefits before introducing NVQs.

One way in which NCVQ aims to alleviate employers' concerns is through the 'NVQ Casebook' which shows how some 100 companies have introduced NVQs and the benefits they have obtained. This will be published shortly.

It also highlights the flexibility of the system. 'It is often forgotten,' said Ms Taylor, 'that there is no one model for introducing NVQs; each company has different requirements and different resources.'

For example, in some companies in-house 'champions' have facilitated the introduction of NVQ by winning the support of senior and line managers. Smaller companies have preferred to get guidance on training and assessment from external consultants.

The case studies also show that NVQs increase employees' understanding of what is expected of them and make them feel that their achievements will be recognised.

It is clear, said Ms Taylor, that using on-the-job training and assessment improves internal communication and staff morale: 'Translate this into the benefit for companies as a whole and this boost to morale often leads to bottom-line improvements; satisfied employees = satisfied customers.'

This item previously appeared in Employment Gazette.

Keep up to date on the laws for oil and gas

The Centre for Petroleum and Mineral Law and Policy at the University of Dundee expects an even greater international audience than last year for its professional training seminar programme in September. More than 300 professionals from over 50 countries attended a series of lectures, seminar discussions and applied workshops last year to examine issues facing energy and resource companies.

A series of seminars extending over four weeks has been arranged on topics such as UK Oil and Gas Law, EC Developments, Environmental Regulations of Oil and Gas industries, International Oil and Gas Politics and Negotiating and Drafting Contracts in Oil and Gas Industries.

The courses which will take place in Dundee, St Andrews or London, will be instructive for lawyers, economists, accountants, negotiators, technical staff and government relations managers.



Watched over by Professor Thomas Walde, Dr John McKinnell of the Aberdeen Branch wearing his Fellow's tie is seen presenting an IP Student Prize to Sheikh Yahaya for his scholastic achievements on the LLM course in Resources Law and Policy at Dundee University.

Dr McKinnell who is director of UKOOA in Aberdeen also gave a talk on the oil and gas industry to other students at Dundee. Sheikh Yahaya has now returned to the Nigerian National Petroleum Corporation in Lagos following work assignments at different locations in Europe.

Did you take your daughter to work?

On 28 April three million American girls aged 11 to 15 accompanied a relative or friend to work in the second year of an experiment that has now crossed the Atlantic.

Some oil companies are included in the 100 companies visited by 50,000 daughters in the British version of the scheme which is hoped will expand dramatically next year.

Research has shown that at around the age of 11 girls can begin to suffer a marked lack of esteem and confidence. However early access to the demonstration by adults that the world of work is as open to women as it is to men together with information about career choices can act as a strong counterbalancing influence.

'Women into Science and Engineering' (WISE) regularly produce two booklets to encourage young girls to consider a career related to science and engineering. One is a directory of awards, courses, visits, career break schemes and other initiatives organised by a wide variety of organisations throughout the country; the other, 'Engineering Equals', is a booklet prepared predominantly for parents with information, ideas contact addresses and hints on how parents can help their daughters take part in and have a better understanding of many activities which involve science and technology.

Newest IP branch holds successful meetings

The Netherlands Branch, set up in 1993, is becoming more widely known and more and more members are being attracted to the programme of meetings and visits organised by its enthusiastic committee, currently chaired by Chris Fisher of Det Norske Veritas.

The April meeting took place at the International Institute of Energy Law in Leiden. A lively discussion followed two very topical talks on 'Oil and Gas Law in the Former Soviet Union - new ways forward in theory and practice' which were presented by Dr Peter Cameron of the International Institute of Energy Law of the University of Leiden and Dr EP de Rooy of Shell International Petroleum Maatschappij, The Hague. Some 30 members and guests, including the legal/commercial attaché of the Russian Embassy in The Hague, listened to the different approaches and viewpoints from the academic and the industrial world. A legal basis of the Russian law could be seen in the Napoleonic code of the pre-1918 era - this resembles the Dutch offshore concession law in many ways. Modern laws, similar to the Dutch offshore concession law, were in a period of development in the former Soviet republics. Both speakers stressed that laws are not made from one day to the next, as shown by the time taken over much of the European legislation enacted over the last 15 years.

An even larger group of people, consisting of 65 members and guests, visited the NEREFECO refinery in Rotterdam on 8 June. They were welcomed by Messrs C Fisher, YC van Staalduijnen, Operations Manager,

and A Harrison, Refining Manager, NEREFECO. Mr Fisher gave the meeting a brief update on past activities of the branch and its aims and objectives for the future.

Mr Harrison gave a presentation on NEREFECO, a joint venture between BP and Texaco established in 1989. Both companies, in the mid 1980s, were forced to

operate at a lower cost price and to produce high-graded fuel in order to be able to compete with other companies. Large investment was required but the market situation, with its world-wide surplus of refining capacity, did not justify this. BP and Texaco were independently searching for a solution. From studies it was proved that what one refinery lacked, the other one had and the other way round. The result is both a technical and a commercial cooperation between the two sites that are located 25 kilometres from each other. The BP refinery can use Texaco's desulphurisation unit for gas oil and the unit for lead-free petrol with a high octane content. Texaco can use BP's modern cracking installation for the conversion of fuel oil.

The production capacity of the joint venture amounts to 420,000 barrels of crude a day (17 million tonnes a year). The total Dutch

consumption amounts to 30 million tonnes annually - in other words, if NEREFECO were to produce for the Dutch market on its own, the organisation could supply more than half of the total Dutch market with fuel. The two locations produce a whole range of products, from heavy fuel oil to petrol and LPG. The finished products are despatched to depots, service stations, industry and shipping by road, rail and water.

After the presentation and discussion period two coaches took the visitors on a tour of the refinery.



At the Netherlands Branch meeting in April, Chris Fisher (right) presents an IP Student Prize to Julian Hailstone, now employed as a petroleum engineer by Shell International in The Hague. The award was for outstanding performance on the M Sc course in Petroleum Engineering at the Imperial College of Science, Technology and Medicine in London.



Alan Harrison, NEREFECO



Around the Branches

North East Branch

7 July: Evening visit to ICI Wilton Olefins plant

Southern Branch

19 July: 'Review of the State of the Art Technology to make high octane components.'

West of Scotland Branch

17 August: Inter-Branch Golf Tournament, Crieff Golf Club.

15 September: West of Scotland Annual Golf Tournament, Ralston Golf Club.

For further details, contact: W H Beaton, 63 Carlton Place, Glasgow G5 9TW, Tel: 041-420 1322

NEW MEMBERS

Mr G F Adcock, Adcock Associates Design Practice, 10 John Street, Stratford upon Avon, Warwickshire, CV37 6UB
 Mr R M Alcalay, 53 Westmount Road, Eltham Park, London SE9 1JF
 Mr A Al-Fuhaid, Saudi Petroleum Overseas Ltd, Berkeley Square Hse., Berkeley Sq, London
 Mr J Al-Taie, Middle East Trading & Oil Svcs Ltd, PO Box 395, Kingston S, Surrey, KT2 7YN
 Mr A Amu, Penspen Limited, Darpen House, Citadel Place, Tinworth Street, London, SE11 5EH
 Mrs B Andskog, DNV Petroleum Services, Haastrechtstraat 7, 3079 DC Rotterdam, Netherlands
 Mr K Arnold, Hytek (GB) Limited, Golds Business Park, Elsenham, Bishop's Stortford, Herts, CM22 6JX
 Mr A M Azmoudeh, Inter-Oil (UK), 50 Hans Crescent, London, SW1X 0NB
 Mr D J Baker, 32 Richardson Crescent, Hethersett, Norwich, Norfolk, NR9 3HS
 Mr R G J Baker, Babcock Energy Ltd, 11 The Boulevard, Crawley, Sussex, RH10 1UX
 Mr B M Bambridge, Stowecroft, Forest Road, East Horsley, Leatherhead, Surrey, KT24 5BA
 Dr S Bashir, 47 Farmilo Road, Walthamstow, London E17 8JL
 Mr A M Bidiwi, 20 The Acorns, 95 Augustus Road, Wimbledon SW19 6EQ
 Mr M E Bridge, 11 Court Close, Portishead, Bristol BS20 9UX
 Mr C H B Broad, Exploration Data Services, Britannia Data Management, 114 - 118 Southwark Bridge Road, London SE1 0EF
 Mr L P Broberg, Scandinaviska Raffinaderi AB, Scanraff, S-453 81 Lysekil, Sweden
 Mr M J Carr, John Cole Surveying Agency, 111 Neath Road, Briton Ferry, Neath, West Glamorgan, SA11 2DX
 Mr P A Ceoney, 54 Tintern Way, West Harrow, Middx, HA2 0SA
 Mr T K Chan, Flat 5 D, Block 6, Pokfulam Gardens, 180 Pokfulam Road, Hong Kong
 Mr C Christensen, Oil & Gas, Inmarsat, 99 City Road, London EC1Y 1AX
 Mr D Christmas, Lasalle Engineering Ltd, Harlaw Road, Inverurie, Aberdeenshire AB51 4TE
 Mr J C Clark, 12 Connorton Farm, Greenbank, Connor Downs, Hayle, Cornwall, TR27 5DA
 Mr I Clyde, Director, IC Quality Management, Blinkhoolie, Sandport, Kinross, KY13 7DN
 Mr M J Cobbin, 61 King Arthur Court, Cheshunt, Herts, EN8 8EH
 Mr N D Copley, McLarens, 4 New Street, London EC2M 4TP
 Mr M F Coghlan, Irish Shell, Shell House, Beech Hill, Clonskeagh, Dublin 4 EIRE, Ireland
 Mr A J C Cort, 11 Camps Road, Carnock, Dunfermline, Fife, KY12 9JP
 Mr C G Couchman, Bayerische Landesbank, London Branch, Bavaria House, 13-14 Appold Street, London
 Mr S Courtney, 5 Redwood Drive, Great Sutton, South Wirral, L66 2YA
 Mr R L Crawford, Esso Petroleum, Fawley Refinery, Fawley, Southampton, SO4 1TX
 Mr S J Daum, Petrotechnical Data Systems, Bioemcamplaan 10, 2244 EC Wassenaar Netherlands
 Mr E D'Hoop de Syngem, Ameristar Fuels Corp, 37 route du Jorat, 1000 Lausanne-Montblesson 27, Switzerland
 Miss C E D'Netto, McDermott Marine Construction, McDermott Hse., Empire Way, Wembley, Middx, HA9 0NN

Mr J A B Dunlop, Amerada Hess Limited, 33 Grosvenor Place, London SW1X 7HY
 Mr A Edu, 35 Circus Lodge, Circus Road, St Johns Wood, London NW8 9JN
 Mr M V Elliston, Three Quays Marine Services Ltd, 12-20 Camomile Street, London EC3A 7AS
 Mr T Ellmer, Samuel Banner & Co Limited, 24-26 Marshgate Lane, Stratford, London E15 2NH
 Mr B R Evans, Ribasa, Wash Water, Newbury, Berkshire, RG15 0LU
 Mr R G C Evans, John Cole Surveying Agency Ltd, 111 Neath Road, Briton Ferry, Neath, West Glamorgan, SA11 2DX
 Mr J G Farrington, 160 Wolverton Road, Stony Stratford, Buckinghamshire, MK11 1DD
 Ms C L Felix, Reuters (UK) Limited, 85 Fleet Street, London EC4P 4AJ
 Mr A S Ferguson, 13 Old Church Lane, Kingsbury, London NW9 8TG
 Mr L A Field, 54 Hazelwood Close, Cambridge CB4 3SW
 Mr D Gibson, 3 Bradley Peak, Teg Down, Winchester, Hants, SO22 5NL
 Mr T J Giletti, Bankers Trust, 1 Appold Street, Broadgate, London EC2A 2HE
 Mr C C Goonetilleke, Culvie, 3 Abbotshall Crescent, Cults, Aberdeen, AB1 9JQ
 Mr S J Gosling, Poulten Selfe & Lee, Russell Works, Wickford, Essex, SS11 8BJ
 Mr D Hall, Cunningham IAP Limited, International House, World Trade Centre, 1 St Katharines Way, London E1 9UN
 Mr G J Halley, Osborne House, Hermitage Road, Cold Ash, NEWBURY, Berkshire, RG16 9JG
 Mr R J Hamilton, 9 Marshwood Road, Lightwater, Surrey, GU18 5QZ
 Mr C P A Harris, 38 Church Lane, Wendlebury, Bicester, Oxon, OX6 8PN
 Mr G C Hill, ECHA Microbiology Ltd, Unit M210 Cardiff Workshops, Lewis Road, East Moors, Cardiff, CF1 5EG
 Mr P Howard Sceats, MCS Ltd., Maycroft House, Toot Hill Road, Ongar, Essex, CM5 9LH
 Dr R L Hurlle, Core Laboratories, Howe Moss Drive, Kirkhill Industrial Estate, Dyce, Aberdeen, AB2 0ES
 Mrs S Jagust, 7 St Georges Court, Gloucester Road, London SW7 4QZ
 Mr A D Jessop, Societe Generale, 60 Gracechurch Street, PO Box 513, London EC3V 0HD
 Miss M T A Jones, Silveracre House, Grange Road, Rathfarnham, Dublin 16 Ireland
 Mr W M Jones, Plas Gwyn, Axton, Holywell, Clwyd, CH8 9DH
 Mr S P Kelson, 45 Hickmans Lane, Lindfield, Haywards Heath, West Sussex, RH16 2BZ
 Mr R Kerr, Stamford Mews, 31 Bacon Lane, Hayling Island, Hants, PO11 0DW
 Mr J S Kershaw, 2 Brackendale Way, Reading, Berkshire, RG6 1DZ
 Ms C M S Kovacs, Muse Stancil & Company, 3 Berkeley Square, London, W1X 5HG
 Mr C J G Lapsley, 12 Ballaig Avenue, Bearsden, Glasgow G61 4HA
 Mr P Leahy, Eyrefield, The Curragh, Newbridge, Co. Kildare, Ireland
 Mr P O Lighton, 100 Triq il Ghasel, Mellieha, SPB 11, Malta
 Mr N Longman, Andersen Consulting, 2 Arundel Street, London, WC2R 3LT
 Mr A Macdonald, Seaboard Lloyd Ltd, 2 Old Quarry Road, Westfield Ind Pk, Cumbernauld, Glasgow, G68 9NB
 Mr K I Maxwell, Ledwood, Construction (Southern) Ltd, Unit 4 Mitchell Close, Segensworth, East, Fareham, Hants, PO16 5SE
 Mr D McDowell, DMD Sales Ltd (Dipetane Intn'l), Unit 12 Harbour Industrial Estate, Bray, Co. Wicklow Ireland
 Mr R A B McGrigor, Arthur Andersen, 1 Surrey Street, London, WC2R 2PS
 Mr M H A Milne, Mandraki Associates, 21 Anglesea Road, Ballsbridge, Dublin 4, Ireland

UK Deliveries into Consumption (tonnes)

Products	†Apr 1993	*Apr 1994	†Jan-Apr 1993	*Jan-Apr 1994	% Change
Naphtha/LDF	163,007.0	245,302.0	1,051,546.0	1,030,743.0	-2
ATF - Kerosene	548,594.0	549,833.0	1,990,191.0	2,079,696.0	4
Petrol	1,999,224.0	1,899,821.0	7,760,645.0	7,381,953.0	-5
of which unleaded	1,032,280.0	1,074,252.0	3,935,355.0	4,131,427.0	5
of which Super unleaded	123,128.0	120,672.0	478,634.0	459,635.0	-4
Premium unleaded	909,152.0	953,580.0	3,456,721.0	3,671,792.0	6
Burning Oil	199,598.0	141,340.0	1,035,538.0	1,245,428.0	20
Derv Fuel	938,066.0	1,010,501.0	3,804,654.0	4,047,432.0	6
Gas/Diesel Oil	594,646.0	621,329.0	2,840,048.0	2,798,439.0	-1
Fuel Oil	789,915.0	820,989.0	3,612,655.0	3,410,736.0	-6
Lubricating Oil	69,337.0	61,396.0	272,596.0	253,927.0	-7
Other Products	578,570.0	652,425.0	2,563,718.0	2,568,585.0	0
Total above	5,880,957.0	6,002,936.0	24,931,591.0	24,816,939.0	0
Refinery Consumption	501,869.0	523,195.0	2,052,921.0	2,084,996.0	2
Total all products	6,382,826.0	6,526,131.0	26,984,512.0	26,901,935.0	0

† Revised with adjustments *preliminary

Mr T E Mitchell, 47 Beech Crescent, Larbert, Stirlingshire, FK5 3EX
 Mr B R Murfin, Whitmarsh Farm, Winsor Lane, Winsor, Southampton, Hampshire, SO40 2HG
 Mr J B Oakey, FW Management Operations Limited, Foster Wheeler House, Station Road, Reading, RG1 1LX
 Mr E W Olson, Reo International Ltd, BP Hse, 30 Mechlin Street, PO Box 4256, Monrovia Liberia
 Mr J D Owen, North of England P & I Assoc Ltd, 2-8 Fenkle Street, Newcastle upon Tyne, NE1 5DS
 Mr B J Pearce, 9 Wales Lane, Barton under Needwood, Burton upon Trent, Staffs, DE13 8JF
 Mr R P Peryer, 60 Blackbrook Lane, Bickley, Bromley, Kent, BR2 8AY
 Mrs S Petersen, Oksendrupvej 49, DK-5871, Frorup, Denmark
 Mr D F Pinto, Rhomax Engineering Limited, Unit 7, Souterhead Business Park, Souterhead Road, Altens, Aberdeen, AB1 4LF
 Mr D Purcell, Finol Oils Ltd, 3 Stanaway Drive, Dublin 12, Ireland
 Mr C M Reiter, 14 St Ronans Circle, Peterculter, Aberdeen, AB1 0NE
 Mr H Ridha, Aledan Limited, 12 Leinster Gardens, London, W2 6DR
 Mr J J A Riley, Messrs Lawrence Graham, 190 Strand, London, WC2R 1JN
 Mr Z S Rustom, Hi-Bar (UK) Limited, PO Box 228, Horsham, West Sussex, RH13 5FB
 Mr M G Salameh, 29 Mount Close, Cockfosters, Barnet, Herts, EN4 0AG
 Mr A J Saunders, AMEC Process & Energy Ltd, 106 Tottenham Court Road, London, W1A 1BT
 Mr K Scott, Cunningham I A P. International Hse, World Trade Centre, 1 St Katharines, Way, London, E1 9UN
 Dr R D Seller, 26 Middle Boy, Abridge, Romford, Essex, RM4 1DT
 Dr E Silbige DELKOL, PO Box 31, Lod 71100 Israel
 Mr G D Smith, 7 Crescent Gardens, Eastcote, Ruslip, Middx, HA4 8SZ
 Mr S W Smith, 10 Nobel View, Reddingmuirhead, Falkirk, Scotland, FK2 0EF
 Mr J W Stebbings, 41 Granville Road, Barnet, Herts, EN5 4DS
 Mr D W Steward, Ince & Company, Knollys House, 11 Byward Street, London, EC3R 5EN
 Mr M D Stokes, 7 Bois Hall Gardens, Halstead, Essex, CO9 2HX
 Mr S C Styles, Dept of Private Law, University of Aberdeen
 Mrs K Sund, Penspen Economics, Darpen House, Citadel Place, Tinworth Street, London, SE11 5EH
 Mr A J G Swinton, 11 Kildrummy Road, ELLON, Aberdeenshire, AB41 9FY
 Mr H Syed, Director, Syedsons International (UK) Ltd, 27 Garratt Terrace, London, SW17 0QE
 Mr A Szczesniak, Polska Izba Paliw Plynnych, Nowogrodzka 31, 00-511 Warsaw Poland
 Mr T Teinila, 100 Earls Court Road, London W8 6EG
 Mr J M Thompson, Unocal Thailand Limited, Central Plaza Office Bldg, 12th Floor, 1693 Phaholyothin Road, Bangkok 10900 Thailand
 Mr S Thom, 26 Marsh Place, Portlethen, Aberdeen, Kincardineshire, AB1 4SW
 Mr N F Trimble, The Energy Contract Company Ltd, Tide End House, Riverside, Twickenham TW1 3DJ
 Mr J R Turner, Dr Augustus Voelcker & Sons Ltd, 380 Bollo Lane, London, W3 8QU
 Mr D M Vail, Mobil Sales & Supply Corp, Mobil Court, 3 Clements Inn, London, WC2A 2EB
 Mr N Vizansky, BERMAD, Kibutz Evron, Oshrat Zip 25235 Israel
 Mr R R A Ward, 34 Hillside Avenue, Whitefield, Manchester, M45 7SH
 Mr V B Ward, Ashbank, 105 Main Street, Redding, Falkirk FK2 9UQ
 Mr K G Warner, 25 Green Hills Road, Norwich, Norfolk, NR3 3ET

STUDENTS

Mr A B Bank-Anthony, 3 Herbert Morrison Clem Attlee Crt, Lillie Road, Fulham, London SW6 7SZ
 Mr N Davidson, 5 Canute Drive, Brangore, Christchurch, Dorset, BH23 6AH
 Mr P Dorsett, 3 Canute Drive, Brangore, Christchurch, Dorset, BH23 8AH
 Mr P J Edwards, c/o 38 Timber Bank, Vigo Village, Meopham, Gravesend, Kent, DA13 0RZ
 Mr T Gray, 1 Newmans Close, West Moors, Ferndown, Wimborne, Dorset, BH21 6QL
 Mr R J Loftus, 2 Newmans Close, West Moors, Wimborne, Dorset, BH21 6QL
 Mr A Maddison, c/o Officers Mess, The Petroleum Centre RLC, West Moors, Wimborne, Dorset, BH21 6QS
 Mr P Saha, Chemical Engineering Dept, University College London, Torrington Place, London, WC1E 7JE
 Mr J Paterson, 1 Canute Drive, Brangore, Christchurch, Dorset, BH23 8AH
 Mrs A F Peak, c/o Officers Mess, Petroleum Centre RLC, West Moors, Wimborne, Dorset, BH21 6QS
 Mr S M Shastri, Flat 5, 83 Anson Road, London, N7 0AS
 Ms S M A Wong, University College London, Torrington Pl, London WC1E 7JEZ

NEW FELLOWS

Mr M R Withers

Mr Withers has previously worked on World Bank projects in the Peoples Republic of China and Africa. As an independent consultant for Fire Protection Consultants, London, his work took him to North Africa, the Arabian Gulf and Pakistan. He has spent nine years in the Arabian Gulf in oil exploration construction and production safety with the Arabian American Oil Company and with Pool Arabia, a Houston-based drilling company, as the Middle East Safety Director for onshore and offshore drilling operations in Saudia Arabia, UAE, Oman, Pakistan and India.

Mr G J Balchin

A graduate in Management Studies, Mr Balchin has gained over 15 years experience within the oil and gas industry primarily serving in project management and engineering roles both in the United Kingdom and overseas. Commencing his career with Catalytic International Inc., Mr Balchin has worked for many of the oil majors including BP and more recently Amerada Hess. In 1993, Mr Balchin was appointed Head of Projects for Reverse Engineering Ltd specialising in the abandonment, decommissioning and removal of offshore structures.

NEW COLLECTIVE MEMBERS

Samuel Cooke & Co Limited, Wyre Street Oil Depot, Wyre Street, Padiham, Burnley, Lancs.

IP Nominated Representative: Mr Frank Carroll
 Samuel Cooke & Co Ltd are fuel oil distributors, lubricant manufacturers and distributors, forecourt and retail operation and developments, natural gas suppliers.

WM Associates, The Software Factory, Glutton Bridge, Longnor, Buxton, Derbyshire.

IP Nominated Representative: Mr S Mansfield
 SWM Associates offer Petrosoft, a computerised terminal automation solution for use on oil terminals and distribution depots. Petrosoft consists of two main products; Petromanager, a real-time control and monitoring package and Petrostocks, a stock control system. They can be used as stand-alone packages or linked together.

CWA Consultants Limited, Worship Mews, 91 Worship Street, London EC2A 2BE.

IP Nominated Representative: Mr David Jones
 CWA is an independent consultancy practice providing a comprehensive range of technical and operational advisory and survey service to the oil and petrochemical industries and allied marine and energy insurance sectors.

Chemviron Speciality Chemicals Limited, 4 The Pavillion, Business Park, Royds Hall Road, Leeds LS12 6AJ.

IP Nominated Representative: Mr Byron Uttley
 Chemviron is the European Division of the US Calgon Corporation, which manufactures speciality biocides for the oil, water, paper and polymer industries.

Clifford Chance, 200 Aldersgate Street, London EC2A 4JJ.

IP Nominated Representative: Mr A M Jones
 Clifford Chance is an international energy law firm. It has over 1,200 lawyers and operates from 21 offices around the world. Its specialised 'Energy and Natural Resources Group' deals with legal issues concerning the petroleum industry.

Orcol Fuels Limited, Morley, Leeds, West Yorkshire.

IP Nominated Representative: Mr R A Sturdy
 Orcol Fuels Limited collects waste hydrocarbon oils which are processed to produce recycled fuel oil and re-refined lubricating oil.

EMO Oil Limited, Castle Centre, Bridge Street, Swords, County Dublin, Ireland.

IP Nominated Representative: Mr T Kirrane
 EMO Oil is an independent oil distributor.

Land Rover gas survey vehicle

GMI has launched a new Land Rover gas survey vehicle, which monitors gas concentrations as it surveys the main pipeline routes.

The gas sensors are specific to genuine leaks and all vehicle emissions are filtered out.

All data is recorded on a computer carried within the vehicle and the exact location of the vehicle can be monitored using a satellite navigation system. Equipped with a fully automatic climatic condition recorder, it can also be fitted with video equipment for position recording.



Survey vehicle on the look-out for gas leaks

Process indicator

Fischer and Porter have released a new process indicator/totaliser unit into their Micro-DCI family.

The 531T5100 monitors and displays up to four process variables with alarms, integration, totalising, square root extraction and digital filtering for each input. A suite of six operator displays includes a built-in annunciator for two external event inputs. Other features include an RS422 datalink port for use on a network and a built-in 24V supply for two wire transmitters.

Housed in a 72 x 144mm enclosure, the unit is designed for flush panel mounting either singly or in groups.

Racal begins Kazakhstan survey

A team from Racal Survey has begun working on Kazakhstan's Caspian Sea coastline to establish a 'highly accurate' geodetic network which will be used for controlling future on and offshore seismic operations.

The geodetic survey contract has been awarded by the state company, Kazakhstancapishelf (KCS) on behalf of a consortium of firms.

The Racal party consists of geodesists and surveyors drawn from Racal Survey in the United Kingdom and from its Netherlands subsidiary, NeSA. They are working closely with Kazakh personnel on the project, which has been divided into five parts.

The first task is to conduct a

static differential GPS carrier phase survey in relation to several IGS fiducial stations and derive sub-metre accuracy coordinates on WGS84 datum for two existing geodetic points.

The second part involves performing a static differential GPS survey of several existing geodetic points. Other tasks include connecting the entire geodetic network to reference levelling markers, determining the accuracy of the existing geodetic network and deriving a seven parameter datum shift between the local datum and WGS84 datum.

Racal is providing all land survey equipment needed for the project.

Bibliography of North Sea Regs

The newly-published sixth edition of the Bibliography of North Sea Regulations is the most comprehensive yet, with reference to regulations, certification rules, codes and guidance notes that apply in the United Kingdom, Norway, the Netherlands, Denmark and Ireland – and for the first including references to European Directives.

'Since the 1992 edition, there have been a large number of changes to the regulations,' says publisher Tom Hollobone. 'The decision to introduce references to national regulations based on relevant European Directives required a good deal of ferreting and we added a legal expert to the team to help us track the position in the other European countries. The result is a unique reference work for the North Sea.'

The bibliography is produced in two volumes, the first covering the United Kingdom, EC Directives and national and international certification rules and guidance notes. Volume two covers Norway, Denmark, the Netherlands and Ireland, and the European and international information. Full details of publishers are also given.

Over 50 national and international authorities are cited.

Level transmitter permits multiple applications

A new, high-precision and reliable liquid level sensor, the MTS Model DDA, allows multiple level transmitters to be connected via an RS485 Bus to a central Data Acquisition Point.

High accuracies of +/-0.025 percent FS coupled with repeatabilities of 0.03mm and 'quite exceptional' linearity positively eliminate long term drift and avoid the need for recalibration once the span and zero have been set. In addition, there are no reed switches within the probe to offer a focal point for failure.

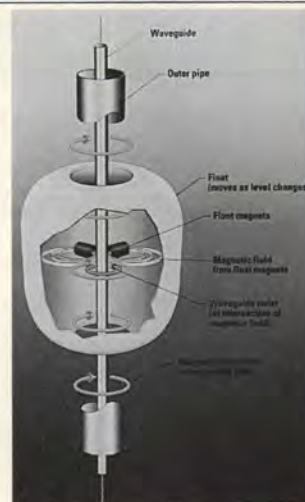
Available from Allison Engineering of Basildon, this newly-certified CENELEC EEx ib IIB T4 'Intrinsically Safe' instrument operates on the principles of magnetostriction utilising

a wave-guide over the length of the probe, which is subject to a torsional deflection when an induced current pulse is interrupted by a magnetic field.

The sensor has been designed with the oil and gas industries in mind, where high accuracies are essential. A 4-20mA analogue output is provided, together with the necessary control electronics.

Designed in the United States, where it is already available, the sensor is now manufactured in Europe by MTS GmbH.

Although extremely sensitive, the design is contained within a robust and well-proven probe. Available in a range of materials and coatings, it is ideally suited for corrosive conditions within all industrial plants.



High-precision liquid level sensor

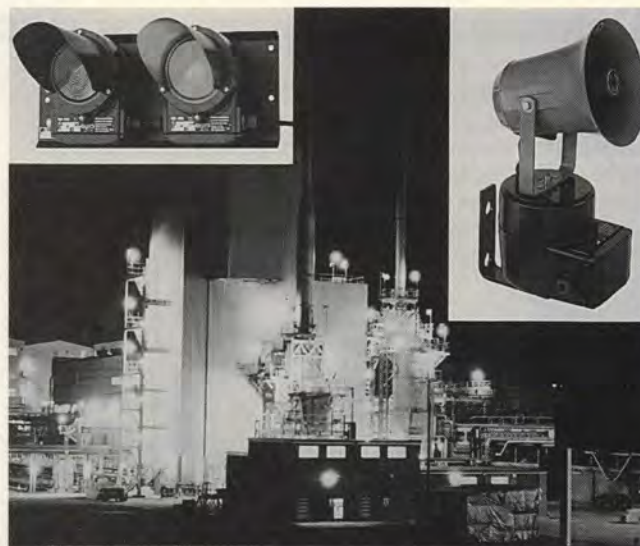
Warnings for hazardous areas

Newly-available in the UK from SA Equipment are two new products in the explosion-proof range of signalling devices from Funke and Huster. Both are designed for use wherever explosion hazards may occur due to the production, processing, transportation or storage of flammable liquids and gases.

The Ex Sound Generator dEV4/11 offers eight different signals – siren, warble, continuous, increasing, descending, DIN 33404 emergency signal and three tone gong, which can be used to warn and advise personnel throughout the

plant of regular events or emergency situations. Voice transmission is also provided. Certified to EEx de IIC T6 and with an operating temperature range of 40°C to -20°C, sound volume can be adjusted to give a maximum of 118 dB(A) at one metre.

The EEx Traffic Light dSAM 20 carries the same certification as the Sound Generator and comes with red and clear lenses illuminated by 60W E27 bulbs for use as a derailing stop. It is also available in vertical road traffic light format with red, amber and green lenses.



Two new signalling devices to prevent explosion

System for borehole seismics

Andrews Hydrographics have developed a field survey unit for the precise positioning of energy sources and borehole geophones during borehole seismics.

The new VSP-FSU contains a powerful processor suitable for all types of VSP work, from straightforward vertical incident operations, in which the source is positioned directly above the geophone, to remote positioning during static offset and more complicated 3D walkaway surveys. It allows dual navigation from any combination of DGPS or traditional signals.

Constructed from ruggedised components and with an

environmentally-sealed keyboard, the FSU is especially suited to vessels of opportunity. It can be transferred easily to and operated from any available oil support vessel. The unit is designed to withstand repetitive making and breaking of connections and general wear and tear during mobilisations. All the FSU's external sockets are set into the front panel for rapid wiring.

The system's VIGA software enables contractors to process their data on standard, readily-available computers such as office PCs. QA programmes confirm readings throughout the survey.

Fast data broadcasting

The latest PC interface from Datastripe and Registrator Industries has been designed to allow efficient branch-level communications.

Known as the PC485-4C+ Network Controller, the new interface distributes information from the head office of any large organisation to its branches via the television or satellite data broadcasting networks.

The new interface board combines both a data broadcast receiver and a 485 network controller card. This unit plugs neatly into the receiver PC located within each branch and allows important information sent from head office to then be

transmitted at a rate of 19.2 Kbits/sec to any other device located on the network.

These devices may take the form of other PCs in a standard office environment or alternatively Point of Sale (POS) terminals, display units or card readers within a retail environment. As an alternative, the transmitted data may be stored in a database for interrogation by the devices on the network. Controller software ensures the security and integrity of all data transmitted.

The receiver PC is linked to the other devices on the network using thin telephone cabling. Radio links are also available.

Gas analysis used for Orimulsion research

Ways to maximise the shelf-life of Orimulsion are being investigated by Hertfordshire University using an infrared gas monitor developed by Analytical Development Co and with funding from Bitor Europe.

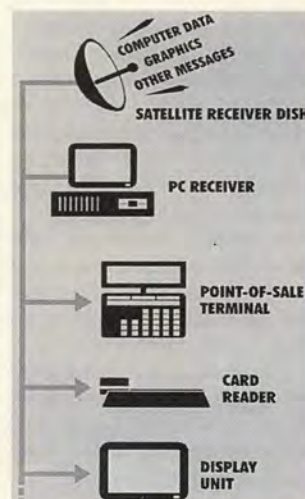
In order for the fuel to be pumped along pipelines, the bitumen is made into an emulsion with water. Chemicals are added to stabilise the emulsion, but these are gradually destroyed by certain bacteria. As a result, the

bitumen particles clump together and fuel does not flow well.

Hertfordshire University aims to develop a bacteria-resistant Orimulsion which remains free-flowing for a minimum of six months. The rates at which bacteria break down different types and concentrations of emulsifying agents are being investigated. The researchers are also looking at ways in which preservatives, salts and minerals affect bacterial breakdown.

To follow breakdown activity, carbon dioxide given off by the bacteria living in Orimulsion is being measured. Providing highly accurate readings within a very low concentration range of 300-10,000ppm, the ADC analyser is able to measure the tiny amounts of carbon dioxide produced.

The eight gas sampling channels, a sample switching unit and pumps allow the research team to follow breakdown activity in eight different emulsions at the same time.



PC485-4C+ network controller

Linkman extends emergency cover

A second emergency response and fleet support unit has been introduced by Linkman Tankers, the hazardous liquids and gases distribution business of TDC, to service its growing operations in the south of England.

Based at Linkman's Purfleet, Essex depot, the new unit complements the recently-upgraded emergency response vehicle stationed at Batley in West Yorkshire.

In the event of a road

traffic accident or hazardous cargo spill, one of the units will attend the incident to provide the police and fire brigade with expert advice and assistance. Once on site, the engineers will assess the situation in conjunction with the authorities and oversee any clearing-up operation.

The specialist equipment carried on both units, to which the emergency services do not usually have immediate access, allows the full range of products carried by the fleet (including petroleum, flammables, general chemicals, acids, bitumen and industrial gases) to be transhipped from a full-laden damaged tank in under 45 minutes. From Batley and Purfleet, the units can reach any part of the United Kingdom within a matter of hours.



Linkman introduces emergency unit to the south of England

Relief valve pressure test rig

A new Safety Relief Valve Pressure Test Rig has been introduced by test equipment manufacturers, Startrite Designs.

Known as the model PTVI, the rig incorporates a pressure valve from which a volume of air or gas is released enabling the valve to be exercised, or lifted, when the checking and setting operation takes place.

This phase of the full test procedure is sometimes known as Pop Testing, and is carried out to ensure that the relief valve will lift satisfactorily and not seize or hang up when operating in air, gas, vapour or liquid service conditions.

An interlocking system prevents pressure from being applied if the valve has not been securely clamped into position. Compact and economically priced, the model has been introduced to meet the latest demands of international safety authorities covering pressure equipment and pipework installations.

In addition to the free standing unit, the rig can be supplied mounted on a trolley as a mobile test facility for use in refineries.

New chiller range for reduced costs

Sulzer (UK) is now marketing a new version of its Unitop chillers, which has been improved to reduce users' operating costs.

High thermal performance tubes with new fin configurations have been selected both to give lower absorbed power levels and to cover the heat exchangers for the environmentally-friendly refrigerant, R134a.

After 2,000 running hours at the works of Sulzer Fritherm AG in Winterthur, Switzerland, and 20,000 running hours at

an installation in Zurich, the new version has successfully reduced operating costs by eight percent, according to Sulzer.

Unitop is a packaged centrifugal refrigeration unit which is used mainly for industrial applications where reliability and economy are important, such as process cooling within hazardous areas in the chemical, oil and gas industries.

Its capacity ranges from about 1,000 kW up to 30,000 kW, in five compressor frame sizes.

New lease of life for cooling tower

The life expectancy of a 38-year-old cooling tower at BP's Grangemouth complex has been 'prolonged indefinitely' through applying an Icoment concrete repair system, as recommended in a detailed repair strategy created for BP by WS Atkins Structural Engineering Ltd.

A combination of low cover to reinforcement and progressive carbonation had led to extensive spalling of the concrete surface. Damaged areas included unsuccessful attempts at repair over the years and vertical cracking of the shell walls through settlement.

All the materials used on the contract were supplied by

Sika. As well as the concrete repair system, these included injected Sikadur 52 epoxy resin to seal cracks in the shell and a Sikagard 680S protective and decorative methacrylic coating system applied to the entire structure.

Wide cracks in the concrete shell - primarily the vertical cracks of 0.3mm thick and greater - were injected on both the inside and outside faces with Sikadur 30 resin. Finer cracks, less than 0.3mm thick, were repaired by cutting a groove along the crack on the outside of the shell, priming the concrete and filling the groove with a cementitious repair mortar.

CONTACTS

Gas Measurement Instruments (GMI)	041 812 3211
T A Hollobone & Co	081 663 3858
Fischer & Porter	0946 830611
Racal	0734 669969
Allison Engineering	0268 526161
SA Equipment	081 203 6866
Andrews Hydrographics	0628 828331
Datastripe	0276 682921
Analytical Development Company	0992 469638
Linkman Tankers	0924 420445
Startrite Designs	0634 233216
Sulzer (UK)	0252 544311
Sika	0707 329241

Owen Jenkins has been appointed Managing Director of Kuwait Petroleum (GB). He has worked in the oil business for 30 years and is currently head of Kuwait Petroleum Benelux.

Brown and Root has appointed **Richard Martin** to succeed **Tony Peers** as Managing Director of its subsidiary Seaforth Maritime. Tony Peers will remain Chairman at the Aberdeen-based logistics specialists.

Rolf Stromberg will be assuming the Chairmanship of BP Oil Europe in October upon departure of **Christopher King**, the present Chairman. He is currently their Chief Executive Officer and the most senior German executive in BP.

Donald M. Waters became the fiftieth President of NACE International during the Association's annual conference CORROSION/94 in March. Mr Waters is an engineer at Corpro/PSG Corrosion Engineering in San Diego, California.



Tony Scales has been named Director of Sales & Marketing at the Exploration Products group of Western Geophysical, a division of the Western Atlas Inc. Jack Bull, Dr Rod Cotton and Don Stewart have also been appointed to key positions in product sales and marketing. Terry A. Lehman has been named Director of the division's worldwide quality programme.

Cad-Capture Ltd, the Blackburn based Document management specialist is pleased to announce the appointment of a new Systems Sales Executive **Brett Crawford**. Most recently, Mr Crawford was Marketing Programme Manager at IBM.

The Robert Gordon University has appointed leading oil industry engineer **Ian Phillips** to the Hamilton Chair of Offshore Operations at the University's Offshore Management Centre (OMC). Professor Phillips who has 15 years experience in the oil industry joins the Offshore Management Centre from Marathon Oil UK Ltd.

Bill Nicholson, former Estimating and Proposals Manager at AOC International, becomes a Director after spending over 18 years with the organisation. Since the founding of AOC International in 1976, Mr Nicholson has been responsible for their tenders, proposals and joint venture agreements.

Robin Reid has been appointed Manufacturing Director of Mobil Oil Company Ltd and Manager of Coryton Refinery. He started his new position on 16 May. Mr Reid succeeds **Tony Johnson**, who is returning to Mobil Corporation's headquarters in Virginia, USA, where he will take up a senior position in Refinery Planning and Operations.

To assist with their planned expansion programme, pipeline equipment manufacturers, International Pipeline Products Ltd has appointed **George Bailey** as Director of Sales & Marketing. Previously with British Gas On-Line Inspection Centre he is a Fellow of the Institute and currently Chairman of the North East Branch of the Institute of Petroleum.

The Board of the British Petroleum Company plc has appointed **Michael Miles**

OBE as a Non-Executive Director of the Company from 1 June 1994. He is also an Executive Director of John Swire & Sons and a Joint Deputy Chairman of Barings PLC. He is also on the boards of Portals Group PLC and Johnson Matthey PLC.

Richard A. Rosenberg is the new Executive Director Finance for Esso UK. Formerly assistant treasurer for Exxon Corporation he replaces **James I. Alcock** who returns to the United States as Assistant Controller for Exxon Corporation in Dallas. Mr Rosenberg is expected to be elected to the Board of Directors of Esso UK PLC.

Mobil Oil Company subsidiary, Prime Garages Limited has appointed **B.A. Soraci** General Manager. Previously Senior Planning Associate, Mobil Europe Limited Mr Soraci joined Mobil Corporation in 1984 working within the retail marketing division. He succeeds **L.J. Mason**, who moves to Mobil Europe as Manager Commercial Fuels.

Stephen Elbert has been appointed Vice-President, Government Relations for Amoco Corporation. Previously Deputy Managing Director of Amoco (UK)



Weatherford International has named **Weldon W. Walker** as the new Director of Tax. He will be responsible for worldwide tax planning and compliance.

Exploration Company, Mr Elbert will transfer to the Washington DC office with effect from July 1. Since joining Amoco in 1978, Mr Elbert has held several senior managerial posts in the areas of Environment, Health and Safety.

Dr **John M Williams** has set up a consultancy, Science Support Services offering expertise and training in fluid sampling, analysis and laboratory techniques.



Richard W. Parlman has been named as Director of Human Resources and Employee Relations at TIW Corporation, one of the leading manufacturers of completion and drilling products to the oil and gas industry. Prior to this appointment he was International Training Advisor for Conoco Inc.

Aran Energy PLC has appointed **Alastair J. Woodrow** to its board. Mr Woodrow is Managing Director of Aran Energy Exploration Limited, a wholly owned subsidiary responsible for oil and gas exploration and production activity in the UK.

Colin Reeve has been appointed Director Responsible for Sales and Marketing at Wilcomatic, suppliers of automatic vehicle washing equipment to the commercial vehicle, bus and retail motor industries.

EUROPEAN INVESTMENT BANK

The **EIB**, the financial institution of the European Union, is currently seeking for its headquarters in **LUXEMBOURG** an:



Energy Economist (m/f)

(with 3 to 5 years of practical experience)

Duties: he/she will be responsible, as a member of EIB project evaluation teams, for the economic appraisal of energy projects located in the European Union and EFTA countries.

Qualifications: candidates should possess a university degree in economics (MA, MBA or Phd) and possibly a post-graduate qualification in energy economics. A strong background in quantitative analysis and experience both in the economic evaluation of energy projects and the preparation of energy sector studies is required. Experience in the oil and gas industry, including refinery economics would be appreciated.

Languages: as the working languages are **English and French**, it is essential to have perfect knowledge of one and a good command of the other. Knowledge of other languages would be an advantage.

The EIB offers attractive terms of employment and salary with a wide range of welfare benefits.

Applicants, who must be nationals of a Member Country of the European Union and **preferably not over 35 years of age** are requested to send a detailed curriculum vitae, together with a photograph, **quoting the appropriate reference**, to:

EUROPEAN INVESTMENT BANK
Recruitment Division (Ref.: ET/PM 9420)
100 boulevard Konrad Adenauer
L-2950 LUXEMBOURG. Fax: 4379 3360.

Applications will be treated in strictest confidence and will not be returned.



PETROLEUM AND PETROCHEMICAL ECONOMICS, MARKETS AND TECHNOLOGY COURSES

from The College of Petroleum and Energy Studies,
Oxford, September – December 1994



THE QUEEN'S AWARD
FOR EXPORT
ACHIEVEMENT 1990

PETROLEUM FUELS MARKETING

RM1	5 – 9 Sept	Retail Marketing – Planning, Economics and Future Developments
RL1	12 – 16 Sept	Retail Automotive Lubricants – Product and Market Developments
IM1	1 – 2 Sept	The International Aviation Fuels Market – Demand, Supply and Pricing
IM2	7 – 9 Sept	The Industrial and Commercial Oil Fuels Business – Developing Commercial, Marketing and Contract Skills
IM3	24 – 28 Oct	The Bitumen Business – Structure, Economics and Markets

FUELS QUALITY AND SPECIFICATIONS

RF5	26 – 28 Oct	Gasoline Technology – Specification, Quality, Blending Components and Market Developments
RF6	24 – 25 Oct	Automotive Diesel Fuels – Fuel Product Quality, Engine Design and the Potential for Additives
RF7	19 – 21 Oct	Aviation Fuel Quality – Specifications, Manufacture, Testing, Distribution and Applications

TANKER CHARTERING AND SHIPS BUNKERS

TD2	19 – 23 Sept	Tanker Ownership, Chartering and Operations – Tactics and Decision Making
TD3	26 – 30 Sept	Tanker Transportation and Oil Pollution – Liability, Insurance, Legislation and Response Planning
SP3	3 – 7 Oct	Economics and Operations of Bunkering

PETROLEUM ECONOMICS AND CRUDE OIL SUPPLY

SP1	10 – 14 Oct	Crude Oil and Products Supply, Transportation, Refining and Trading
SPA	14 – 18 Nov	Financial Management and Control of Oil and Refined Products – Supply and Transportation

LPG – INTERNATIONAL BUSINESS MANAGEMENT

LP1	12 – 16 Sept	LPG – Supply, Economics, Markets and International Trading
LP2	20 – 22 Sept	Commercial Issues in LPG Trading – Contracts, Shipping, Prices and Risk Management
LP3	4 – 6 Oct	LPG for Petrochemicals – Markets, Process Economics and Pricing

OIL TRADING AND THE FUTURES MARKETS

TR1	17 – 21 Oct	International Oil Trading and Pricing
TR3	28 Nov – 2 Dec	International Oil Price Risk Management

PETROCHEMICAL ECONOMICS, TECHNOLOGY & MARKETING

CH0	8 – 10 Nov	Understanding the International Petrochemicals Business – Technology, Markets and Economics
CH1	14 – 18 Nov	Petrochemical Markets and Economics – The Impact of Feedstocks and Costs on Competitiveness and Business Strategy
CH3	2 – 4 Nov	The Chemical Industry – Strategic Positioning for 2000 and Beyond
CH5	21 – 23 Nov	The Aromatics Business – Markets and Economics

LUBRICANTS, APPLICATIONS AND METALWORKING FLUIDS

SP4	1 – 5 Nov	The International Lubricants Business
SP5	6 – 8 Dec	Synthetic and VHVI-based Lubricants – Market Development, Technologies and Cost-performance Economics
SP6	29 Nov – 1 Dec	The Metalworking Fluids Business – Products, Technology and Markets
SP7	7 – 11 Nov	Lubricants Technology and Applications
SP8	22 – 24 Nov	Lubricants – Strategies and Responses to the Environmental Challenge

GENERAL INFORMATION

The College of Petroleum and Energy Studies is an independent institution, offering a comprehensive range of management and business programmes for personnel working in, or associated with, the international oil, gas, petrochemical and energy industries. Started in 1982 and now in its thirteenth year, The College has established itself as a leading international centre for training. The College is recognised in the UK, by The British Accreditation Council. The short courses have proved to be internationally successful with over 120 nations attending from all over Europe and as far afield as Korea, Mexico, Chile and New Zealand. In 1994 73 specialised courses will be presented at Oxford. In 1990 The College won The Queen's Award for Export Achievement in recognition of its international success.

FURTHER INFORMATION

Please contact:

The Registrar, The College of Petroleum and Energy Studies,
Sun Alliance House, New Inn Hall Street, Oxford OX1 2QD
United Kingdom

Tel: (+44) 865 250521
Telex: 838950 COLPET-G
Fax: (+44) 865 791474

Over the last 89 years BEN — Motor and Allied Trades Benevolent Fund has cared for tens of thousands of people. Not just direct employees and pensioners of our industry, but their dependants too, young and old alike.

During that time there have been many changes. Different companies have come and gone, unions evolved beyond recognition and the welfare state has been in continual flux.

But one thing has remained constant — the care and attention BEN has given to

those who look to us for support, whether it be emotional or financial (including residential and nursing care).

So why the BENElephant? It's a symbol of our memory: how we never forget those who worked in our industries, and will always remember that many people will need our help in the future.

Now that's worth shouting about.

If you would like more information about BEN, please call us on 0344 20191.

Time for this little elephant to blow its own trumpet



Ben

MOTOR AND ALLIED TRADES BENEVOLENT FUND

Lynwood, Sunninghill, Ascot, Berkshire SL5 0AJ Tel: 0344 20191 Fax: 0344 22042

Registered Charity No. 297877