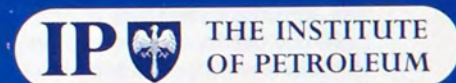


Lifetime Learning 2

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A special supplement to

Petroleum
review

Off to a good start...

Lifetime Learning refers to the ongoing process by which an individual acquires a portfolio of skills, knowledge and understanding during his or her working career. The Institute of Petroleum announced its commitment to becoming 'a learning society' early in 1997. It is hoped that this second special *Lifetime Learning Supplement* – the first of which effectively launched and publicised the initiative in February 1998 – will help to raise awareness of the IP's new approach.

John Evans, Director, Membership Services, provides an overview of progress to date.

The concept of learning is not always well understood. Most people tend to only think of formal training as the key process for their development, whereas the IP's approach to Lifetime Learning stresses that personal development comes from developing competencies through a range of different 'learning experiences'.

These experiences include not only formal training (the IP has recently announced an extension of its involvement in this area, see pXII) but also encompass personal study; work on the job; participation in peer groups, such as specialised technical committees; attendance at lectures, seminars and conferences; and, ultimately, access to freely available information, for example through our Library and Information Service and, of increasing importance, on the IP website at www.petroleum.co.uk.

Lifetime Learning is by definition a very long-term process and its promotion may take several years before it is fully understood by the bulk of our membership and the ideas and concepts are widely adopted. We are devoting substantial resources to the 'marketing' of the Lifetime Learning concept to both individuals and corporate members – by mailings, through supplements such as this one, and by a series of presentations to IP Branches. We are even looking at how information technology (IT) can be used to further spread the message.

We expect to continue to promote the initiative for some time to come – it will be a long haul. This is not a 'programme' that will shortly be replaced

by another one. It is a long-term commitment. As the uptake increases we will be looking to develop further support services for the benefit of members that are committed to it.

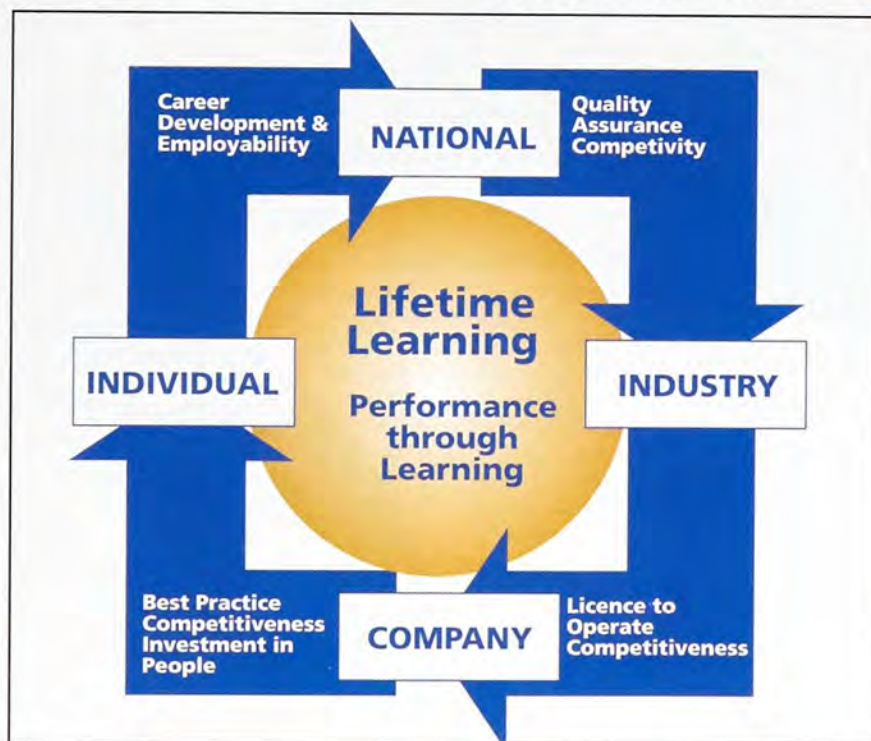
The February 1998 *Lifetime Learning Supplement* unveiled the *IP Lifetime Learning Workbook and Plan* and since then, some 450 individual members have asked for their personal copy and are evaluating it as a basis for their own development. Many are now using it as the distinctive model for the forward management of their own careers.

This approach has raised awareness among individuals but a greater breakthrough may occur when corporate entities start to take more interest. It is hoped that this will result from the IP's cooperation with the Crine (Cost Reduction in a New Era) Network initiative.

The IP has worked with Crine Network as it has developed an all embracing approach, encompassing the stakeholders in achieving success through learning. This provides:

- a national focus through the governmental 'Lifelong Learning' programme;
- an industry focus designed to ensure the survival and competitiveness of UK oil and gas companies;
- a company approach geared to ensure 'best practice', competitiveness and investment in people; and
- an individual approach for those seeking to ensure their competencies for current and future jobs and recognising their own responsibility for long-term employability.

'Performance through learning' represents a common theme for all these groups, and the Crine Network has adopted the *IP Lifetime Learning Workbook and Plan* as key tools for individuals. Their approach was launched at the Annual Crine Network Conference in Aberdeen on 11 March 1998.



The IP Lifetime Learning Plan

Recognising the growing need for guidance among our members in managing their own personal and career development, the IP offers its own *Lifetime Learning Plan*.

The *IP Lifetime Learning Plan* can help you with:

1. **Self-assessment.**
2. **Checking the validity of this assessment.**
3. **Identifying aims and objectives.**
4. **Developing an action plan to achieve those aims and objectives.**
5. **Implementing the action plan.**
6. **Monitoring and recording your performance against your plan and provide you with a template for its management.**

Many companies in the oil and gas sector and other professional institutes provide similar templates. This is an alternative that you may wish to use if it fits your circumstances.

The *IP Lifetime Learning Plan* and accompanying *Workbook* is available only to members of the Institute. If you would like more information, or copies of the *Plan* and *Workbook*, please contact our Membership Department at:

**The Institute of Petroleum, 61 New Cavendish Street,
London W1M 8AR, UK
Tel: +44 (0)171 467 7100 Fax: +44 (0)171 255 1472
e-mail: memb@petroleum.co.uk**



A helping hand

Stuart Howell is a former Manager of BP's UK Retail Business and now Principal of The Castle Hampton Management Consultancy.

Here, he outlines why the IP has a key role to play for those wishing to succeed in the international oil and gas industry – whether going it alone or as part of the corporate structure.

Since the day I left BP, after 30 years' service, people have often asked me: 'What's it like after you've left a protective conglomerate for the harsh reality of the world outside?' The truth is that there are only two real differences: the absence of camaraderie and the absence of professional support services – in summary, the difficulties of being a team of one! However, help is now at hand for those who want it... and few don't.

Perhaps the very presence of that 'BP Team' prevented my personal involvement in the Institute of Petroleum for most of those 30 years, surrounded as I was with banks of information, some nice to know, some need to know and yet more that could only be categorised as 'What the hell does this mean?'. One was seldom lacking in the essential tools on which to base decisions. Even for the 'fringe' elements of

senior management, such as public presentations and back-up for media interviews, all but a make-up person was always readily at hand to provide any assistance one could possibly need.

Then a door to the 'outer world' opens. While excited by the challenges, you soon realise that there are new skills to acquire and essential complements to add to those that are immediately to hand. An important part of the new picture is without doubt the IP. But why?

Staff of Life

To a professional consultancy, information is the very staff of life. Whether it is what happened yesterday, is happening today or could happen tomorrow – every aspect is crucial to the well being of a client's interests. At 61 New Cavendish Street, the IP

Library offers a quiet place to review, read and write; the Lecture Theatre a place to listen, to challenge and to learn. Together with the research services offered, all these elements form part of the IP's portfolio of professional services that are so essential to a successful and valued consultant.

One aspect to marvel at is the annual *Retail Marketing Survey*, published every March as a supplement to *Petroleum Review*. In my opinion, it is the most credible and respected report of its type throughout the industry. Free to IP Members, the survey costs £80 for others to purchase. I think it is worth the membership fee alone.

So, part of the essential preparation to being successful after one has shed the corporate cloak is membership of the Institute of Petroleum. To those enjoying the warmth of a corporate confinement, make sure that you and your company secure all the advantages that the IP has to offer. And to those who are about to walk through the door of new opportunities, or have done so already, you could follow my example by joining and appreciate the thanks of satisfied clients as a result.

Attracting new blood to the industry

The UK oil and gas industry has, over the years, looked to the Institute of Petroleum to provide independent help to try to attract sufficient numbers of competent young people into the sector. This work is undertaken by the IP's Education Department which was established in 1991. Gill Haben, IP Education and Training Manager, outlines some of the department's key aims and objectives.

One of the first projects undertaken by the IP Education Department in its drive to inform young people about the oil and gas industry was the publication of *Careers in Oil* – a brochure describing the work of the industry, featuring recent graduate recruits. This resource was well received and was most recently updated at the end of 1998 by our new publication *Energy – Careers in the Oil and Gas Industry*.

Through subsequent research with educationalists and other professional bodies, it became apparent that the IP could enhance its contribution to the understanding of students – and those who influence them – by providing more than purely careers information.

Data demonstrated that there were clear gaps in terms of balanced information. These gaps included:

- Industry educational materials to specifically meet the requirements of the National Curriculum.
- Specific and transparent facts – for example, on oil and gas reserves – to inform opinion regarding environmental concerns and the future of the industry.
- Branding – teachers were found to be especially cynical about branded publications.

In a bid to fill these gaps and as a result of requests from industry, the IP – as an independent pan-industry body – has continued to develop more careers literature and educational information. Our publication list now includes:

- *A Young Person's Guide to Oil & Gas* – a simple guide to the industry for late primary/key stage 3 pupils.
- *Oil a Natural Resource* – for teachers of science, geography or environmental studies to GCSE and Standard Grades.
- *Oil & Gas Energy for the World* – a cross-curricular project resource for secondary schools or college students and their teachers.
- *Fossils into Fuels* – showing the application of science in the National Curriculum for KS 4 students and teachers.

Careers information includes:

- *Careers in Oil*.
- Career information sheets – general information and three specific sheets for arts and social science, science and mathematics or engineering.
- *The Oil Industry's Efficiency Drive* – a leaflet outlining opportunities for engineering graduates.



- *Energising Civilisation* – a leaflet describing industry contribution to modern civilisation.
- *Energy – Careers in the Oil and Gas Industry* – information for school and college students.

Our most recently published educational resource – *Fossils into Fuels* – was produced in conjunction with experienced teachers. Having been extensively evaluated with the teaching profession, indications are that (a) this publication has been very well received, and (b) we have a lot of information about teachers' requirements for future developments.

Similarly, our latest careers book, *Energy – Careers in the Oil and Gas Industry*, has gone on wide distribution to schools, colleges and professional careers services. This was also produced in collaboration with teachers, students and careers advisors.

Educational links

In March 1998 the first meeting of the newly formed Education Links Committee was held to consider the future work and strategy of the IP Education Department.

The members constitute as many interested parties as possible from both the education sector and the oil and gas industry.

The Department for Education and Employment (DfEE) was also consulted in relation to our education and training strategies.

Should any member have any suggestions or news that they would like to express in relation to the IP's education strategy, please contact Gill Haben on Tel: +44 (0)171 467 7135 or e-mail her at gill@petroleum1.demon.co.uk

Training and education directory

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

Note: *OPITO approved establishment

General information sources

ECCTIS 2000 Ltd

Oriel House, Oriel Road, Cheltenham, Gloucestershire GL50 1XP, UK

Tel: +44 (0)1242 252672 Fax: +44 (0)1242 258600

e-mail: 101472.2254@compuserve.com

The official courses guide to approximately 100,000 courses at over 900 universities and colleges of further education. Users can search by course subject, location, method of study or by institution.

EMD – European Management Development Centre

Naarderstraat 296–1272 NT Huizen, The Netherlands

Tel: +31 35 695 11 11 Fax: +31 35 695 19 00

e-mail: emd@worldaccess.nl

EMD offers World Management Education Directories, which provide decision information about European, North American and Asia-Pacific business schools, management centres and their training programmes.

National Training & Consultancy Index

174 Hammersmith Road, London W6 7JP, UK

Tel: +44 (0)181 267 4277 Fax: +44 (0)181 267 4291

e-mail: editindex@dial.pipex.com

website: www.trainingex.co.uk

Provides information on a wide range of generic training suppliers.

OPITO – Offshore Petroleum Industry Training Organisation Ltd
Inchbraoch House, South Quay, Ferryden, Montrose, Angus DD10 9SL, UK

Tel: +44 (0)1674 662500 Fax: +44 (0)1674 662530

e-mail: opito@opito.co.uk

Develops and sets training standards for the offshore oil and gas industry, as well as programmes and courses to satisfy training needs.

PETA – The Petroleum Education and Training Alliance

Tel: +44 (0)1457 820402 Fax: +44 (0)1457 820402

e-mail: david.sanderson@sa-l.demon.co.uk

The Petroleum Education and Training Alliance is a consortium of leading British universities, specialist training colleges and consultancy companies that provide skills and knowledge to the world's oil and gas industries. The British Council coordinates PETA to ensure that customers have easy access to an integrated service available through more than 200 offices in over 100 countries.

PINTO – Petroleum Industry National Training Organisation
Olympic Office Centre, 8 Fulton Road, Wembley HA9 0ND, UK

Tel: +44 (0)181 982 1550 Fax: +44 (0)181 982 1554

Professional level & short courses

Abacus International

214 Inchbonnie Road, South Woodham Ferrers, Essex CM3 5WU, UK

Tel: +44 (0)1245 328340 Fax: +44 (0)1245 323429

Seminars and training courses worldwide.

Aberdeen College

Gallowgate, Aberdeen AB25 1BN, UK

Tel: +44 (0)1224 612000 Fax: +44 (0)1224 612001

e-mail: enquiry@abcol.ac.uk

website: www.abcol.ac.uk

Courses in multi-disciplinary engineering, marine and offshore technology and electrical technology.

Aberdeen Drilling School & Well Control Training Centre

50 Union Glen, Aberdeen AB11 6ER, UK

Tel: +44 (0)1224 572709 Fax: +44 (0)1224 582896

e-mail: info@aberdeen-drilling.com

All aspects of drilling technology and equipment, well control, management and safety training.

Aberdeen First Aid School

Norton Centre, Poynerook Road, Aberdeen AB11 5RW, UK

Tel: +44 (0)1224 585844 Fax: +44 (0)1224 585899

e-mail: info@afas.co.uk

HSE-approved onshore and offshore First Aid courses.

Aberdeen University Oil and Gas Institute

Fraser Noble Building, King's College, Aberdeen AB9 2UE

Tel: +44 (0)1224 272513 Fax: +44 (0)1224 272336

e-mail: m.duncan@abdn.ac.uk, p.meenan@abdn.ac.uk

website: www.abdn.ac.uk/oilgas

Expertise in a range of disciplines including: petroleum economics, geology, safety engineering, environmental law, business management, project managers, technology and management in the oil and gas industry, and international relations. The Vocational Training Unit helps create the type and level of accredited programmes and short courses the market demands.

Abertay Dundee University

Bell Steet, Dundee DD1 1HG, UK

Tel: +44 (0)1382 308000 Fax: +44 (0)1382 308877

e-mail: p.martin@abertay-dundee.ac.uk

website: www.abertay-dundee.ac.uk

MSc/PG/Dip in wastewater and environmental management, BEng (Hons) and others.

Advanced Drilling International

Forties Road, Montrose, Angus DD10 9E2, UK

Tel: +44 (0)1674 671600 Fax: +44 (0)1674 671090

e-mail: nicola.evans@virgin.net

AEA Technology

329 Harwell, Didcot, Oxfordshire OX11 0RA, UK

Tel: +44 (0)1235 436595 Fax: +44 (0)1235 436660

e-mail: enquiry@aeat.co.uk

website: www.aeat.co.uk

Short courses in a wide range of topics including safety, environmental hazards, non-destructive inspection and petroleum engineering.

***Alert Disaster Control (Asia) Pte Ltd**
Box 5008, Block B, #01-00, Loyang Offshore Supply Base, Singapore 508988
Tel: +65 545 5088 Fax: +65 545 3033
e-mail: allcom@alert.com.sg
website: www.alert.flashpoint.com
 Oilfield firefighting, well control, toxic environment protection, safety and survival training.

American Association of Petroleum Geologists
1444 South Boulder, PO Box 979, Tulsa, Oklahoma 74101 0979, US
Tel: +1 918 584 2555 Fax: +1 918 584 0063/0469
e-mail: educate@aapg.org

Appropriate Training Ltd
Strand Street West, Preston, Lancashire PR2 2NS, UK
Tel: +44 (0)1772 723377 Fax: +44 (0)1772 768611
e-mail: train@appropriatetraining.demon.co.uk
website: www.appropriatetraining.co.uk
 Institution strengthening analysts, consultants and training materials providers. Bespoke training programmes for individuals and small groups.

***APT Antincendio**
V. Le Matteotti, 60-27100 Pavia, Italy
Tel: +39 382 538026 Fax: +39 382 530110
e-mail: anticendio@aptgroup.it
 Basic offshore safety induction and emergency training, further offshore emergency training, offshore fire emergency response team member and team leader, offshore emergency helideck team member.

AUPEC – Aberdeen University Petroleum and Economic Consultants
Davidson House, Campus 1, Aberdeen Science and Technology Park, Baggownie Road, Bridge of Don, Aberdeen AB22 8GT, UK
Tel: +44 (0)1224 853700 Fax: +44 (0)1224 853701
e-mail: mail@aupec.com
website: www.aupec.com
 Consultancy work in petroleum economics especially relating to exploration.

Baker Atlas Geoscience
455 London Road, Isleworth, Middlesex TW7 5AA, UK
Tel: +44 (0)181 560 3160 Fax: +44 (0)181 231 7260
e-mail: training@ssii.com
website: www.ssii.com
 Petroleum technology, geology, economics, well logging, usage schools, reservoir engineering and simulation.



Bentham Technical Training
Dilke House, Malet Street, London WC1E 7JN, UK
Tel: +44 (0)171 436 7500 Fax: +44 (0)171 436 2112
e-mail: v_li@bentham.co.com
 Two- or three-day courses for engineers/graduates in offshore engineering (induction, advanced, and specialised), finite element analysis, pipeline design and engineering, risk analysis techniques/offshore safety, general management and engineering training, and engineering technology.

***Blackpool and the Fylde College – Fleetwood Offshore Survival Centre**
Fleetwood Offshore Survival Centre, Broadwater, Fleetwood, Lancashire FY7 8JZ, UK
Tel: +44 (0)1253 779123 Fax: +44 (0)1253 773014
e-mail: jb@blackpool.ac.uk
 Basic Offshore Safety Induction and Emergency Training, Further Offshore Emergency Training.

Caledonia Training & Consultancy Ltd
Crombie Lodge, Campus 2, Aberdeen Science and Technology Park, Baggownie Road, Bridge of Don, Aberdeen AB22 8GU, UK
Tel: +44 (0)1224 708141 Fax: +44 (0)1224 705718
e-mail: info@caledoniactc.co.uk
 Specialist in drilling and well services. Accredited by IWCF, IADC and SQA.

Centre for Advanced Maritime Studies
Albert House, 7 Johns Place, Edinburgh EH6 7FL, UK
Tel: +44 (0)131 555 0525 Fax: +44 (0)131 552 0775
e-mail: admin@camsedin.org.uk
website: www.camsedin.org.uk
 Courses on petroleum tanker safety, liquefied gas carrier safety, crude oil washing and IG systems, pollution prevention and abatement.

CEPMLP – Centre For Energy, Petroleum & Mineral Law & Policy
University of Dundee, Park Place, Dundee DD1 4HN, UK
Tel: +44 (0)1382 344300 Fax: +44 (0)1382 322578
e-mail: cpmlp@dundee.ac.uk
website: www.dundee.ac.uk/cepmlp/html/home.htm
 Oil and gas law, upstream, downstream energy law and transnational investment in national resources.

Centre for Marine Technology
DERA, Haslar, Gosport, Hampshire PO12 2AG, UK
Tel: +44 (0)1705 335500 Fax: +44 (0)1705 335414
e-mail: cenmartec@dera.gov.uk
website: www.dera.gov.uk

Centre For Natural Gas Engineering
University of Salford, Salford M5 4WT, UK
Tel: +44 (0)161 745 5213 Fax: +44 (0)161 745 5454
e-mail: speake@chemistry.salford.ac.uk
website: www.salford.ac.uk

Centre for Professional Advancement
Oude ZydsVoorburgwal 316 A, 1012 Amsterdam, The Netherlands
Tel: +31 20 638 28 06 Fax: +31 20 620 21 36
e-mail: 106704.512@compuserve.com
website: www.cfpaa.com

CHARM – Centre for Hazard and Risk Management
Loughborough University, Loughborough, Leicestershire LE11 3TU, UK
Tel: +44 (0)1509 222175 Fax: +44 (0)1509 223991
website: www.lboro.ac.uk/departments/CHARM/charm.html
 Health and safety management, waste management, management development, training for trainers, urban renewal, project management, industrial and commercial security.

Lifetime Learning *courses*



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

CPS – College of Petroleum and Energy Studies
Sun Alliance House, New Inn Hall Street, Oxford OX1 2QD, UK
Tel: +44 (0)1865 250521 Fax: +44 (0)1865 791474
e-mail: registrar@colpet.ac.uk
website: www.colpet.ac.uk
 Distance learning, supply and trading, international oil, gas, petrochemical and energy short and long courses, bunkering, tanker ownership, chartering and operations, petrol retail and lubricants.

Cranfield University
Cranfield, Bedford MK43 0AL, UK
Tel: +44 (0)1234 750111 Fax: +44 (0)1234 751206
e-mail: cranfield@cranfield.ac.uk
website: www.cranfield.co.uk
 Safety, corrosion, underwater engineering, pipelines, maintenance.

DataCad Ltd
Beckett House, Caird Street, Hamilton ML3 0AL, UK
Tel: +44 (0)1698 543040 Fax: +44 (0)1698 543041
e-mail: peter.turnbull@ifigroupplc.com
website: www.datacad.co.uk
 Provider of company and discipline specific training solutions.

De Montfort University
Department of Chemistry and Physics, De Montfort University, The Gateway, Leicester LE1 9BH, UK
Tel: +44 (0)116 257 7698 Fax: +44 (0)116 250 7287
e-mail: sjd@dmu.ac.uk
 Offers postgraduate certificate/postgraduate diploma/MSc in lubricant & hydraulic technology.

Edinburgh Telford College
Crewe Toll, Edinburgh EH4 2NZ, UK
Tel: +44 (0)131 315 7410 Fax: +44 (0)131 315 7422
e-mail: tc@ed-coll.ac.uk
website: www.ed-coll.ac.uk
 Measurement technology, computing, programmable systems, pneumatics and hydraulics, electricity, electromagnetism, mathematics.

EMD – European Management Development Centre
Naarderstraat 296-1272, NT Huizen, The Netherlands
Tel: +31 35 695 11 11 Fax: +31 35 695 19 00
e-mail: emd@worldaccess.nl

Engineering & Marine Training Authority
Vector House, 41 Clarendon Road, Watford, Hertfordshire WD1 1HS, UK
Tel: +44 (0)1923 238441 Fax: +44 (0)1923 337344
e-mail: ecis@emta.org.uk
website: www.emta.org

ENSPM – Formation Industrie
232 Avenue Napoléon Bonaparte, 92852 Rueil-Malmaison, Cedex, France
Tel: +33 1 47 52 72 93 Fax: +33 1 47 52 70 41
e-mail: Michael.howard@ifp.fr
website: www.ifp.fr/enspm.fi
 Planning and economics of refinery operations (PERO), economics and management, exploration, drilling, production, refining, and equipment maintenance.

ERT – Environment & Resource Technology Ltd
Howemoss Avenue, Kirkhill Industrial Estate, Dyce, Aberdeen AB21 0GP, UK
Tel: +44 (0)1224 414515 Fax: +44 (0)1224 843111
e-mail: sharon.morgan@kvaerner.com
website: www.ert.co.uk
 Provides environmental and engineering services and consultancy to industry, government and government agencies. Technical areas include environmental management, oil spill studies, oilfield process and water engineering, ecotechnology effluent and waste management.

***Fire Service College**
Moreton-in-Marsh, Gloucestershire GL56 0RH, UK
Tel: +44 (0)1608 650831 Fax: +44 (0)1608 651839
e-mail: moreton@campus.bt.com
 Offshore fire emergency response team member and team leader, offshore emergency helideck, team member.

Geoprep Training Centre
Nerets 10, 25620 Tremp, Lleda, Spain
Tel: +34 73 652 759 Fax: +34 73 652 759
e-mail: geoprep@catalunya.com
website: www.catalunya.net/geoprep
 Geology field seminars and practical training courses designed specifically for geologists, explorations and development geologists, geophysicists involved in exploration for hydrocarbons, consultants.

GeoQuest Training Centre
Berwick House, Knoll Rise, Orpington, Kent BR6 0EL, UK
Tel: +44 (0)1293 556508 Fax: +44 (0)1689 877029
e-mail: training@gatwick.geoquest.slb.com
 Geology field courses, software training for exploration and production.

Lifetime Learning *courses*

Geosphere Ltd.

Netherton Farm, Sheepwash, Beaworthy, Devon EX21 5PL, UK
Tel: +44 (0)1409 281810 Fax: +44 (0)1409 281810
e-mail: timharper@geosphere.demon.co.uk
website: www.geosphere.demon.co.uk

Short course on well productivity fundamentals for geoscientists, drilling engineers, reservoir engineers and managers. Provides practical methods to quantify the impact of actions/decisions and reservoir characteristics on well performance. Incorporates some fieldwork.

Glasgow Caledonian University

Cowcaddens Road, Glasgow G4 0BA, UK
Tel: +44 (0)141 331 3000 Fax: +44 (0)141 331 3005
e-mail: rhu@gcal.ac.uk
website: www.gcal.ac.uk

Maintenance systems, engineering and management.

Glasgow University

University Avenue, Glasgow G12 8QQ, UK
Tel: +44 (0)141 339 8855 Fax: +44 (0)141 330 5917
e-mail: pgadmissions@gla.ac.uk
website: www.gla.ac.uk

Offshore R&D, geology, engineering and marine vessels.

GSM Training Services Inc

PO Box 9920, Amarillo, Texas 79105, US
Tel: +1 806 358 6894 Fax: +1 806 358 6800
e-mail: gsmrdg@arn.net
website: www.gsm-inc.com

Heriot-Watt University

Dept of Petroleum Engineering, Research Park, Riccarton, Edinburgh EH14 4AS, UK
Tel: +44 (0)131 451 3014/5 Fax: +44 (0)131 451 3005
e-mail: admissions@pet.hw.ac.uk
website: www.hw.ac.uk

Honeywell Hi-Spec Solutions

Lovelace Road, Southern Industrial Area, Bracknell, Berkshire RG12 8WD, UK
Tel: +44 (0)1344 656898 Fax: +44 (0)1344 656684
e-mail: info.centre@uk.honeywell.com
website: www.europe.iac.honeywell.com
Process control techniques.

**Humberside Offshore Training Association Ltd*

Malmo Road, Sutton Fields Industrial Estate, Hull HU7 0YF, UK
Tel: +44 (0)1482 820567 Fax: +44 (0)1482 823202
e-mail: bookings@hota.org
website: www.hota.org

Basic offshore safety induction and emergency training, further offshore emergency training, offshore fire emergency response team member and team leader, offshore lifeboat coxswain, helicopter landing officer.

**IFAP Survival Training Centre*

128 Farrington Road, Leeming, 6149, Western Australia
Tel: +61 8 9430 6611 Fax: +61 8 9430 6093
Basic offshore safety induction and emergency training, further offshore emergency training.

Imperial College Centre for Continuing Education

Room 526 Sheffield Building, Exhibition Road, London SW7 2AZ, UK
Tel: +44 (0)171 594 6882 Fax: +44 (0)171 594 6883
e-mail: cpd@ic.ac.uk
website: http://www.ic.ac.uk
Short courses on petroleum engineering.

Institute of Energy

18 Devonshire Street, London W1N 2AU, UK
Tel: (Admin and Accounts): +44 (0)171 580 7124, (Membership, Education and Training): +44 (0)171 580 0077, (Conferences): +44 (0)171 580 0008
Fax: +44 (0)171 580 4420

e-mail: info@ioe.org.uk

website: www.instenergy.org.uk

Courses in energy management, resources, control and fuel efficiency.

Institute of Petroleum

61 New Cavendish Street, London W1M 8AR, UK
Tel: +44 (0)171 467 7100 Fax: +44 (0)171 255 1472
e-mail: ip@petroleum.co.uk
website: www.petroleum.co.uk

Introductory courses on oil industry operations and petroleum economics.

Institution of Chemical Engineers

Davis Building, 165-189 Railway Terrace, Rugby, Warwickshire CV21 3HQ, UK
Tel: +44 (0)1788 578214 Fax: +44 (0)1788 577182
e-mail: tfarthing@icheme.org.uk
website: www.icheme.org

International Drilling and Downhole Technology Centre

Offshore Technology Park, Exploration Drive, Bridge of Don, Aberdeen AB23 8GX, UK
Tel: +44 (0)1224 828484 Fax: +44 (0)1224 826458

e-mail: downholetechnology@compuserve.com

An independent, open access facility for training personnel and developing, testing and demonstrating new drilling and downhole equipment and techniques.

International Human Resources Development Corporation

Brouwersgracht 288, 1013 HG Amsterdam, The Netherlands
Tel: +31 20 638 01 10 Fax: +31 20 421 62 28
e-mail: ihrdceurope@compuserve.com
website: www.ihrdc.com

Corrosion in the oil industry, cost/planning/economics for the offshore oil and gas industry, improved offshore platform design, introduction to petroleum refinery processing, offshore oil and gas operations, environmental concerns and solutions, uses of chemicals in the oil industry.



Lifetime Learning courses

International Petroleum Exchange

International House, 1 St Katherine's Way, London E1 9UN, UK
Tel: +44 (0)171 481 0643 Fax: +44 (0)171 481 8485
e-mail: info@ipe.uk.com
website: www.ipe.uk.com

Operates and manages oil futures and options exchange in London. Actively promotes development of the market and provides a market price reporting service to quote vendor companies.

Invincible Energy

Westport House, Bentley, Farnham, Surrey GU10 5HY, UK
Tel: +44 (0)1420 22862 Fax: +44 (0)1420 22863
e-mail: learning@invincible-energy.com
website: www.invincible-energy.com
 Courses in trading oil on the international markets, and risk management.

Joint Association for Petroleum Courses

c/o Geological Society, Burlington House, London W1V 0JU, UK
Tel: +44 (0)171 434 9944 Fax: +44 (0)171 439 8975
e-mail: japec@geolsoc.org.uk
website: www.geolsoc.org.uk
 Geological, seismic, geochemistry, and introductory geological.

Kennet Oil Logistics

Trevellion Barn, Trevellion, St Austell, Cornwall PL26 8RT, UK
Tel: +44 (0)1208 831145 Fax: +44 (0)1208 831143
e-mail: rabkol@aol.com
 Courses in operations practice in supply trading (OPST).

*Lancashire Fire and Rescue Service

International Training Centre, Washington Hall, Southport Road, Euxton, Chorley, Lancashire PR7 6DH, UK
Tel: +44 (0)1257 266611 Fax: +44 (0)1257 261767
website: www.washington.co.uk
 Offshore fire emergency response team member/leader.

*Link Associates International

Aspen Drive, Raynes Way, Derby DE21 7SG, UK
Tel: +44 (0)1332 677066 Fax: +44 (0)1332 679609
e-mail: info@link-associates.co.uk
website: www.link-associates.co.uk
 Training for offshore installation managers.

*Link Associates International Ltd

Australia Asia Emergency Training Centre, The Garden Office Park, 345 Harbourne Street, PO Box 720, Glendalough, Perth, Western Australia, 6016
Tel: +61 8 9443 4133 Fax: +61 8 9443 4310
website: www.link-associates.co.uk
 Training for offshore installation managers.

*Lowestoft College

St Peter's Street, Lowestoft, Suffolk NR32 2NB, UK
Tel: +44 (0)1502 583521 Fax: +44 (0)1502 500031
e-mail: c.stride@lowestoft.ac.uk
website: www.lowestoft.ac.uk
 Offshore lifeboat coxswain course.

*Marine Safety Training Centre

Wapping Street, South Shields, Tyne & Wear, NE33 1LQ, UK
Tel: +44 (0)191 427 3500 Fax: +44 (0)191 427 3600
 Basic offshore safety induction and emergency training; further offshore emergency training; universal combined survival and fire-fighting; basic offshore European refresher, basic offshore European upgrade.

*Maritiem Trainingscentrum BV

Europaweg, Tanishaven, Maasvlakte, Haven nr 7033, The Netherlands
Tel: +31 18 136 29 81 Fax: +31 181 36 29 81

e-mail: info@maritimetraining.nl

website: www.maritimetraining.nl

Basic Offshore Safety Induction and Emergency Training, Further Offshore Emergency Training, Offshore Lifeboat Coxswain.

*Montrose Scottish Offshore Training (SCOTA)

Blackness Avenue, Altens, Aberdeen AB12 3PG, UK
Tel: +44 (0)1224 899707 Fax: +44 (0)1224 873221
e-mail: simone@mstild.demon.co.uk

Electrical/hazardous areas; engineering inspection and techniques, first aid, helideck operations; lifting engineering; legislation; management; supervisory and administrative skills; project control and engineering management; purchase and supply; quality assurance; radiation safety; emergency response training; several aspects of safety training; scaffolding; transportation of dangerous goods; technical; drilling and production technology courses; technician training scheme and skillseekers; offshore safety representatives.

*SCOTA Fire and Emergency Training Centre (Montrose)

Forties Road, Montrose, Angus DD10 9ET, UK
Tel: +44 (0)1674 672230 Fax: +44 (0)1674 677335
e-mail: Info@MFETC.com

Courses for Offshore Fire/Emergency Response Team Member and Leader; Offshore emergency helideck team member, OIM and Control room senior operator.

Napier University

219 Colinton Road, Edinburgh EH14 1DJ, UK
Tel: +44 (0)131 455 4330 Fax: +44 (0)131 455 4666
website: www.napier.ac.uk

The university offers through Napier University Ventures Ltd a range of training, testing and evaluation facilities in engineering, technology, chemical and physical sciences, and biological sciences. Undergraduate courses include BSc environmental physical science; BSc (Hons) environmental biology; BSc mathematics with engineering technology.

National Centre of Tribology

Building RD1, Risley Nuclear Power Development Laboratories, Northern Division, Atomic Energy Authority, Risley, Warrington, Cheshire WA3 6AT, UK
Tel: +44 (0)1925 252640 Fax: +44 (0)1925 252579
e-mail: chris.j.barrow@aeat.co.uk
website: www.aeat.co.uk

National Hyperbaric Centre Ltd

123 Ashgrove Road West., Aberdeen AB2 5FA, UK
Tel: +44 (0)1224 698895 Fax: +44 (0)1224 692222
e-mail: nhc@demon.co.uk
website: www.demon.co.uk/hyperbar

NETA Training

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

*NUTEC Centre For Safety

Haverton Hill Industrial Estate, Billingham, Cleveland TS23 1PZ, UK
Tel: +44 (0)1642 566656 Fax: +44 (0)1642 563224
e-mail: nutecuk@onyxnet.co.uk
website: www.nutec.no
 Basic offshore safety induction & emergency training, further offshore emergency training.

Lifetime Learning courses

Oil Firing Technical Association for the Petroleum Industry
Century House, 100 High Street, Banstead, Surrey SM7 2NN, UK

Tel: +44 (0)1737 373311 Fax: +44 (0)1737 373553

Comprises major oil companies, oil distributors and manufacturers of oil firing equipment in the UK and Irish Republic. Operates OFCERT equipment testing and approval scheme. Also provides technical training and registration, and other technical support for oil firing industry.

Oil Spill Response Ltd

Lower William Street, Southampton SO15 5QE, UK

Tel: +44 (0)1703 331551 Fax: +44 (0)1703 331972

e-mail: cwebb@osrl.co.uk

website: www.oilspillresponse.com

A wide selection of courses including oil spill incident management and 'hands on' equipment familiarisation courses.

**Onsite Training Services*

Unit 3, Burnside Industrial Centre, Bullock Hill, Horsham St Faith, Norwich, NR10 3HT, UK

Tel: +44 (0)1224 729500 Fax: +44 (0)1224 729300

Helicopter landing officer course.

OTS International Training Services

3rd Floor, 104 College Road, Harrow, Middlesex HA1 1BQ, UK

Tel: +44 (0)181 861 0104 Fax: +44 (0)181 861 3101

e-mail: training@ots.co.uk

Provides courses in production operations, marine operations, mechanical, electrical & instrumentation maintenance, onshore & offshore health & safety, tailored to individual company requirements.

Pegasus Training Centre

Bentalls Pippis Hill Industrial Estate, Basildon, Essex SS14 3BX, UK

Tel: +44 (0)1268 284695 Fax: +44 (0)1268 270495

National Training and Certification for operatives installing and maintaining electrical equipment working in potentially explosive atmospheres. Course accredited by the Electrical Installation Engineering Industry Training Organisation (EIETO).

**Petans Ltd, Offshore Fire and Survival Training Centre*

Bullock Hill, Horsham St Faith, Norwich NR10 3HT, UK

Tel: +44 (0)1603 891255 Fax: +44 (0)1603 890827

e-mail: bookings@petans.co.uk

website: www.petans.co.uk

Basic offshore safety induction and emergency training, further offshore emergency training, offshore fire emergency response team member and team leader, offshore emergency helideck team member, offshore lifeboat coxswain, helicopter landing officer.



Petroleum Economics Ltd

3 Lloyds Avenue, London EC3N 3DS, UK

Tel: +44 (0)171 553 2000 Fax: +44 (0)171 553 2001

e-mail: pel@petroleum-economics.com

website: www.petroleum-economics.com

Seminars on international economics providing an overview of the key economic, physical and environmental factors driving oil pricing, production, transport, supply, refining, marketing and industry strategy. Regional seminars in Europe, the Middle East, the Far East and Africa, and courses for individual companies tailored to meet their specific requirements.

Petroleum Economist

PO Box 105, Baird House, 15/17 St Cross St, London EC1N 8UN, UK

Tel: +44 (0)171 831 5588 Fax: +44 (0)171 831 4567/5313

e-mail: petecon2@easynet.co.uk

website: www.petroleum-economist.com

Commercial and trading aspects of oil refining, exploration and production, fundamentals of natural gas.

Petroleum Open Learning

Blackness Avenue, Altens, Aberdeen AB12 3PG, UK

Tel: +44 (0)1224 877833 Fax: +44 (0)1224 877066

e-mail: opito@opito.co.uk

Open learning courses on drilling calculations, oil and gas well technology, and petroleum processing technology.

Petroleum Training Ltd

48 West Bar, Banbury, Oxon OX16 9RZ, UK

Tel: +44 (0)1295 255811 Fax: +44 (0)1295 273110

Forecourt staff training – management, supervision, risk assessments; competent persons course, product awareness, driver training (ADR), fire prevention and control, emergency training, environmental training; dangerous goods safety advice (DGSA) courses; electrical contractors on forecourts; special hazards; tailored in-house courses.

Professional Development Institute of the University of North Texas

PO Box 310769, Denton, Texas 76203-0769, US

Tel: +1 940 565 2483 Fax: +1 940 565 3362

e-mail: hbrock@pdi.org

website: www.pdi.org

Offers seminars, schools, conferences and in-house training programmes in oil and gas accounting, finance and taxation. PDI is the continuing professional education arm of the University of North Texas. Course on financial accounting for petroleum companies.

**RGIT Survival Centre Ltd*

338 King Street, Aberdeen AB24 5BQ, UK

Tel: +44 (0)1224 619619 Fax: +44 (0)1224 619519

e-mail: info@rgit.co.uk

website: www.ourworld.compuserve.com/homepages/rgit

Basic offshore safety induction and emergency training, further offshore emergency training, offshore lifeboat coxswain, offshore medics.

**RISC Fire & Safety Training BV*

Beerweg 101, 3199 LM Maasviakte, The Netherlands

Tel: +31 181 37 66 65 Fax: +31 181 36 39 35

Offshore fire emergency response team member and team leader.

Lifetime Learning *courses*

Robert Gordon University

School of Mechanical and Offshore Engineering,
Schoolhill, Aberdeen AB10 1FR, UK

Tel: +44 (0)1224 262300 Fax: +44 (0)1224 262333

e-mail: f.bruce@rgu.ac.uk

website: http://www.rgu.ac.uk

Courses in mechanical, petroleum and offshore engineering. Short courses on reservoir engineering, well testing, well completions, production geology, log interpretation, petrophysical engineering and gas reservoir management, corrosion, AutoCAD, offshore environmental appreciation, project management, offshore operations and maintenance staff training on topside facilities, and drilling.

Robertson Research Petroleum Training Centre

Pentywyn Road, Llandudno, LL30 1SA, UK

Tel: +44 (0)1492 581811 Fax: +44 (0)1492 583416

e-mail: do@robresint.co.uk

website: www.robresint.co.uk

Courses in petroleum geology, geophysics, engineering and economics, exploration and production management, and petroleum contracts.

Royal Holloway University Of London

Egham Hill, Surrey, TW20 OEX, UK

Tel: +44 (0)1784 443581 Fax: +44 (0)1784 471780

e-mail: bosenice@gl.rhnc.ac.uk

website: www.gl.rhnc.ac.uk

Courses in applied geosciences of particular relevance to the petroleum industry, MSc basin evolution and dynamics, MSc tectonics; and special short courses for industry on demand.

Scitech-DIOL

Units 15-17, The St John Business Centre, St Peter's Road, Margate CY9 1TE, UK

Tel: +44 (0)1843 231494 Fax: +44 (0)1843 231485

e-mail: maria@scitechdiol.co.uk

website: www.scitechdiol.co.uk

Open learning material on general business practices.

*Serco International Fire Training Centre

Technology House, Teeside Airport, Darlington DL2 1NU, UK

Tel: +44 (0)1325 333317 Fax: +44 (0)1325 333655

e-mail: cyndyrobson@iftc.co.uk

Offshore fire emergency response team member and team leader; offshore emergency helideck team member.

SIRA Test & Certification Ltd

South Hill, Chislehurst, Kent BR7 5EH, UK

Tel: +44 (0)181 467 2636

Fax: +44 (0)181 295 3005

e-mail: test+cal@siratc.co.uk

website: www.siraservices.co.uk

Calibration, hazardous areas, technology management, health and safety in laboratories, health and safety regulations, risk assessment and quality management.

South Tyneside College

Wapping Street, South Shields, Tyne and Wear NE33 1LQ, UK

Tel: +44 (0)191 427 3642 Fax: +44 (0)191 427 3600

e-mail: marine_safety_at_stc@compuserve.com

website: www.ourworld.compuserve.com/homepages/marine_safety_at_stc

Basic offshore safety induction and emergency training, further offshore emergency training, basic offshore European upgrade, basic offshore European refresher, universal combined survival and firefighting (British and Norwegian waters).

St Andrew's University

79 North Street, St Andrew's, KY16 9AJ, UK

Tel: +44 (0)1334 476161

website: www.st-and.ac.uk

BSc Geoscience, Postgraduate by research.

Strathclyde University

Dept. of Ship and Marine Technology, 100 Montrose Street, Glasgow G4 0LZ, UK

Tel: +44 (0)141 552 4400 Fax: +44 (0)141 552 2879

e-mail: c.kuo@strath.ac.uk

website: www.strath.ac.uk

MSc/Dip ship production technology and offshore marine technology.

Tristar Oilfield Services Ltd

8 Nobel Road, Wester Gourdie Industrial Estate, Wester Gourdie, Dundee DD2 4HU, UK

Tel: +44 (0)1382 400990 Fax: +44 (0)1382 400616

e-mail: tristar@sol.co.uk

Offers a five-day introduction to wireline course, five-day introduction of offshore oil operations course, three-day production well testing course, three-day well simulation course; four-and-a-half-day day IWCS - well intervention pressure control course, four-and-a-half-day introduction to coiled tubing course.

TWI Training & Examination Services (The Welding Institute)

Granta Park, Great Abington, Cambridgeshire CB1 6AL, UK

Tel: +44 (0)1223 891162 Fax: +44 (0)1223 892588

e-mail: trainexam@twi.co.uk

website: www.twi.co.uk

Courses in corrosion engineering, structural integrity, quality control and inspection, welding metallurgy, welding procedures, welding technology design and non-destructive testing.

Underwater Centre Ltd

Fort William, Inverness-shire, Scotland PH33 6LZ, UK

Tel: +44 (0)1397 703786 Fax: +44 (0)1397 704969

e-mail: tuc@stenmar.com

website: www.stenmar.com

Commercial diving and diving support, including: HSE Parts I, II, III and IV (ranging from four to nine weeks); HSE diver first aid; ERCAS diver assessments; diver paramedic; non-destructive testing, CSWIP and Lloyds; AODC inshore and offshore supervisors and assistant life-support technicians; diver safety and familiarisation courses for non-diving personnel.

*Warsash Maritime Centre

Newtown Road, Warsash, Southampton SO31 9ZL, UK

Tel: +44 (0)1489 576161 Fax: +44 (0)1489 573988

e-mail: wmc@solent.ac.uk

website: www.solent.ac.uk/wmc/

Basic Offshore Safety Induction and Emergency Training, Further Offshore Emergency Training.

The Lifetime Learning Training and Education Directory can also be viewed on the Institute of Petroleum's website at: www.petroleum.co.uk

The IP as training provider

The Institute of Petroleum announced its new portfolio of nine energy related training courses – including its long-standing and popular Introductions to Oil Industry Operations and Petroleum Economics courses – in late 1998.

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

The IP sees the extended provision of high-quality courses as a natural development of its Lifetime Learning initiative. While this process demands exposure to a variety of different 'learning experiences', formal training remains a very important component.

Recognising the importance of this business the IP recently decided to appoint a Training Business Manager. At the time of writing the Institute was in the process of identifying a suitable candidate for this vital new position.

Partner portfolio

As part of the new training portfolio programme, the IP has contracted arrangements with four partners – each of which share the IP's commitment to 'quality' and value for money:

- **ENSPM Formation Industrie** has been providing continuous professional training for the oil and gas industry since 1975. The depth and quality of ENSPM Formation Industrie is enhanced by its affiliation within the Institut Français du Pétrole Group (IFP). This associates the group with one of the largest oil industry research centres in Europe and also links it to ENSPM (École Nationale Supérieure du Pétrole et des Moteurs), a distinguished French

specialist oil and gas industry institute of higher education that offers postgraduate studies to doctorate level. More than 800 companies in over 80 countries have benefited over the last 20 years from ENSPM Formation Industrie's training services.

Company spokesman Jean-Pierre Favennac explained why ENSPM Formation Industrie decided to become involved with the IP's training programme: *'Over the last few years our organisation which is part of the Institut Français du Pétrole, has run an increasing number of courses in English. We have been keen to do more for some time and the IP is the obvious partner for this. It also complements other work that the IFP and the IP have been doing together in recent times.'*

- **Invincible Energy** is a training and consultancy company set up to meet the need for effective business risk management in the energy industry. It incorporates a fictional integrated energy company which has been delivering courses since 1983. In that year, the company claims to have designed and delivered the first course on International Oil Trading ever to be run in the world. Its directors are assisted in delivering events by a large number of practising industry experts.

'It was a natural fit to work with the IP', comments John Dobson, Managing Director, Invincible Energy. *'We have recognised sectoral expertise; the IP has a high reputation for quality and can provide authority while publicising what we are offering and accessing a wider market.'*

- **Kennet Oil Logistics** is a company specialising in providing consultancy to the oil industry worldwide in the area of supply trading and transportation. Project experience includes the analysis, development, negotiation and operation of oil trading and pricing arrangements, tanker chartering and shipping ventures, storage and terminalling agreements. Its directors and associates also have extensive experience in designing and running training courses in these sectors.

Explaining why his company chose to participate in the IP programme, Robin Burley said: *'I have worked with several other bodies over the years delivering specialised industry training; but we identified a niche for a course on operational aspects of supply and feel that will be best served by working jointly with the IP. We hope to develop other cooperation in the future.'*

- **The Professional Development Institute (PDI)** of the University of North Texas, US, is said to be one of the world's leading organisations offering seminars, schools, conferences and in-house training programmes in oil and gas accounting, finance and taxation. PDI is the continuing professional education arm of the University of North Texas in Denton, Texas, and has provided oil industry training seminars and conferences in the UK since 1978.

'We have run these courses for nearly two decades in London. For many years we worked successfully with the University of Dundee, but since that arrangement ceased we have felt that something was lacking in our approach,' commented Horace Brock of the University of North Texas. *'The involvement of the IP gives us a credible and effective partnership with a body that is well known and of high reputation in our user industry.'*

For further information about the extended portfolio of IP Training please contact:

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

Tel: +44 (0)171 467 7122

Fax: +44 (0)171 255 1472

e-mail: pashby@petroleum.co.uk

Portfolio of IP Courses

● Trading Oil on the International Markets

As part of a fictional trading team, delegates take decisions about the company's activities to maximise profits through an understanding of the economics of trading and the management of inherent price risks, trade the live crude oil and refined product markets worldwide and react to events as they happen using realtime information.

● Price Risk Management in the Oil Industry

As part of a fictional trading team, delegates identify and manage the team's exposure to price risk. They trade the full range of derivative markets, including the live futures markets, and options are traded using a simulation programme. This course explains the workings of futures, forward swaps and options markets and how they can be used for hedging and price management purposes.

● Introductory Financial Accounting for Petroleum Companies

This course is designed for delegates who have relatively little experience in oil and gas accounting and finance. It covers basic accounting and financial reporting methods for upstream activities and focuses on UK standards. US and international standards are also discussed.

● Operations Practice in Supply Trading

This residential course follows the trading activity associated with a barrel of crude from production through the refinery and into the petroleum product market. The operational practices employed in both the shipping and trading markets are presented, highlighting areas of operational risk confronted within trading operations and how these risks can be managed and litigation avoided.

● United States SEC and FASB Accounting and Reporting for Petroleum Companies

This course provides a basic understanding of current US SEC and FASB accounting and reporting requirements for oil and gas producing companies including the special problems in accounting for production sharing contracts and joint operations.

● Introduction to Oil Industry Operations

This well established IP course, which is of particular value to companies without in-house induction events, provides a concise and informed introduction to oil industry operations – from the search for oil and gas to the delivery of products to different customers. Participants gain an appreciation of the principal activities in the international upstream and downstream petroleum industry and an understanding of how these inter-relate, as well as an awareness of the impact of external influences and ways in which the industry is adapting to increase its competitiveness and to meet new challenges.

● Introduction to Petroleum Economics

This well established IP course, of particular value to companies without in-house induction events, concentrates on the structure of the oil industry, the geopolitics of oil and the working of the principal markets. It provides an informed introduction to the economic and commercial background and general trends of the oil industry, underpinning an understanding of oil and its markets with an awareness of global and strategic issues.

● Price Risk Management in Deregulated Power Industries

As part of a fictional power price risk management team, delegates learn to identify the price risk inherent in a company's gas and electricity businesses. The operation of futures, forwards, swaps and option markets are examined with delegates performing exercises on each type to ensure a full understanding of this fast-changing market. Delegates trade the live natural gas and electricity futures markets in Europe and the US, reacting to events as they happen.

● Planning and Economics of Refinery Operations

This course covers the latest trends in product specifications, process unit yields and refining schemes, calculation of product value, refinery margins and process unit margins, simulating refinery operations and product blending, the optimisation of refinery operations, crude oil selection and product manufacturing. ●

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e-mail: petroleum@lps.co.uk**

Getting together for emergency response training

One of the most significant outcomes of the Piper Alpha disaster in the late-1980s was the recommendation by the Cullen Inquiry that the UK offshore industry adopt a 'goal-setting' approach to safety matters, based on the identification and development of competence for key roles. One longer-term consequence of this response has been the introduction of integrated training of all the elements of the emergency team structure within offshore and onshore oil, gas, and petrochemical industries, writes **Rob Clow**, Assistant Divisional Officer, Enterprise Group, The Fire Service College.

Another important development stemming from the earlier Cullen Inquiry was the introduction in 1997 of OPITO (Offshore Petroleum Industry Training Organisation) standards which recognise major onshore platform exercises as the alternative to fire team training. Moreover, guidelines drawn up by UKOOA (United Kingdom Offshore Operators' Association) recommend that individuals be competent to take up their emergency response roles through approved onshore training programmes.

Increased importance has been placed upon practising, testing, reinforcing and enhancing these competencies through practice in the offshore environment and through participation in specially designed onshore exercises. In this way, those deciding how to manage an emergency are equipped to meet their responsibility to save lives.

These UKOOA guidelines identify key specialist personnel. As a result, The Fire Service College has developed a portfolio of integrated training exercises to assess and improve the competence of the following roles:

- Offshore Installation Manager
- Deputy Offshore Installation Manager
- Fire/Emergency Response Team Leader
- Fire/Emergency Response Team Member
- Muster Coordinator
- Control Room Operator
- Radio Operator.

In addition, the Prevention of Fire, Explosion, and Emergency Response Regulations (PFEER) require duty holders to prepare an Installation Emergency Response Plan which has to be tested in practice.

Restrictions created by operational demands and the presence of hydrocarbons mean that it is not possible realistically to simulate emergency conditions offshore. UKOOA therefore recommends that each installation conduct an annual integrated fire/emergency exercise which identified individuals should attend once every three years. This exercise is intended to test the Emergency Response Plan. It also provides the

opportunity for key personnel to practice their emergency response duties – and thus have their competence reassessed and receive certification where appropriate.

Integrated training

To meet these requirements, The Fire Service College has developed special integrated training that brings together for the first time the various elements of the emergency team structure (Emergency Command Team, Fire Team, and Stretcher/First Aid Team) in one course specific to the platform in question. The outcome is a single, all-embracing course building on the existing sophisticated communications infrastructure in both offshore and onshore operations.

The following are typical integrated training courses:

- **Three-day Fire Team Course.** One-and-a-half days incorporate the syllabus necessary for students to achieve the further training elements required to refresh OPITO Fire Team Member and Fire Team Leader Certificates. This is, however, not essential as certificates can be renewed through participation in the integrated emergency response exercise. The final one-and-a-half days' training for the fire team is integrated with the management and stretcher/first aid teams.
- **Two-day Management Team Course.** The first half-day includes role-play exercises and input on 'incident planning and management'. The remainder of the course is integrated with the fire and stretcher/first aid teams. There are three integrated exercises, based on guidance in the OPITO Standards for OIMs (Offshore Installation Managers). Usually, a member of the College staff visits the offshore installation before the course commences; this enables platform-specific courses to be designed.
- **Two-day First Aid and Stretcher Party Course.** The first half-day consists of input on assessing, prioritising, treating, and handling casualties. Input is also provided on basic fire behaviour to highlight the importance of not getting

drawn too close to a fire. The final one-and-a-half days' training for the first aid and stretcher party is integrated with the fire and management teams. The Casualty Union provides realistic live casualties to test the first aiders.

Benefits

As well as maintaining and developing the competence of key emergency response personnel, there is a substantial teamwork element to be developed during such training. Often the course includes a dinner, which is a pleasant social occasion that furnishes a rare opportunity for all team members to get together away from the workplace.

Integrated training addresses the need for companies to reduce costs, as it combines the normally separate requirements to train and then to test. This is therefore a cost-effective option as it reduces downtime.

Looking ahead

Future developments for the offshore industry will include the involvement of external agencies – such as coastguard,



police, standby vessels, and the company's own emergency response centre. The concept of integrated training is also actively being developed for onshore applications. Integrated training exercises constitute a highly-effective means of testing the site emergency response plan in accordance with forthcoming COMAH (Control of Major Accident Hazards) regulations.

Integrated training courses have already been staged by The Fire Service College at its Moreton-in-Marsh site for BP Magnus, Chevron Alba North and

Associated Octel. This training is to be made available on a continuing basis. The first of these special courses – for the BP Magnus platform at the end of 1998 – was observed by the UK HSE Offshore Safety Division.

This innovative training, tailored to the hydrocarbon/petrochemical platform on which the teams are based, points the way to the future in bringing together all the emergency teams in one course, as a positive response to the industry's needs and to current and anticipated regulations. ●

The College of Petroleum and Energy Studies, Oxford

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Lifetime Learning overseas

In April 1998 OPITO (Offshore Petroleum Industry Training Organisation) was recognised as the National Training Organisation (NTO) for oil and gas extraction. Established by the UK Department for Education and Employment (DfEE), NTOs act as the voice of UK employers and those with employment interests to government and to its many partners in education and training. *John Ramsay*, Chief Executive, OPITO, explains how the concept is being exported abroad.

NTOs have a strategic role in identifying the current and future skills needs of UK industry, and ensuring that education and training arrangements are in place to meet these needs. They are employer owned and funded bodies and most cover a particular industry, commercial sector or public service. A few NTOs cover broader occupational groups such as Management and Administration.

The advent of this new network coincides with a government determined to revolutionise the approach to learning in the UK. In its Green paper, *The Learning Age*, the government has set out a formidable challenge for all those engaged in education and training. This places an emphasis on Lifelong Learning to underpin a more competitive economy and greater opportunities for all. The NTO network will take a leading role by ensuring that employment interests influence training and education.

Qualifications, in particular S/NVQs (Scottish/National Vocational Qualifications), lie at the heart of the NTO agenda. Vocational qualifications are based on Occupational Standards developed by employers. OPITO has worked with the industry, individual companies, operators and contractors to develop Occupational Standards which meet their needs.

The introduction of the Safety Case and Safety Management Systems following the Cullen Report mean, that employers must assure the competence of their employees – particularly in key safety-critical roles. Companies need to demonstrate that arrangements are in place to ensure that workers are competent, using the relevant guidelines and standards where appropriate, and that proper arrangements are in place to verify competence.

Competence assurance

Companies have developed a number of competence assurance models to meet their own needs while others have used company-specific awards. There is a clear move towards S/NVQs being seen as an effective way to assure competence, and companies are now identifying sound business reasons for adopting a standards-based competence assurance approach. A personal competence profile provides the basis for training specifically designed to meet individual requirements. Competence-based training provides a measure of the outcomes

and focuses training on key areas of performance.

This standards-based approach developed in the UK is now being taken up elsewhere in the international oil and gas industry. For example, OPITO has established a Memorandum of Understanding with the Oil Industry Training Board in Oman which will lead to OPITO working with Petroleum Development Oman (PDO), the major oil and gas producer in the country.

PDO needed to establish the competence of its workforce and to determine its future requirements. The company has embarked on a programme of 'Omanisation' in a number of key areas and has committed to a programme of structured training. Having examined a competence-based approach it decided to contract with OPITO to carry out an audit of its systems and to match these against best practice.

This led to a recommendation by OPITO that PDO should adopt a competence assurance system based on standards already developed. OPITO was invited to work with PDO to develop and implement the systems proposed.

In February this year, OPITO completed an 18-month project to develop standards suitable for PDO operations and to implement site-based assessment against the standards. It was interesting that the standards already developed for operations in the UK only required minor amendments to meet PDO requirements.

The original project covered process operations with the contract extended to include maintenance technicians and well services supervisors.

The Occupational Standards developed have been accredited as vocational qualifications based on the UK model and OPITO will provide awarding body services in partnership with Edexcel.

Competence assurance based on Occupational Standards has now become an integral part of PDO's management system with assessment documentation, candidates guidance and assessor training provided as part of OPITO's support contract. PDO is self-sufficient and no longer dependent on external support.

OPITO has also discussed Occupational Standards with oil and gas companies in southeast Asia, Western Australia, Trinidad and the Middle East and sees real value in promoting an international approach to Occupational Standards. ●

Meeting fuel needs as standards tighten

European refining is facing both short- and long-term challenges which are likely to radically alter the structure of the industry, writes *Nigel Cuthbert*, from refining consultants Purvin & Gertz. The introduction of higher specification gasoline and diesel in the EU will result in the need for substantial investment. The Asian financial crisis and subsequent decline in international crude oil prices has put oil company profits under pressure which, in turn, has intensified the traditional focus on cost reduction and the need to raise the return on capital. The financial pressures have resulted in company mergers, refinery closures and calls for massive capacity reductions to remove 'surplus' capacity.*

One of the main challenges facing the refining industry in Europe is the growing pressure for a reduction in carbon dioxide (CO₂) emissions. Oil provides 41% of Europe's primary energy and 48.5% of fossil fuel energy. It therefore attracts considerable attention in the debate on CO₂ reduction.

Heavy fuel oil use has declined in inland Europe by 28% over the period between 1985 and 1997. Much of this reduction has been in the power generation sector but industrial use has also declined. Natural gas and expansion of nuclear and hydro capacity have substi-

tuted oil use in power generation. In the future further substitution by gas is expected as the lower capital cost and higher efficiency of combined cycle gas turbines make gas the fuel of choice for power generation.

Tackling transport emissions

The transport sector accounts for more than half of the oil used in Europe with a high proportion of this being for road transport. It is in this sector where the greatest pressure for CO₂ reduction will be felt. In 1998, the European vehicle manufacturers' association (ACEA) reached a voluntary agreement with the EU Commission which will have far reaching consequences for European refiners. The agreement contains the following key terms:

- By 2008, the average CO₂ emissions from new cars made in Europe will be no greater than 140 g/km (equivalent to 5.8 litres of gasoline per/100 km)
- Diesel cars producing CO₂ emissions of 120 g/km (4.5 litres of diesel/100 km) will be available by 2002
- In 2003, the target will be re-examined with a view to meeting the objective of 120 g/km of CO₂ (5 litres of gasoline/100km) by 2012.
- Compliance monitoring will be put in place jointly by the Commission and ACEA.

The reduction to 140 g/km of CO₂ in 2008 represents an estimated 25% improvement in fuel efficiency versus a 1995 base. In order to meet these fuel efficiency targets all diesel engines and all gasoline engines in the 1.6 to 2.0 litre size will have to switch to high speed, direct fuel injection technology. In order to meet the 2008 target some highly efficient vehicles with fuel consumption of 3 litres of gasoline per 100km – the 'three-litre car' – will need to comprise part of the new car fleet.

In parallel with the development of direct injection technology, the car industry is engaged in fundamental research on alternative power train concepts. In the US, the Program for New Generation Vehicles (PNGV) includes contributions from all of the main car manufacturers. Similar initiatives exist in other markets. Two new technologies look promising based on research to date.

In the medium term (from 2005), hybrid electric vehicles (HEVs) may find a market, particularly where city centre traffic restrictions for conventional engines are applied. These vehicles have an internal combustion engine and an electric motor with battery storage. Depending on the drive configuration the internal combustion engine either drives the wheels, the generator or both. These vehicles are claimed to be up to 50% more fuel-efficient than their conventional equivalent. The internal combustion engine can be optimised for a limited load range and the braking energy can be recovered through the generator. The cost of production with duplicate power trains is a barrier, although one manufacturer is already supplying HEVs in Japan and plans to introduce them to the European market next year.

In the longer term, fuel cell vehicles with an onboard reformer may overcome the considerable technical and cost barriers to become commercially viable. Concept vehicles have been produced and considerable investment is being put into commercialisation of the technology. The choice of fuel for the onboard reformer used to produce hydrogen for the fuel cell is a matter for debate. The prototype vehicles use methanol although a light, very pure paraffinic naphtha could be used. Conventional or even highly reformulated gasoline is not currently a likely option.

The developments in conventional engine technology will result in new vehicle fuel efficiencies improving by around 25% by 2008. As the active car fleet takes between eight and 10 years to replace, the full impact of the change would not be felt until beyond 2010. However, the change to direct injection technology is likely to reduce the purchase cost barrier for diesel cars and, in the high cost fuel environment of Europe, the higher efficiency and smoother running of a direct injection diesel car is likely to result in increased penetration in some markets. A higher proportion of diesel cars in the fleet makes ACEA's commitment easier to achieve and, of course, reduces CO₂ emissions.

In the longer term, if fuel cells with an onboard reformer become commercially viable, both gasoline and diesel consumption may start to decline quite sharply. Fuel cell powered trucks may

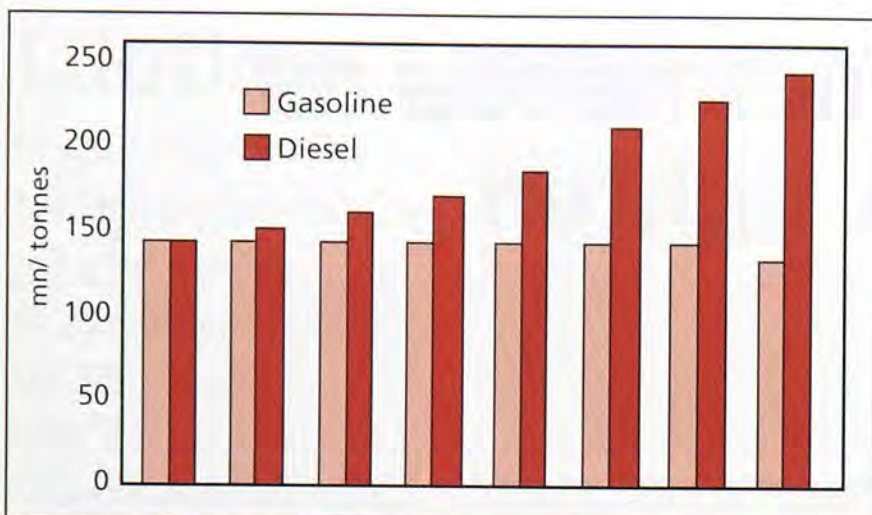


Figure 1: Europe road fuel demand

also start to replace their diesel-engined predecessors. Whilst this scenario does have a finite probability, it is unlikely to develop until well beyond 2015. Until then the refining industry challenge is to produce more, higher quality diesel fuel and to improve the quality of the gasoline pool.

Our demand outlook is for gasoline to remain relatively flat overall in Europe through 2005 and then start a gradual decline as more efficient vehicles penetrate the fleet and the proportion of diesel cars grows. Diesel demand is forecast to grow quite strongly as shown in Figure 1.

Fuel quality and refinery investment

In the lean burn conditions required to achieve high fuel economy, NO_x (nitrogen oxides) emissions increase. To allow the implementation of NO_x reduction technology very low sulfur fuels are required. It is this need which lies behind the 2005 gasoline and diesel sulfur specification of 50 ppm sulfur.

The 2000 qualities are now fixed and the sulfur and gasoline aromatics are agreed for 2005. The remaining qualities for 2005 are to be determined by the Auto Oil II studies that are due to be completed in 1999. The key parameters are shown in Table 1. Virtually all refineries in Europe that expect to remain selling gasoline and diesel to their local markets will have to invest to meet these qualities. In many cases the 2000 requirements can be met by operational and crude slate changes, with revamp of hydrotreaters. Those refineries which currently sell aromatics, or have access to buyers of aromatics rich reformat, are particularly well placed. This accounts for around 20% of the refineries and 25% of European capacity.

Most refineries are studying their options to meet the 2005 qualities but the final investment decision is likely to be delayed until the remaining specification parameters are determined. Our industry analysis and experience in other markets has shown that further substantial reductions in olefins and aromatics to levels below those set for 2000 and

2005 respectively would be extremely costly to implement.

In practice the industry is a dynamic environment. Refineries will consider future demand patterns as well as quality needs when determining their investment route. Some refineries may choose not to invest and produce intermediate products or may purchase blendstocks from others, but few will avoid investment altogether. The total investment needed, including that required to add distillation and conversion capacity and meet the year 2000 and 2005 gasoline and diesel qualities, is estimated to be between \$30bn and \$35bn through 2015. About 60% of this investment is for upgrading quality

Refinery capacity

Through the 1980s and into the early 1990s, OECD Europe was a heavy importer of petroleum products from the former Soviet Union and the Middle East. Generally these supplies were not price sensitive and acted as a brake on margins. As shown in Figure 2, net imports to Western Europe reduced from over 50mn tonnes in the late 1980s to just over 10mn tonnes in 1997. Over the same period demand grew by over 70mn tonnes. The often discussed refinery capacity surplus in Europe does not stand close scrutiny. Europe remains a net importer of refined products. However, the imbalance between gasoline supply and consumption has resulted in significant and growing exports of gasoline to the US.

The reduction in imports, coupled with growth in demand, required increased production by European refineries. Utilisation of crude distillation grew from around 80% in 1990 to nearly 90% currently. This is close to the effective maximum sustainable level. As European demand grows some expansion of distillation capacity will be required to maintain the supply/demand balance. Most of this expansion will be achieved through capacity 'creep', which is a low cost debottlenecking type activity. Some will be grass roots investment, probably associated with other rationalisation or feedstock flexibility goals.

Industry structure

In the Europe region considered there are 127 fuels refineries and 15 refineries dedicated to the production of speciality products. The ownership profile of the fuels refineries is shown in Figure 3. The largest number of refineries is in the group owned by the national companies. The average size is relatively small, pulled down by a number of small refineries in eastern Europe. The international companies form the next largest group with 41 refineries. Typically these are larger and

	Current	2000/1	2005
Gasoline			
Sulfur (ppm)	500	150	50
Benzene (%)	5	1	?
Olefins (%)	n/s	18	?
Aromatics (%)	n/s	40	35
RVP (Sum.) (kPa)	Var	60	?
Lead (g/l)	0.15	0	0
Diesel			
Sulfur (ppm)	500	350	50
Density (kg/l)	0.86	0.845	?
T (95°C)	370	360	?
PAH (wt%)	—	11	?
Cetane	49	51	?

Table 1: Future gasoline and diesel quality

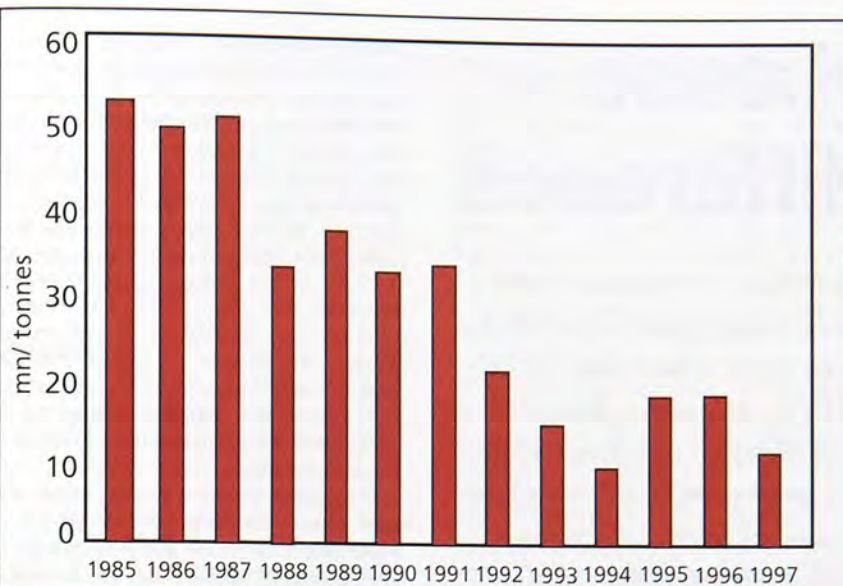


Figure 2: Europe net imports

more complex than those owned by the national companies. Private owners account for 7% of capacity in 12 refineries. Two very large refineries, the Saras refinery in Sardinia and the Beta refinery at Wilhelmshaven boost the average size of this group.

In recent years the number of joint venture refineries has grown substantially. Currently there are 17 joint venture refineries with 18% of European capacity. As the industry seeks to cut costs by consolidation, joint ventures provide a means to remove uneconomically small refineries while maintaining security of supply to marketing. The recent capacity exchange between Shell and Statoil, which enabled the closure of a small refinery in Norway, is a good example of the type of development which can be expected in future. Similar moves, encouraged by cost cutting have resulted in the new joint ventures in Bavaria

(BayernOil) and Karlsruhe (Miro) in Germany. In these cases only limited capacity reductions were made and the continued operation of multiple process sites reduces the possible efficiency gains. The privatisation of state refineries in eastern Europe is likely to result in the purchase by consortia of companies which actively market in the country. In this way no one company assumes the cost of refining and each has security of supply to their marketing operation. Further capacity rationalisation in the region is likely.

The cost of compliance for the higher quality gasoline and diesel fuel will vary across the industry depending on individual refinery configurations and the demand pattern in the location. However, the predominant configuration is the catalytic cracking refinery and consequently it is this type of refinery which will set the market price

for the new fuels. The average size of cat cracking refineries has increased as refineries have merged and as smaller plants have closed. Any refinery which is smaller than the average will see a lower rate of return on the compliance investment. The need to achieve economies of scale to reach an acceptable return on investment will drive further consolidation in the industry.

Facing the future

The European refining industry is entering a challenging and exciting period in its history. Some of the signs are very positive; capacity utilisation levels are approaching maximum in many parts of the region and rationalisation is likely in those areas that have a surplus. The introduction of higher specification gasoline and diesel fuels will provide a temporary barrier to imports which would depress European refining margins.

The trend to increasing fuel economy for vehicles will continue and possibly accelerate but car ownership levels are set to rise. Diesellisation of the car fleet will continue, prompted by higher fuel costs and technically more advanced diesel engines. In many countries this trend will be accepted as the means of reducing CO₂ emissions. In the longer term, gasoline and diesel engines may be replaced by fuel cells or other power train concepts. It is unlikely that this will severely impact the industry until well beyond 2015. However, the industry must be aware and plan for this potential threat.

The recent wave of mergers, both at the corporate and at the refinery level, represents the start of a restructuring process which is not yet complete. As companies seek to improve performance by reducing overhead costs and refiners strive to gain the necessary economies of scale to remunerate investments for quality upgrading, further mergers are expected. The future of refining in Europe may well be a significant increase in the number of large, joint venture refineries. As more companies merge and the average size of refinery increases, the pressure on the smaller sites will intensify.

**This article draws on a recent study by Purvin & Gertz of the key issues facing the European refining industry. The geographical definition of Europe used here covers the countries of OECD Europe, the Slovak Republic, and in the south, Albania, Bulgaria, Romania and the countries of former Yugoslavia. With only limited and temporary exceptions, these countries represent a region of relatively free trade in petroleum. Many of the countries that are not EU members have ambitions to join. Consequently a common set of product quality targets is evolving.*

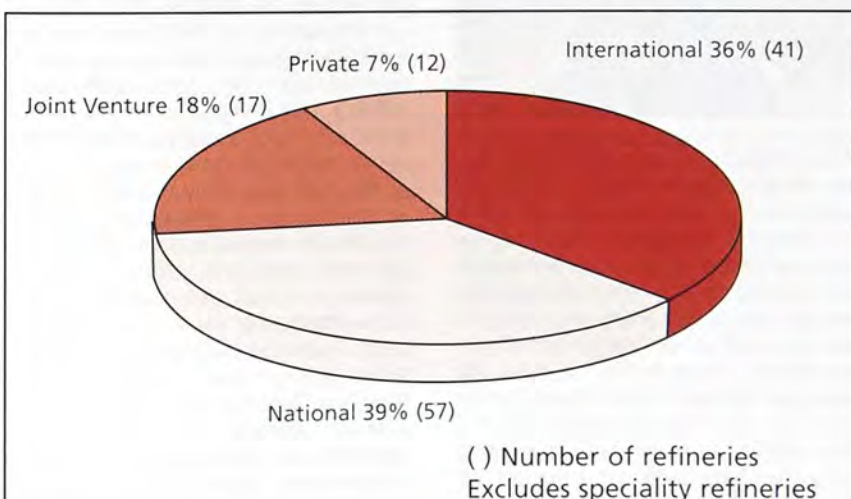


Figure 3: European refinery ownership by crude capacity

Chris Moorhouse – making a difference

Few senior oil executives ask for a Fender Stratocaster as a present for 25 years of loyal service – even fewer work for a company that would give them one. Chris Moorhouse, Chief Executive, International Trading, BP Oil International, and IP President, is undoubtedly an unusual oilman – but, then again, BP Amoco, which he describes as a great company to work for, is an unusual company. *Chris Skrebowski, Editor, Petroleum Review*, in the first of a series of informal interviews with senior industry executives, talks to the man behind the guitar.

The interview took place in Chris Moorhouse's three-sided glass walled office that forms a corner of BP's vast trading floor at No 1 Broadgate in the City. It wasn't long before confidences were being imparted between 'these three walls' – clearly a favourite joke. Two impressions rapidly emerged. The first is that Chris Moorhouse is a highly individual executive who is very proud of his company and its achievements. The second is that he is intensely focused and completely devoid of pretensions.

When David Setchell, the previous IP President, was sounding out Chris Moorhouse as a possible successor, he was asked if it was 'a job where you can make a difference?'. We must assume that Chris got the answer he wanted as in June 1998 he became President of the Institute of Petroleum.

The aim of this interview, however, was to gain some insight into his career and the more private side of his life. Born in 1952 on the Isle of Man, Chris decided that he wanted to study chemistry at university but also hankered to be a drummer. When he explained his dilemma to his father, much to his surprise, his father offered to buy him a full drum kit but only if he committed to becoming a professional drummer. He records with some pride that he inherited his very strong work ethic from his father who regularly put in very long hours running his business. The interest in drumming also came from his father who had been a professional drummer with a dance band on the Isle of Man, having started in the 1920s, and becoming a musical director with the RAF during the War.

Chris in the end decided to go to university and in recording his choice

noted that you 'have to commit' and also 'make sacrifices along the way – but luckily not all of the time'. At this date his father was on the point of retiring after a lifetime as a master butcher and greengrocer. Chris felt that for financial reasons he could only go if he could secure a university apprentice-



ship. Encouraged by his physics master, he had written to 20 companies and received three replies – one of which was from BP. He records with a certain wry amusement that the letter calling him to London for an interview arrived on the day of the interview. He feels that the way he handled the situation – arranging transport for the next day and then ringing BP to tell them that he could be in London by 10am the next day – stood him in good stead and may even have been critical in securing him the apprenticeship to go to Manchester University.

So, at age 18, Chris became a BP uni-

versity apprentice with the commitment to work six weeks in the summer during the university course but with no additional commitment either way. He clearly enjoyed his first summer working at the Isle of Grain refinery (Kent) where he was involved in a refinery effluent study involving dye dispersion technology and a sulfur dioxide (SO₂) survey. This involved 'chasing the plume' in an elderly Hillman van loaded with detection equipment. He remains vastly amused that the old hands at Kent welcomed the apprentices because their 'fresh unpolluted noses' made them ideal for the odour survey.

His second summer was to prove an even more important event in his life – while working at the Sunbury research centre he met his future wife, Frances. She was at Imperial College and had a temporary job working on the rheology of waxy crudes, or more colloquially, how much power did you need to move them in pipelines? This work was not unconnected with the problems that BP was having with the Sarir field pipeline in Libya. Chris was working on the thermal stability of esters used in synthetic lubes for supersonic jets. He reports that he became well known in the labs as the less stable esters would go off like shotguns in the heat bath, bringing the safety officer running.

As he was approaching his finals, the BP personnel officer pointed out that the company had no commitment to employ him and perhaps he should think about applying for other jobs. However, he held out some hope because the Supply Department had 'too many chiefs and Moorhouse would make a real good Indian'. Chris remembers the sting of the comment to this day and feels that apart from getting him his degree he has been reacting to the comment ever since.

In the summer of 1973, Chris became a full-time employee working as a refinery programmer for the Gothenburg refinery. Very shortly after he joined, the Arab oil embargo totally disrupted operations and he was soon in the very thick of the changes with a two-year posting to the Rotterdam refinery. At that date the 900,000 b/d Rotterdam refinery was BP's main balancing unit in northwest Europe and was very hard-hit by the Arab embargo of the Netherlands. As a result, Rotterdam had to be run on non-Arab crudes, such as Iranian and Nigerian. Chris remembers having to tell a senior operator that the only crude they had been able to secure had been Angolan and that the only information they had on it was a wellhead assay – the alternative being to shut down the unit. At this point he was travelling back to the

UK fairly regularly, and married Frances after her graduation in summer 1974.

Chris got his first direct involvement in oil trading when he helped set up the London liaison for a barge trading operation in Rotterdam under Russell Seal. Returning to London in the mid-1970s, he was working in supply planning and the running of the large computer simulation models used by BP.

Big break

Chris's first big break came with a posting to New York in 1980. He became one of the two traders operating under Jerry Brennan, handling all the crude and products trading in the New York office. Chris recounts that Fran, his wife, who was working for Avis in London, managed to secure a transfer to New York to join him. One trade seems to have stuck clearly in his mind – a cargo of Beryl crude priced at \$43.15/b FOB North Sea.

One of the key clients of the New York office was the US Defense Fuels Supply Center (DFSC) which had only two fax machines and required suppliers to arrange to collect their payment cheque or have it put in the 'fourth-class' mail. This led to what Chris still regards as the best \$25 he has ever spent on BP's behalf. One of the local banks had a service costing \$25 which collected payment cheques from the DFSC. On one occasion BP accountants were very surprised to find a four-day-early payment on a \$63mn cargo. The explanation was that the messenger had asked if there were any more cheques for BP and the DFSC clerk had obligingly handed over an early payment.

Clearly the New York posting was particularly enjoyable and Chris notes that the city, which was rebuilding much of the central area at the time, had great energy and excitement both in the street and in the office. He also reports that as they were a classic DINKY (dual income, no kids) couple they had a very good time.

Chris returned to London in 1993, which was something of an anti-climax after New York, but it provided his first experience of trading management and refinery management working in the supply economics section. A year later he was sent on the intensive, 13-week course at Harvard, effectively a one-year MBA squeezed into little over three months. He confirms that this involved continuous early starts and late nights, but records that for the first time he had a view of how to run a company, and for the first time recognised that accountants were more than just bean counters.

In 1996, Chris was appointed to head-up the marketing joint venture BPMED based in Madrid. He describes himself as an 'interesting choice' for the post as he

Chris and the Institute of Petroleum

Chris explained that he has always aimed to be in jobs where he could make a difference. Although BP Amoco is clearly the main focus of his time and energy, he is particularly pleased to have taken on the Presidency of the Institute of Petroleum.

He notes that although the cost of the IP to the oil companies is fairly small, in the present state of the industry the Institute has to make sure that it is seen as worth spending money on and that it delivers good value to its members. He has great confidence that there is considerable opportunity for the IP to perform the range of tasks that can be done collectively without restricting competition between the companies. Health, safety and environment are obvious examples.

He also notes that as people are now having to look after their own destiny, and are tending to work in smaller organisations, there are opportunities

to develop all forms of Lifetime Learning, supporting individuals and helping to increase their skills.

He feels very strongly that people should be made aware of the great things the industry provides society in terms of heat, light and mobility, although the provision of these had to be balanced against environmental concerns.

He sees the Institute's 'independence' as one of its major assets – and one it should seek to preserve. He would like to see it become the leading independent European organisation for the industry.

However, the development of cooperation and alliances with other industry bodies in the region and with UK-based organisations such as UKPIA and UKOOA are vital for the development of the IP.

From his aviation experience Chris knows that the IP is well placed to do work that meets the highest standards in the world and this can be built on further.

had no marketing experience and didn't speak any Spanish. At the time he was the company's first and only employee, but by the time he left in 1998, the company was employing 600 staff and controlling 10% of the Spanish market. He allocated the first hour of every day to learning Spanish with a tutor and within 18 months had held a press conference in Spanish at which 200 people turned up.

The Board of the company consisted of five Spaniards and three British, so from a very early date all Board meetings were held in Spanish. The culmination of his period in office came with the full BP takeover of Petromed.

Dream job

After the takeover, and the incorporation of Petromed as a full BP subsidiary, Chris returned to London to become Chief Executive of Air BP – a job he had always wanted. He explains that it was one of the first downstream business units to be run autonomously on a global basis. A particular feature of the market is the huge concentration of buyer power which means that around 20 top airline buyers control 80% of the free-world market. As a result, the relationship with these buyers is the critical business success factor. The business at this date also featured a number of opportunities in the fast-growing Far East markets, as well as in eastern and central Europe. In the latter there are a number of opportunities involving the rebuilding of infrastructure and the development of long-term working relations. He recounted with some pride the development of a joint

venture with the Albanians that had allowed them to stave off the threat of the international airlines boycotting Tirana Airport because of a lack of up-to-date fuelling facilities.

Chris's latest position as BP Chief Executive of International Trading puts him at the head of business with a turnover of \$25bn (1997) and around 300 staff. He summarised their objective as 'to secure the right crudes for the refineries at the best possible prices, to manage the risk both upstream and downstream and to make a profit from the trading business in its own right'. BP does not publish the profits of International Trading but a 'confidence within three walls' indicates they are substantial. Chris notes with evident pride that the merger with Amoco has expanded the business.

It seemed almost impertinent to ask such a busy man what he did in his spare time – he did confirm he had very little of it. However, music is clearly a passion and his house boasts ten guitars (he is left-handed and his wife right-handed), two pianos, a flute for their teenage daughter and a cello for their teenage son. When I spoke to him he had the key of his local Methodist Church (the one he was married in) in his pocket as he is its part-time organist. He was due to play the following Sunday and needed to practise. This unusual oilman's favourite book is *Wild Swans* which he first read on a trip to China when he was with Air BP. At the moment he is working through the Ian Banks novels which appear to be giving him almost as much pleasure as everything else he does. ●

New E&P legislation in the pipeline

Oil and gas companies are increasingly having to research and be more open about the environmental impact of their offshore operations in order to comply with ever more stringent legislation. *Paul Dillon and Luke Bennett* of Morgan Cole Solicitors summarise the impact of the latest changes to the UK's Offshore Petroleum Production and Pipelines (Assessment of Environmental Effects) Regulations which came into effect on 14 March this year.

The new Regulations replace the 1998 Regulations which finally applied the requirements of the 1985 EC Directive on the environmental assessment of major works. Reflecting changes made to the Directive by the EC in 1997, the new legislation imposes a greater requirement on operators to assess the environmental impact of proposed offshore wells, field development or pipeline projects (including floating and mobile installations). It also effectively prohibits the UK Secretary of State (SoS) from exercising powers to authorise proposed works unless the specified environmental assessment requirements have been complied with.

Operators must produce and submit an Environmental Statement (ES) to the UK Department of Trade and Industry (DTI) along with any application seeking authorisation for the works. The SoS must be satisfied that the standard of the ES is adequate and that the applicant has 'substantially' met the publicity and consultation requirements set by the Regulations. These require the applicant to:

- send copies of the ES to designated environmental authorities in order that they may contribute as consultees; and
- advertise the existence of the ES and invite members of the public to inspect and/or acquire copies of it.

Additionally, the SoS must invite EC member states to take part in the decision-making process if it is considered likely that the environment of another member of the EC may be significantly affected by the works. Non-EC members of the European Economic Area (EEA)

also have a right to make representations to the SoS in relation to the application.

The SoS must therefore take into account all of the following in reaching a decision upon the application:

- the content of the ES;
- the environmental authorities' responses;
- representations made by members of the public; and
- submissions made by other EC or EEA member states.

The SoS will then – and only then – be in a position to determine the application. In doing so, conditions may be imposed upon the granting of consent.

Although the new Regulations largely reproduce the procedures set down in the 1998 Regulations, the procedures have been enhanced:

- The SoS must now publicise the reasons underlying the final decision (not just the decision itself) and details of the mitigation measures which are proposed for the authorised works.
- The role of other countries in the authorisation process has increased.
- A list of defining criteria for determining 'significant effects' has been added.
- Prospective applicants can now seek the SoS's views upon the necessary scope of an ES for a proposed project.

Who needs to know?

Operators should start from the assumption that the environmental assessment procedure applies to all offshore oil and gas projects. The SoS has the power to make Directions providing that, for a particular project, there are

no likely significant environmental effects and therefore no ES is required. However, it should be noted that:

- an operator will still need to provide the SoS with sufficient information about the environmental effect of the works in order for that Direction to be made; and
- the SoS has no power to issue a Direction in relation to any development expecting to produce a daily volume of more than 500 tonnes or 500,000 cm of gas or in relation to any pipeline with a diameter of 800 mm or greater and a total length of 40 km or longer.

There are two exceptions:

- renewals of production consents where production has not increased by 20% or 1,500 t/d or 2.5m³ cm/d, whichever is the smaller; and
- the installation of a new pipe within 500 metres of an existing installation.

Criminal offences

In contrast with UK Town & Country Planning legislation which implements the 1985 Directive (as amended) for the majority of onshore works, the regime applicable to offshore oil and gas works has 'teeth'.

The Regulations underpin the environmental assessment regime with criminal offences relating to the supply of false or misleading information and the carrying out of works without proper environmental assessment and approval.

Court intervention

Powers are also given whereby the validity of any consent given can be challenged in the courts for non compliance with the Regulations. Additionally the SoS is empowered to apply to a court for an order requiring the removal of any works that have been erected in breach of the Regulations.

Accordingly, both in view of these powerful enforcement mechanisms and the ever increasing focus upon publicity and consultation within this authorisation process, operators will need to take considerable care to ensure that offshore oil and gas projects are properly planned and authorised in compliance with these Regulations.

Cross-border gas trade in the new era

International gas trade has expanded by almost tenfold in the past 30 years from 46bn cm in 1970 to 439bn cm (excluding intra-FSU trade) in 1997. The impressive increase in volumes of gas traded has been achieved mainly through international gas pipeline exchanges, which between 1985 and 1997 accounted for 75% of total world gas trade, writes

Dr Mostefa A Ouki,
Manager Gas
Economics, Bechtel.*

According to the latest survey of worldwide pipeline construction outside North America, conducted by *Pipeline & Gas Industry*,¹ natural gas continues to account for by far the largest shares of pipelines under construction, planned and proposed (see Table 1). As shown in Table 2, this is explained by the large gas pipeline schemes currently being implemented or planned in Europe (including the FSU), the Far East and Latin America.

At present, over 95% of world gas trade by pipeline (excluding intra-FSU trade) is targeting three main consuming regions with developed gas markets and pipeline infrastructure: North America, Western Europe and Central Europe. Table 2 shows that the largest share of planned and proposed gas pipeline projects is in the European region where the bulk of the projects originate in the FSU. In recent years, however, emerging gas markets such as those of South Asia and Latin America have been the focus of an increasing number of planned pipeline projects based mainly on gas supplies for the generation of electricity.

Varying prospects

Prospects for the development of new international gas lines vary from one region to another, depending, *inter alia*, on the level of development of the targeted markets and the structure of the energy sector in the producing, transit and consuming countries. In Europe, the recently completed cross-border gas pipelines such as the Interconnector pipeline and the NorFra line are linking the region's indigenous gas reserves in the North Sea with gas markets on the Continent. Western Europe's gas pipeline system is also linked to North Africa's gas fields through the Maghreb-Europe gas pipeline and the Trans-Mediterranean gas pipeline. These intra- and inter-regional gas lines have the potential to be expanded to transmit additional supplies of gas.

The main challenge facing the launching of new cross-border gas lines to hard-currency markets in Europe is the fierce competition from both incumbent and new suppliers under a rapidly changing gas market structure. The ongoing move towards the liberali-

sation of gas markets in Western Europe will affect existing gas pricing mechanisms, the contractual nature of gas supply and transportation agreements. This, in turn, will impact the funding prospects of new international gas pipeline projects, especially for long-distance gas lines transiting more than one country.

Developing markets

In South Asia, new gas markets are emerging in India, Pakistan and Bangladesh with the bulk of the projected demand for natural gas to be located in the sub-continent's largest economy, India. As the region's gas resource endowment differs from one country to another, Middle Eastern and Asian gas producers are targeting potential markets in India and Pakistan through planned and proposed LNG and cross-border gas pipeline projects.

Several LNG import schemes are at different stages of development and planning in India while cross-border gas pipeline projects have been proposed to supply potential markets in Pakistan. In Bangladesh, the opening up of the upstream sector to international oil and gas companies is expected to boost the country's gas supply output to meet first the rapidly growing local gas demand. Also, depending on the proving up of enough reserves to cover the country's long-term gas requirements and on favourable inter-fuel substitution conditions, potential cross-border gas exports by pipeline from Bangladesh could be developed.

For more than a year, the trade press and conferences have been inundated with articles and presentations on the high level of projected gas demand in India and to a lesser extent in Pakistan. Although there is no doubt that emerging South Asian gas markets will observe a rapid growth from their present consumption levels, it is important to assess what percentage of the projected demand can really be met by long-distance gas pipeline exports and at what delivered price(s).

The main challenges facing proposed/planned cross-border gas pipelines projects (as well as LNG projects) targeting South Asia are those associated with the project risks encountered in developing economies

Product	Under construction (total length, miles)	Share	Planned & proposed (total length, miles)	Share
Gas	8,363	80%	62,323	72%
Crude oil	1,343	13%	18,159	21%
Products/other	723	7%	5,807	7%
Total	10,429	100%	86,289	100%

Table 1: Pipelines under construction and planned/proposed outside North America by product
(Source: Pipeline & Gas Industry, November 1998)

Region	Under construction (total length, miles)	Share	Planned & proposed (total length, miles)	Share
Europe (incl FSU)	3,053	37%	18,272	29%
Middle East	774	9%	9,566	15%
Africa	759	9%	4,058	7%
South Pacific	803	10%	7,371	12%
Far East	1,453	17%	13,268	21%
Mexico/Central America	193	2%	1,226	2%
Latin America	1,328	16%	8,562	14%
Total	8,363	100%	62,323	100%

Table 2: Pipelines under construction and planned/proposed outside North America by region
(Source: Pipeline & Gas Industry, November 1998)

with controlled energy industries. The main issues at stake are:

- the presence of distorted or only partially cost-responsive domestic energy pricing structures;
- precarious creditworthiness of local state-owned entities purchasing gas supplies; and
- lack of adequate legal, commercial and regulatory frameworks in the importing and transit countries.

In Latin America, the drastic economic and energy restructuring measures initiated early on by countries such as Argentina and Chile have facilitated the funding of cross-border gas pipeline projects in that region. An enabling environment for local and foreign private investors and international lenders led to the implementation of long-distance transnational gas pipeline projects (Bolivia to Brazil and Argentina to Chile) expected to boost intra-regional gas trade and the development of a sub-regional gas pipeline grid. However, the high capital intensity of long-distance gas lines and their accompanying commercial and environmental risks remain a limiting factor for the number of projects that can be implemented in South America as well as in other regions.

Funding the key

The percentage of new gas pipeline projects likely to be implemented worldwide will obviously depend on the funding prospects of each of the

proposed projects. During the last two decades and before the oil price collapse of the mid-eighties, the funding of most pipeline projects relied on the resources of state-owned energy entities (including government borrowing) and major oil and gas companies. But, the ever-increasing financial constraints affecting oil and gas producing countries have severely affected their ability to fund their own projects. The cost magnitude of new international gas pipeline schemes poses new complex funding challenges.

The capital intensity and the technical, financial and political risks associated with cross-border pipeline projects have brought to the fore new important players in the development, funding and implementation of such projects. In today's transformed economic and energy environments, international lending institutions, and private project developers and investors, have gained an increasingly crucial role in the successful implementation of international gas transportation schemes.

Before considering the financing of any pipeline project, lenders, as well as potential investors, will focus on whether the proposed pipeline project meets an elaborate number of criteria including:

- proven pipeline engineering and construction technology;
- creditworthy target gas markets with viable base-load demand levels;
- guaranteed availability of natural gas reserves over the project life;

- gas supply and transportation/transit agreements guaranteeing the availability of funds to service the project debt and to provide investors with an acceptable return on their equity;
- acceptable mitigation of legal, regulatory and political risks; and
- established and committed project sponsors and operators.

Of the above mentioned requirements, the issues of adequate gas supply and transportation/transit agreements are fundamental to the project implementation. At the centre of these issues is the question of the delivered gas price which depends on the price movements of competing fuels in the targeted energy markets and the project's gas supply and transportation/transit cost constraints. With the exception of mature liberalised gas markets characterised by gas-to-gas competition, the competing fuels for natural gas continue to be crude oil and petroleum products.

The crude oil-gas price linkage remains the basis for the gas pricing mechanism of most international gas trade agreements.

Although it is not my intention to add to the doom and gloom scenarios currently put forward, it is obvious that the persistent depressive impact of low crude oil prices offers very limited prospects for the development of new international gas trade projects, whether under pipeline or LNG forms. In the present situation, it is difficult to justify financially the development of large new cross-border gas projects.

Decoupling gas prices

The prevailing gas pricing mechanism driven by crude oil prices has proven unsatisfactory (to project developers) during periods of low oil prices when gas prices linked to them have come even as low as contractually agreed floor prices. Recently, gas producers have expressed concerns about the oil-gas price linkage and are cautiously considering the decoupling of gas prices from oil. It should be understood that the presently called-for decoupling of gas prices from oil prices is a long process depending on the level of liberalisation of gas markets and the establishment of gas-to-gas competition. Several currently proposed/planned cross-border gas pipeline projects include developing gas markets relying on a limited number of gas supply sources and evolving in a controlled economic and energy environment.

Some gas producers have continued to stress that the environmental advantages of natural gas command a premium over other fuels. But, unless

Funding sources	US\$ (mn)	Share
European Investment Bank	947	48%
Export credit agencies	519	26%
Commercial banks	222	11%
Sonatrach (Algeria)	101	5%
Enagas (Spain)	140	7%
Transgas (Portugal)	56	3%
Total	1,985	100%

Table 3: Funding structure of the Maghreb-Europe gas pipeline (Source: Razavi, 1996)²

more stringent environmental standards and tax policies favouring gas use are seriously considered and introduced in consuming countries, depressed prices of crude oil and its derivatives will continue to constrain the development of long-distance gas resources. In some developing countries endowed with large reserves of low-cost coal and/or supplied with low-price oil products, natural gas will find it difficult to penetrate energy markets based only on environmental considerations.

Cross-border gas pipeline projects are quite often integrated to new upstream and downstream gas development projects where the commercial viability of the pipeline transportation segment is closely linked to the other segments of the chain. Also, it should be noted that international gas pipelines (with some rare exceptions) are not developed based on speculative requirements for future transmission capacity. On the upstream side, notwithstanding the negative impact of current low oil prices, the increasing involvement of international oil and gas companies in exploration and production (E&P) activities in several gas prone regions is improving the prospects for local and intra-regional gas supply projects.

Downstream, the rapid growth of independent power producer (IPP) projects, although at a slower rate due to the recent economic and financial crises in Asia and contractual difficulties encountered in some areas, continues to drive most gas supply projects.

New approaches

However, as the structure of the oil and gas industry continues to undergo fundamental changes, there is a need to consider new innovative approaches and mechanisms to improve the funding position of international gas trade projects and to mitigate all the risks associated with these projects. New project ownership structures are being formulated and ways of reducing project costs are proposed (for example, the development of gas and oil pipelines on the same route, market aggregation, etc). Traditional gas supply and transporta-

tion agreements need to be revisited, take-or-pay and ship-or-pay clauses which have been so crucial to the launching of cross-border gas development projects for more than two decades are currently being challenged. New approaches are focusing on a larger and adequate allocation of the project risks among all parties involved.

The improvement of the creditworthiness of international gas pipeline projects is being addressed by involving the governments of producing, transit and consuming countries; multilateral development agencies; export credit agencies and international energy companies.

As shown in Table 3, the funding of the latest inter-regional gas pipeline link between North Africa and Europe, the Maghreb-Europe gas pipeline, is an example of such a successful approach.

In South Asia, the rapprochement of the region's governments, the successful involvement of international oil and gas companies in the upstream sector along with the support of multi-lateral agencies such as the World Bank and Asian Development Bank could create opportunities for new intra-regional gas pipeline exchanges and promote regional economic cooperation.

Given the investment magnitude of international gas transportation projects, the ability of multilateral development agencies to fund cross-border gas pipeline projects is very limited. But these agencies can act as a catalyst

for private investors and international lending agencies. They can provide certain risk guarantees, such as political risk cover. However, to qualify for these guarantees and support, projects should be technically, environmentally, economically and financially viable. Furthermore, the project's recipient countries should be committed to liberalise their oil and gas industry and provide an enabling investment environment.

Finally, it should be stressed that the fundamental criteria for the viability of cross-border gas pipeline projects remain unchanged. It is the limitations of the traditional approaches to project development, funding and implementation that need to be seriously addressed to further expand international trade of gas in a rapidly changing economic and energy world environment.

** The views expressed in this article are those of the author and do not necessarily represent those of the Bechtel group of companies.*

1. Worldwide Pipeline Construction Continues to Maintain High Pace. *Pipeline & Gas Industry* (November 1998).

2. Razavi, H. (1996). *Financing Energy Products in Emerging Economies*. Pennwell Publishing Company.



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Margaret Kelly (please quote ref MKT70)
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52 New Inn Hall Street
Oxford OX1 2QD
United Kingdom

Tel: (+44) 1865 250521
Direct: (+44) 1865 260211
Fax: (+44) 1865 791474
e-mail: margaret@colpet.ac.uk
web: http://www.colpet.ac.uk

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Still busy but some project slowdowns

Recent low oil prices have pricked a few investment bubbles, but Africa's oil and gas hotspots are continuing to attract international interest. Deepwater areas in the Gulf of Guinea have emerged as one of the world's most exciting new oil provinces, while Algeria is making good oil finds, Egypt is busy developing its gas, and there are plans for a largescale investment in Nigeria. In Sudan and Chad, plans are being progressed to join the oil exporters, and smaller oil and gas developments are under way in half-a-dozen other countries, writes *Martin Quinlan*.

Oil and gas operations in Africa are generally not for the feint-hearted. Costs tend to be high, local construction and service facilities are often of poor quality, political stability cannot be taken for granted, and corruption is engrained in some countries. But geological attractions can make the effort of working there worthwhile: large parts of the continent have yet to be explored with the latest techniques, and even the older provinces can still yield good discoveries.

In many countries, local markets for gas are either non-existent or very limited. However, markets are generally opening up as electrification schemes are implemented and as old oil-burning power stations are replaced with gas-fired facilities. Outside South Africa, refineries tend to be small and simple, but the large and efficient facilities of the Mediterranean are a relatively short tanker-journey away.

Africa's oil and gas prospects range from large, costly developments which only large companies would take on, down to very small projects which can attract firms making their first forays outside their home countries. Financing often calls for creative solutions, given the poor debt and economy-management records of some countries.

Algeria

Once an unexciting exploration scene, Algeria has been transformed into a buoyant oil and gas province by the government's revisions of fiscal terms in 1986 and 1991. Although terrorism is a continuing problem, some 45 exploration contracts have been signed with foreign

companies since terms were improved.

The licensing initiative has given Algeria a major new petroleum province. The Berkine Basin, formerly called the Ghadames Basin, is an area of over 100,000 sq km in the east of the country, southeast of the Hassi Messaoud field. Most of the new licences cover blocks in this area, and finds came in quickly. Ventures led by Agip, Cepsa and Arco have already brought oil fields into production. The Berkine Basin now accounts for more than a fifth of Algeria's total reserves of oil. Fields in the basin will raise Algeria's present crude output of just under 1mn b/d to 1.4mn b/d by 2002 or 2003, according to Sonatrach's projection.

The two largest discoveries in the basin are Anadarko's and Eni's El Biar (formerly called Hassi Berkine North) and Anadarko's, Burlington's and Cepsa's Qoubba. El Biar is expected to be capable of flowing 120,000 b/d and Qoubba some 240,000 b/d, although Sonatrach might not sanction the full development of the two fields initially. BHP has now made six discoveries in its Rhourde Oulad Djemaa/Bir Sif Fatima North structure, and is planning additional 3D seismic work over the structure.

In the remote southern In Salah area, BP Amoco and Sonatrach are planning a \$3.5bn gas development to flow at least 10bn cm³/y to buyers in Europe. In Salah Gas, the companies' joint venture, has awarded a contract covering front-end engineering design work for the development to JGC and M W Kellogg, and aims to take a decision on whether to go ahead with the project in the third quarter of this year. BP Amoco has

another largescale gas development venture with Sonatrach, covering fields in the In Amenas area.

Angola

So far, 12 large oil discoveries have been made in Angola's deepwater blocks, eight of them last year. Three operators have found four fields each – Chevron, in block 14; Exxon, in block 15; and Elf, in block 17. Additionally, Shell has a smaller discovery of heavy crude in block 16.

The first deepwater field is due onstream in the autumn of this year. Chevron's Kuito field will produce from subsea wellheads to a floating production, storage and offloading (FPSO) vessel, with 100,000 b/d expected under the initial phase of development and perhaps twice this rate subsequently. Water depth is 400 metres. The three other discoveries made by Chevron are Landana, Benguela and Belize – Landana and Benguela at water depths of about 400 metres and Belize at a depth of 350 metres. Flowrates were high and all are likely to be developed.

The other discoveries are in much deeper water. Exxon has Kissange at 1,011 metres, Marimba at 1,289 metres, Hongo at 1,199 metres and Dikanzo at 1,154 metres. All test results were good, and – as the finds are grouped fairly closely together – there are possibilities for the sharing of some production and transport facilities. Exxon describes the finds as 'a world-class development opportunity with a recoverable reserves potential in excess of 1bn boe'.

Elf's discoveries are Girassol at 1,350 metres, Dalia at 1,250–1,360 metres, Rosa at 1,405 metres and Lirio at 1,365 metres. Girassol is under development, in a \$2.5bn project which will involve drilling 23 production wells, 14 water-injection wells and three gas-injection wells. The field will produce some 200,000 b/d on plateau to the world's largest FPSO, with a storage capacity of 2mn barrels. The project had been fast-tracked for start-up for the end of next year, but Elf has now deferred the target to the first half of 2001. Development of Dalia is also being slowed from earlier plans, with sanction now targeted for mid-2000 and start-up following in mid-2003.

Chad

Exxon is leading a project to develop oil fields in the Doba basin of southern Chad, which – if all goes to plan – will allow the country to become a 250,000 b/d exporter in 2001. The project will involve an investment of about \$3bn in the development of the Kome, Bolobo and Miandoum fields, which hold reserves estimated at approximately 1bn barrels, and in the construction of a pipeline across Cameroon to export the crude from a terminal to be built at Kribi. Some 300 wells will have to be drilled at the field, and a processing centre constructed.

Although the framework for the Doba basin project has been agreed and extensive environmental impact studies have been completed, final go-ahead is still awaited. Because of the high cost of the development, and the poor quality of the heavy crude, returns are likely to be marginal at recent oil price levels. However, the companies evidently have a commitment to the project, and the US government is lending its support.

Egypt

The country's oil fields are mostly mature and production is declining, but the offshore Nile delta area – where Amoco, Eni and BG have licences – is proving to be an extraordinarily prolific gas province. With shallow water and benign sea conditions, development projects do not involve demanding engineering solutions and costs are relatively low. The main engineering challenge, the companies say, is to plan the infrastructure on a scale which will accommodate the delta's long-term potential.

So far, reserves of 892bn cm have been discovered in the Nile delta, and estimates of the area's potential extend to more than 1,400bn cm. Development work is already under way at fields including Tamsah (Eni), Rosetta (BG) and Haipy and Baltim (Amoco). BG is in discussions over the development of Scarab and Saffron.

These fields will supply Egypt's fast-expanding local market for gas. The BG-headed Nile Valley Gas Company has a 25-year franchise agreement with Egyptian General Petroleum Corporation giving it the exclusive right to develop the gas market in upper Egypt. Nile Valley Gas Company will invest a total of \$220mn in extending the transmission system south from Kuriamat to Beni Suef, and then from Beni Suef to Asyut. Two further phases will take gas as far as Aswan.

There are also plans for gas exports. Amoco, Eni's Snam and the Egyptian General Petroleum Corporation are pursuing a liquefied natural gas export

project, planning to construct a \$1bn single-train complex at a site near Port Said. Start-up was targeted for 2001, with Turkey's Botas being the lead buyer. However, the present oversupply in the LNG business seems to have slowed the schedule. Meanwhile, plans are developing for pipeline exports to the Sinai peninsula and the Gaza Strip. Eni, which is pursuing the scheme with the Egyptian General Petroleum Corporation, says it plans to use horizontal drilling to take the pipeline under the Suez Canal.

Equatorial Guinea

The country's first large oil field, Mobil's Zafiro, came onstream in 1996 and is now producing 80,000 b/d through its FPSO. Mobil is working on the project to replace the FPSO with a fixed platform by 2000, allowing oil from outlying discoveries to be tied in and increasing total output to 120,000 b/d. Zafiro production might, however, have to be shared with Nigeria, if Nigeria is successful in its claim that the structure extends into its territorial waters.

Equatorial Guinea's other producing field is CMS Nomenco's Alba condensate field, flowing 22,000 b/d. A licensing round now under way is offering the country's entire deepwater territory, apart from currently licensed areas. Bids must be in by 10 May this year.

Ivory Coast

Foxtrot, one of the fields discovered by Phillips before it withdrew from the country in the 1980s, is at last being developed. US firm Apache aims to produce 1.4mn cm/d of gas from the field by 2001, landing the gas to the Abidjan power station. The first well was completed and tested early this year and is due to start flowing at 0.85mn cm/d in the near future. United Meridian is also developing small gas discoveries, to supply the Abidjan power station.

Another Phillips discovery, the Espoir oil field, is seeing interest at present. Ranger has been carrying out engineering studies with a view to bringing it onstream at 20,000 b/d to 25,000 b/d in 2000. Previously, Addax had been seeking to develop the field.

Libya

Exploration and production activity is slack, but prospects for the construction of a gas pipeline to Italy are firming up. A tentative agreement covering the sale by Agip to Snam of 8bn cm/y of gas was signed earlier this year. Under the Western Libya Gas Project – a joint ven-

ture between Agip and the state's National Oil Corporation – fields in offshore block NC-41 will be developed to produce between 6bn and 8bn cm/y, while 2bn to 3bn cm/y will be tapped from the onshore Wafa field. The gas will be piped to a processing plant to be constructed at Mellita, from which 8bn cm/y will be exported through the planned pipeline to Sicily. Some 2bn cm/y will be supplied to the Libyan market. Start-up of the \$3bn project is targeted for 2001.

Namibia

Shell has established that the Kudu offshore gas field is larger than was previously thought, but its plans to sell the gas for electricity generation have run into difficulties. South Africa's Eskom, which was to have been the key buyer of electricity produced from the planned power station, recently said it was not interested because the cost would be 'nearly double' the cost of power from its coal-fired stations. Shell is now seeking another buyer, to enable the project to progress.

Nigeria

Shell is seeking support for a multi-company \$8.5bn investment plan, under which the country's oil production capacity will be raised by 600,000 b/d and the flaring of associated gas in Shell licences is to be virtually eliminated. The gas is to be supplied to the third train – go-ahead for which was given in March – at the country's liquefied natural gas plant. Deepwater oil discoveries will be developed as part of the plan (see p11).

Sudan

The country will become an oil exporter late this year if plans by Talisman proceed on schedule. The company is developing five fields – Unity, Heglig, El Toor, El Nar and Toma South – in the eastern part of the Muglad Basin, and will pipe the oil 1,540 km to a terminal being built near Port Sudan. The firm said early this year that more than half of the pipeline sections had been welded, and that completion of the line was set for the 3Q1999.

Production from the five fields will run at 150,000 b/d, it is planned. With a capacity of at least 250,000 b/d, the pipeline could take production from other fields in the area. ●

The Continent's other hydrocarbons producing countries are Cameroon, Congo (Brazzaville), Congo (Kinshasa), Gabon, South Africa and Tunisia. Because of uninteresting geology or unfavourable terms, or both, work in these countries lacks the interest of that in the countries discussed.

FRS 11 and disappearing upstream profits

Upstream profitability has always been notorious for its volatility. But this year investors have been presented with an entirely new challenge, thanks to the introduction of a new accounting standard, FRS 11. *Chris Chew* looks at how this new standard is impacting profits in the upstream oil and gas sector.

FRS (Financial Reporting Standard) 11 has the somewhat awesome ability to transform profits into losses and, what is more, the transformation is achieved entirely without reference as to how the company is actually performing. The new standard has had a devastating effect on reported upstream profits this year. So what, if anything, does this mean for investors?

FRS 11 is concerned with the impairment in the value of fixed assets as a result of changes in economic conditions. It has the laudable aim of ensuring that the balance sheet valuations of fixed assets are consistent with economic value. For a manufacturing company the standard ensures that the carrying value of, say, a production line, is reduced if it is superseded by a more modern version or becomes obsolete.

This approach works well for most industries, but less so in capital intensive industries where there is little control over selling prices. Unfortunately, the Accounting Standards Board has a 'one size fits all' policy when it comes to accounting standards, so the upstream oil industry has little choice other than to learn to live with the new rules.

The main differences between the old standard, SORP2, and FRS 11 are summarised in **Table 1**. The essential difference is that under SORP 2, year-end prices were used to estimate the future revenues from an asset without allowing for the time value of money (discounting). If this was less than the book value (the ceiling test) a write-down was at the discretion of the directors. Under FRS 11, anticipated prices must be used to estimate the discounted future revenue stream – and write-downs are mandatory. Companies using full cost or successful efforts accounting are affected in much the same way, except for a less-generous definition of cost pools (this had a major impact on Premier Oil this year).

Disclosure and reversals

Under the new rules, disclosure of the company's assumptions are encouraged but are not mandatory. In fact, most companies seem happy to disclose their main assumptions and these are summarised in **Table 2**.

The only mandatory disclosure is that a company must say when it reverses an asset write-down because of a further change in the economic circumstances, and the rules governing this are strict. The reversal must be due to a change in the external business environment so, if an asset becomes more valuable as a

result of additional capital expenditure that was not in the original business plan, the write-down cannot be reversed.

Some companies may use reversals as a means of smoothing profits. However, the process is not entirely symmetrical as the write-off due to discounting cannot be reversed, only the effect due to price changes, so this may limit its usefulness. The principle of reversal is in sharp contrast to both the SORP rules, and also to FASB 121, the US accounting standard, which prohibits asset revaluation.

Impact on investors

So what does all this mean for investors? The most important point to make is that FRS 11 has absolutely no impact on a company's cash flow, so common valuation yardsticks such as price/cash flow or NPV (net present value) calculations are totally unaffected. Earnings per share and the price earnings ratio are clearly going to become vastly more volatile but, as upstream companies are rarely valued on this basis, this should not be a major problem.

Nevertheless, FRS 11 will have a real impact in some areas. Dividends, for example, may only be paid out of distributable reserves and these are directly affected by large asset write-downs. A reduction in reserves, which are part of shareholders' funds (equity) will also result in higher debt to equity ratios (gearing). This can affect both the ability of a company to borrow, and also the cost of debt. There could also be other repercussions such as the breaching of loan covenants. On the positive side, FRS 11 could eventually improve the return on capital employed, as it will be harder to carry assets at inflated values on the balance sheet.

On balance, it is difficult to see that FRS 11 provides any real benefits to either the companies and investors. In principle, it is obviously better if asset values reflect reality. But, for the oil companies, FRS 11 will undoubtedly increase profit volatility, not only at the time of the original write-off, but if the impairment is reversed. Investors will have to be on the alert for changes in a company's view of the future, because small changes in base assumptions can

	SORP 2		FRS 11	
	Full cost	S. efforts	Full cost	S. efforts
Cost pools	Flexible	Field	IGU	IGU
Discounted	No	No	Yes	Yes
Pricing	Year end	Year end	Future estimate	Future estimate
Capex	Exclude	Exclude	Maintenance	Maintenance
Mandatory write-off if impaired	No	No	Yes	Yes
Reversal	No	No	Possible	Possible
Suspend costs outside pool	Yes	No	Yes	No

Source: Dresdner Kleinwort Benson

Table 1: Asset impairment before and after: SORP 2 and FRS 11

	Discount rate	Oil price assumptions (\$/b)				Exchange rate £1=	1999 operating profits (£mn)		
		1999	2000	2001	Long-term		pre FRS 11	FRS 11	Reported
Premier Oil	10% nominal	12.00	15.00	15.00	Flat in real terms	1.60	26.9	-143.3	-111.0
Enterprise	7% real plus 3% inflation	11.20	12.80	14.40	14.40	1.60	-30.2	-30.7	-60.9
Lasmo	10% nominal	<11.50	13.00	15.00	constant growth in real terms	1.60	84.0	307*	-223.0
Cairn	10% flat real	\$12/b long term flat real				1.65	2.1	-17.2	-59.1 **

* Includes non-FRS 11 write-offs

** Including additional non-FRS 11 write-offs of £43.9mn

Source: Company statements

Table 2: FRS 11 – assumptions and effects

have a big effect when discounted in a cash flow model. While greater disclosure is generally to be welcomed, FRS 11 could generate more confusion than clarity. Distasteful though the idea might be, serious investors must resign themselves to spending even more time

studying the small print to the accounts, refining their cash flow models – and taking nothing for granted.

Sources: Company announcements; FRS 11 (Accounting Standards Board,

July 1998); Interim Guidance Notes on the Application of FRS 11 (OIAC, 1998); Measuring & Reporting Impairment (PricewaterhouseCoopers, November 1998); Lowdown on Writedowns (Dresdner Kleinwort Benson, February 1999).

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Onshore E&P focuses on south

When oil prices are low, offshore projects are only for the bold. But Europe's onshore prospects can still be attractive – for some companies.

Synergies and low cost-bases are the key, reports *Martin Quinlan*.

Europe's established onshore provinces – notably Italy's Po Valley gas fields, Germany's gas fields, and France's Paris basin oil fields – might lack the excitement of North Sea operations, but they have other attractions. Gas can be supplied through existing infrastructure to local markets, oil can be transported to nearby refineries – and exploration and development costs are only a fraction of those offshore. While production revenues might be tiny compared with even a modest North Sea field, onshore ventures can be good business for some companies.

Hence the continuing interest in onshore operations. In Italy's Po Valley and the adjacent part of the Adriatic Sea (formerly the exclusive territory of Eni) the offer of ex-Eni licences has attracted bids from major companies as well as the independents. Activity in Germany's gas play continues at a good level. In the Paris basin, activity is depressed more by geological disappointments than by low prices.

Source of the greatest onshore excitement, however, lies further south in Italy's Val d'Agri area of the southern Apennines. Although production will not reach significant levels until the second half of next year, the area is already established as Europe's most promising onshore oil province. Fields already being developed have the capacity to flow over 100,000 b/d, doubling Italy's present oil production. Construction of a processing centre and a 160-km pipeline to the coast at Taranto is already under way, due for completion next year.

Only one Val d'Agri field is onstream at present – Eni's Monte Alpi, which flows 8,500 b/d from four wells, the crude being taken by road tanker to Agip's Taranto refinery. Most of Monte Alpi lies in the Grumento Nova licence, held by Eni's Agip with 60% and Enterprise with 40%. However, a well completed in August last year established an extension into the Volturino permit, held by Eni with 45% and Enterprise with 55%. The Alli-1 well, with a 1,450 metres horizontal section,

flowed light 35°API crude at 7,717 b/d – the highest rate yet achieved in Volturino, although the test was limited by flaring constraints.

Completion of the pipeline will allow Monte Alpi to be developed fully, jointly with the neighbouring Monte Enoc field, and will make way for the development of other discoveries including Fina's Tempa Rossa and Eni's Cerro Falcone. Tempa Rossa, just north-east of Monte Alpi, has been proved with a long-term production test carried out in 1997. The crude is heavy at 16.5°API, but development is being planned and start-up has been targeted for early-2002. Tempa Rossa lies mainly in the Tempa d'Emma and Gorgoglione licences but has an extension into Costa Molina. Cerro Falcone lies in the Volturino licence.

Cerro Falcone's attractions were boosted early this year by the successful test of a horizontal section, sidetracked out from the discovery well. The 1,367 metres horizontal section flowed 5,435 b/d of 31°API crude – up from the 597 b/d tested from the original well. Enterprise, Eni's partner in the field, said the well should flow in excess of 8,000 b/d when in production. The good result indicates that fewer production wells than previously expected will be needed in Cerro Falcone and Monte Alpi, giving a 'beneficial impact on both the environment and field economics in what is already an attractive low-cost play', Enterprise said. Plans for this year include further production-testing of Cerro Falcone-1, and a long-term test on Cerro Falcone-2. Eni will also drill the Cerro Falcone-3 appraisal well, in addition to two other appraisal wells in the Volturino licence.

Turkish gas interest

Yet another gas supply plan between Turkey and an eastern neighbour was announced in March. The news confirms the country's high-profile role as a 'bridge' for the supply of gas, and possibly also oil, from the Caspian region into southern Europe.

The latest plan, covered by a preliminary agreement, is for the construction of a gas pipeline from Turkmenistan, running under the Caspian Sea, and on into Turkey. Botas, Turkey's gas company, plans to buy 5bn cm/y through the pipeline initially, with offtake building up to 16bn cm/y.

In addition the Trans-Caspian Pipeline will, it is planned, carry 14bn cm/y for onward delivery into Europe, giving a total throughput of 30bn cm/y. Start-up of the pipeline is targeted for 2002 or 2003.

Construction of the 1,700 km pipeline – estimated to cost some \$2.5bn – is expected to be undertaken by PSG International, the joint venture between Bechtel and General Electric Capital Structure Finance. The plan is a rival to Russia's Blue Stream pipeline, and is accordingly being backed by the US government.

The Blue Stream pipeline will extend 1,170 km from Izobilnoye to Ankara by way of the Black Sea, where it will cross with a 400-km link between Tuapse and Samsun. Running at depths of up to 2,100 metres, this will be the world's deepest gas pipeline. Blue Stream will carry 16bn cm/y of Russian gas to Turkey and elsewhere, it is planned, at a cost of \$3.3bn. Start-up is targeted – optimistically, most agree – for October 2000. Under a Memorandum of Understanding signed in February, Italy's Eni is to join Russia's Gazprom in a 50:50 joint venture to own and operate Blue Stream.

If both of these projects proceed to the hardware stage – and Gazprom says that construction of the onshore part of Blue Stream has started – the various other pipeline plans might see their schedules slowed. These include plans for the delivery of gas from Turkmenistan and Iran to Turkey by way of pipelines around the southern coast of the Caspian Sea, and a plan which involves Shell in the delivery of gas from Turkmenistan to Turkey.

Meanwhile, the Turkish government has plans to extend the country's 'bridge' role to oil. It has proposed the construction of a 1,700 km oil pipeline, running from Baku in Azerbaijan to Ceyhan on Turkey's Mediterranean coast. At a cost of \$2.5bn, the line could transport between 1mn to 1.5mn b/d of crude from fields in the Caspian Sea and, with an extension crossing the Caspian, also from fields in Turkmenistan. In common with the planned gas pipeline across the Caspian, this project also has US approval. ●

IP Discussion Groups & Events

Energy, Economics, Environment

Half-day Seminar on

'Oil and Gas Taxation in the Caspian Region'

Thursday 20 May 1999, 14.00-19.00

Organised jointly with Arthur Andersen

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

Cost (members and non-members): £130 + VAT

Prior registration essential.

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

Tuesday 25 May 1999, 17.00 for 17.30 until 19.00

Nick Antill, Oil Analyst, Morgan Stanley

(This follows the presentation given by Tony Craven Walker of Monument Oil & Gas plc on 8 April)

IP Contact: Jenny Sandrock

Energy, Economics, Environment

'Opportunities for British Contractors and Service Companies in New Markets Around the World'

Wednesday 2 June 1999, 12.00 for 12.30 until 14.15

Sir Ian Wood, Chairman, Scottish Enterprise; Chairman, the John Wood Group; Chairman, OSO Industry Board

This meeting includes a buffet lunch at a cost of £18. Prior registration is essential. Application form on request.

IP Contact: Jenny Sandrock

All meetings are held at the Institute of Petroleum unless otherwise stated. Please tell the IP contact if you plan to attend any of these free meetings.

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

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Membership News

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International Boundaries Research Unit (IBRU), Suite 3P, Mountjoy Research Centre, University of Durham, DH1 3UR, UK
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 The International Boundaries Research Unit at the University of Durham works to enhance the resources available for the peaceful resolution of problems associated with international boundaries on land and at sea around the world. IBRU offers a range of consultancy and advisory services to governments and commercial organisations and organises regular conferences and technical training workshops on boundary-related issues.

Membership News

NEW FELLOWS

Mr Neil J Brenton FlinstPet

Neil Brenton is a widely experienced Senior Executive who until recently was Director of Business Services for Phillips Petroleum. Neil is an expert on the euro, and he was totally responsible for preparing Phillips for its introduction. He was also Chairman of the Euro Committee for the UK Petroleum Industry Association and now works as an independent consultant on advising companies on the introduction of the euro. Neil is experienced in quality assurance and compliance. He was a member of the Senior Management Team responsible for Business Process Improvement Strategy Development and Business Recovery and the principal company contact for all external bodies. He is a member of the IP Council and Deputy Chairman of the London Branch.

Mr W S N Clare FlinstPet

Simon Clare joined Shell in 1967 after graduating from Birmingham University in Chemical Engineering and from Harvard, where he was a Fulbright scholar. His early career, largely in personnel management in the upstream sector, included overseas assignments in Nigeria and The Netherlands. More recently in the downstream sector, he held a succession of retail line positions and was responsible for the integration of Shell's UK Retail Operations and of Gulf's Retail Operation following this acquisition. Mr Clare was a Director of various Shell subsidiaries and of Gulf Oil GB. He retired from Shell in October 1998 and in November was elected Chairman of the IP Membership Committee.

Dr V M Cloke FlinstPet

Dr Cloke graduated with a PhD in Chemical Engineering-Polymer Science from Imperial College London in 1996. Four years earlier she had obtained a MEng in Chemical Engineering from the same college. Dr Cloke is presently Plant Performance Engineer for Esso Petroleum and is based at its refinery in Fawley. Dr Cloke is responsible for the optimisation of the blending and production of all clean products from the refinery, which is a significant proportion of UK demand. She is presently a casual member of the IP Council and is Branch Secretary for the Southern Branch.

Mr M R Longman FlinstPet

Mr Longman graduated with a BSc in Mechanical Engineering from Swansea University. He is a Chartered Engineer currently working for Esso Petroleum

Company Ltd, which he joined in 1979. His career has covered a wide variety of roles in refining, supply and distribution. His current responsibilities are the implementation of global best business practices and an associated SAP R/3 system in Esso's UK and Irish affiliates. Mr Longman has been a member of a number of IP committees and is presently Chairman of the Marketing Committee and a member of the Science & Technology Advisory Committee.

Mr J Robert Marsden FlinstPet

Mr Marsden graduated from Sunderland Polytechnic with a BSc in Civil Engineering in 1983 and obtained, one year later, both an MSc and a DIC in Rock Mechanics from Imperial College. Mr Marsden is currently a lecturer in Petroleum Engineering and Rock Mechanics at Imperial College, London. His current responsibilities include being the head of the rock mechanics laboratories and of a research team, Director of Undergraduate Studies for his department, and supervisor of technical staff and research students. Mr Marsden is currently a member of three IP committees, including the London Branch, Membership and Education. Mr Marsden is a keen supporter of all IP activities and was the driving force behind the Imperial College Student Section which was launched in September 1998.

Dr J S Mills FlinstPet

Dr Mills graduated from Imperial College in 1974 with a BSc in Physics and four years later obtained a PhD in Astrophysics from the same college. Dr Mills is presently Vice President Strategy, Portfolio and Environment for Shell International. His responsibilities embrace all aspects of Shell's downstream business worldwide, including refining, supply, trading, sales and marketing. Dr Mills was a member of the IP Aviation Fuel Technical Committee for three years and is currently a casual member of the IP Council. He has published several papers relating to the development, handling and use of petroleum fuels and on key issues faced by the industry.

Mr Peter J Newman MA (Oxon), FCA, FlinstPet

Mr Newman graduated from Oxford University with a degree in Geography in 1976 before pursuing a career in accountancy and the oil sector. He is a Senior Partner in the Energy & Utilities Group at Arthur Andersen in London, where he also has regional responsibility as Managing Director for Oil & Gas Industry Services throughout Europe, the Middle East, India and Africa. Since 1998 Mr Newman has been Honorary Treasurer for the Institute of Petroleum and he is also a member of the Oil Industry Accounting Committee.





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Membership News

OBITUARIES

Mr Paul Arthur ('Pat') Taylor (1914-1998)

The Institute is sorry to report of the recent death of long-standing Fellow, Pat Taylor. Mr Taylor was elected to Student membership of the Institute of Petroleum Technologists in 1934, while studying in the Department of Oil Engineering and Refining at Birmingham University. He remained in membership throughout periods in Venezuela, Colombia and Trinidad, transferring to associate membership in May 1947. History does not record the date of his election to Fellowship but, suffice to say, he supported the Institute as a Member for over 60 years. Pat joined the Membership Committee in 1973 and served the Committee for 20 years until retiring. His serious commitment to the IP and its members is demonstrated by his determination, even into his late 70s, to attend and contribute to every committee meeting, travelling at his own expense from his home in Sussex, until in 1993 ill-health forced him to retire. A former Membership Committee Chairman, Brian Goodland regarded Pat as the very best example of an individual member, maintaining that: 'Pat served the committee and his Institute because of his interest and commitment to the people of the industry - particularly the upstream industry which he served for so long - and his certainty of the value of the Institute to them.' Pat's experience of membership affairs will be sadly missed by the Institute.

Louis Rene de Verteuil (1917-1999)

The Institute is sorry to report on the recent death of long-standing Fellow, Louis Rene de Verteuil. In 1935 Louis joined the Institute of Petroleum as a student member and became an associate member in 1939. Finally, just prior to his departure from Trinidad, and having served as a committee member for many years, he was Chairman of the Trinidad Branch from 1961-1963. In 1989 he was awarded Fellowship of the Institute.

Louis enjoyed a varied and challenging career in the oil and gas industry. He took an active part in reservoir studies and was closely involved with all drilling, production, testing and servicing of oil wells. Though not a geologist, his knowledge and understanding of the petroleum geology of Trinidad was impressive. In 1952 Louis transferred to the production department and at this time designed, and was granted two patents in connection with the ATOL Flow Controller, a device for use in fluid flow control in oil fields and refineries. During the period 1961-1963, he was a member of the engineering advisory committee to the Trinidad Government.

Following his move to Barbados in 1963, he was appointed part-time Director of Petroleum and Natural Gas in the Ministry of Trade. He was also appointed the Director of the Natural Gas Corporation. At this time he worked closely with the Solicitor General in drafting the new Petroleum Prospecting Licence for Barbados. A licence was awarded to General Crude in 1965, and Louis maintained close contact with the day-to-day exploration in various parts of the island. In 1982, Louis advised the Barbados Government to buy the operation and formed the Barbados National Oil Company. Louis was its first Chairman and was rewarded in 1985 for his services by being awarded the Silver Crown of Merit.



New publication

Procedure for the Reclaim of Duty on Recovered Vapour at Bonded Installations

European Directive No. 94/63/EC requires the installation of measures to control volatile organic compound (VOC) emissions at sites handling the distribution of petrol for use as a motor vehicle fuel. This involves the collection and subsequent recovery in a vapour recovery unit (VRU) of vapour during reloading of mobile containers following deliveries of petrol.

A number of sites in the UK are operated under duty suspension arrangements with HM Customs and Excise. Consequently, petrol vapour is returned across the duty point from duty paid to duty suspended status and, when recovered and redistributed, will be subject to double taxation. Following agreement between the UK Petroleum Industry Association (UKPIA) and HM Customs and Excise, that the duty on recovered vapour can be reclaimed at duty suspended sites, the Institute of Petroleum was asked to develop standard procedures for this transaction. These procedures, together with the necessary field testing, have been fully reviewed with, and accepted by, HM Customs and Excise, and are described in full in this new document.

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IP Conferences and Exhibitions

International Conference on 'Tankers: Current Commercial and Regulatory Issues'

London: 27 May 1999

organised with the support of The Nautical Institute

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

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

Who should attend?

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

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

Workshop on

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

London: 10 June 1999

Legionnaires' Disease bacteria may occur whenever water is held between 20°C and 50°C- and the presence of organic materials will further increase the risk of their proliferation. Humans coming into contact with such water run the risk of contracting Legionnaires' Disease.

In order to assist in the control of this disease, the Institute of Petroleum has arranged a one-day Workshop that will address aspects of *Legionella* infections with particular reference to the oil industry. Presentations will be made on clinical aspects of the disease; detection, risk assessment and control of Legionnaires' Disease bacteria; HSG 70 and legal implications of *Legionella* outbreaks. In addition, there will be specific case studies from the oil industry. To augment these presentations, there will be an exhibition with invited water treatment companies demonstrating their techniques of controlling the disease.

Who should attend?

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

**The programme and registration forms are
now available**

International Conference and Exhibition on Offshore Marine Support (OMS '99) **Southampton: 12-13 October 1999**

A joint IPIABR Company Conference

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

Exhibition and Sponsorship

An Exhibition of related equipment and services will be held in association with the Conference. To receive a copy of the Sponsorship and Exhibition brochure, please contact Sue Nixon in the IP Conference Department.

**The programme and registration form will
be available this month**

Training Courses

The Institute of Petroleum is organising a portfolio of nine energy related training courses. Further information is available from Jane Hill, at the IP. Tel: +44 (0)171 467 7105, Fax: +44 (0)171 255 1472 or e-mail: jhill@petroleum.co.uk

**The programme of 1999 Training Courses is
now available**

Programmes and registration forms for all events are available from:

**Pauline Ashby,
Conference Administrator,
at the Institute of Petroleum**

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10-11 Dublin

Liberalisation, Competition and Emerging Opportunities in Irish Energy
Details: SMi Conferences
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10-14 Dundee

Basic Petroleum Economics
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Fax: +44 (0)1382 345854
e-mail: m.r.mcinlay@dundee.ac.uk

11-12 Oslo

10th European Gas Conference
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11-12 London

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11-12 Vienna

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Details: World Refining Association
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Fax: +44 (0)1242 529060

11-12 London

Oil Pollution: Contingency Planning and Response for Port and Terminal Operators
Details: Emma-Claire Dunnett, DMG Business Media
Tel: +44 (0)1737 855188
Fax: +44 (0)1737 855283
e-mail: ecdunnett@dmg.co.uk

12 Middlesbrough, UK

Achieving Best Practice in Asset Inspection and Maintenance
Details: Meetings Section, TWI
Tel: +44 (0)1223 891162
Fax: +44 (0)1223 894363

12-13 London

Oil and Gas Investments in Africa
Details: CWC Associates
Tel: +44 (0)171 704 6161
Fax: +44 (0)171 704 8440
e-mail: bookings@cwconferences.co.uk

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London

UK Offshore Oil and Gas Licensing
Details: Jean Drury, JAPEC
Tel: +44 (0)171 287 2932
Fax: +44 (0)171 439 8975

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London

Third Annual Gas and Electricity Conference: Restructuring for Competitive Advantage
Details: Siân Davies, The Economist Conferences
Tel: +44 (0)171 830 1047
Fax: +44 (0)171 931 0228
e-mail: siandavies@eiu.com

16-19

Abu Dhabi

Pipeline Rehabilitation and Maintenance
Details: Energy Logistics International
Tel: +44 (0)1628 671717
Fax: +44 (0)1628 671720
e-mail: enquiries@energylogistics.co.uk

17-18

London

Deepwater and Ultra Deepwater Drilling
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Tel: +44 (0)171 252 2222
Fax: +44 (0)171 252 2272

17-18

London

South America Oil and Gas
Details: Penny Richards, IBC UK
Tel: +44 (0)171 453 5491
Fax: +44 (0)171 636 6858
e-mail: cust.serv@ibcuk.co.uk

17-21

Dundee

World Fiscal Analysis for Petroleum
Details: CEPMLP/University of Dundee
Tel: +44 (0)1382 344303
Fax: +44 (0)1382 345854
e-mail: m.r.mcinlay@dundee.ac.uk

18-19

Stavanger

Production Separation Systems
Details: Penny Richards, IBC UK
Tel: +44 (0)171 453 5491
Fax: +44 (0)171 636 6858
e-mail: cust.serv@ibcuk.co.uk

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Aberdeen

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Fax: +44 (0)171 915 5056
e-mail: registration@iir-conferences.com

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How Mercosur Affects the Oil, Gas and Power Industry
Details: Penny Richards, IBC UK
Tel: +44 (0)171 453 5491
Fax: +44 (0)171 636 6858
e-mail: cust.serv@ibcuk.co.uk

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Chinese Petroleum Summit
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Fax: +44 (0)171 252 2272

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South America Oil and Gas Briefing
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Tel: +44 (0)171 453 5491
Fax: +44 (0)171 636 6858
e-mail: cust.serv@ibcuk.co.uk

19-20

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Advances in Seismic Technologies
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24-25

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Fax: +44 (0)171 636 6858
e-mail: cust.serv@ibcuk.co.uk

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Wolverhampton

Metalworking Fluids Conference
Details: British Lubricants Federation
Tel: +44 (0)1442 230589
Fax: +44 (0)1442 873441

26-27

London

Tanker Demurrage
Details: ASDEM
Tel: +44 (0)171 493 0973
Fax: +44 (0)171 499 5270
e-mail: info@asdem.co.uk

26-27

London

Maximising Caspian Oil Exploration and Production Opportunities
Details: Chiara Muzzi, WBR
Tel: +44 (0)171 691 3000
Fax: +44 (0)171 691 3001
e-mail: caspoil@wbr.co.uk

26-27

London

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Details: Bentham Technical Training
Tel: +44 (0)171 436 7500
Fax: +44 (0)171 436 2112
e-mail: v_li@bentham.com

28-2 June

Seattle

ISOPE-2000
Details: International Society of Offshore and Polar Engineers
Tel: +1 303 273 3673
Fax: +1 303 420 3760

27 May

London: International Conference on Tankers: Current and Regulatory Issues
Details: Pauline Ashby, The Institute of Petroleum