

IA INTERNATIONAL ASSOCIATION FOR ENERGY ECONOMICS

EE

Newsletter

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President's Message



THE INTERNATIONAL Association for Energy Economics enters its 19th year with membership growing, in sound financial condition and a reputation as being the pre-eminent energy economics association. Much credit is due to the devotion and hard work of past and current Councils, past presidents and Advisory Board members. But the primary credit should go to each and every member who has contributed his or her time and effort to help

build our fine Association.

Membership of nearly 3200 at the end of 1994, was up more than 6 percent from the end of 1993. During 1994 we celebrated the birth of the United States Association for Energy Economics, and added Affiliates in Mexico and Portugal. Further, Council approved the establishment of Student Sections within each affiliate in order that we might better recruit the younger generation to our membership. Council also established a means by which past presidents can formally continue to contribute their expertise and counsel to the ongoing deliberations of the Council.

We can be justly proud of our prestigious professional publication, *The Energy Journal*. In addition to the four regular issues published in 1994, a special issue, *The Changing World Petroleum Market*, edited by Helmut Frank, was published at the end of the year. This promises to become a well referenced issue. Our *IAEE Newsletter* was notable for its expanded size and coverage in 1994. Council has approved a move from four to five issues a year, and eventually to six issues, as material becomes available for the *Newsletter*. All members are urged to forward newsworthy articles and items to IAEE Headquarters for publication in the *Newsletter*.

The International Conference in Stavanger, Norway, was outstanding in all respects and we are particularly indebted to our Norwegian Affiliate for undertaking and hosting this fine event. Our International meeting has become a focal point for analysis of, and debate on, many energy policy issues and is considered one of the key energy conferences of the year. Likewise, our North American

Conference, this year sponsored by the USAEE, is a major feature of the North American conference program. This year's meeting was especially noteworthy with nearly 400 in attendance. The Annual RIIA/BIEE/IAEE Conference in London was a highlight of the European energy conference programs. A detailed write-up of that meeting appears elsewhere in this issue. Many of our Affiliates carried forward their own local or regional conferences and thus shared information with their members and others in attendance.

Though membership continues to grow, Council has singled out Asia, Africa, the Middle East and Latin America as areas where membership efforts need to be especially concentrated. Further, while we have established Affiliates in Eastern Europe and the former Soviet Union, Council is very much aware that these Affiliates, and others to come in this area, need careful nurturing to ensure their continued well being. Council is mindful that economic difficulties make it hard for members in Eastern Europe and the former USSR, and continues to offer assistance through the European Foundation for Cooperation in Energy Economics.

So far this year, two major international conferences are planned. The first is in Rome, Italy, on 11 and 12 April on the theme, *Energy Strategy for Europe*. Full details are covered on page 5 of this issue. Then the 18th Annual International Conference will be held in Washington, DC, USA on 5 to 7 July. The theme of this meeting will be *Harmonizing Energy Policy, Environment and Sustainable Economic Growth*. This meeting is specially timed to be held during the USA's 4th of July week celebration. In addition to some very good hotel rates, the celebration activities going on in Washington during the period just before the conference should be very appealing. The opportunity to build a family vacation around this conference, for both USA and non USA members is quite attractive.

Energy issues, the *raison d'être* of our Association, never seem to cease emerging. Supply and demand, energy prices, security, global warming, regulation/deregulation, etc., etc. What will be next? IAEE was organized to analyze

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OPEC: The Longer View

By Alirio A. Parra*

Paradoxically Texas is a good place to "honour OPEC", for while OPEC was born elsewhere, theoretically it was conceived in Texas. In its beginnings the organisation was heavily influenced by the Texas Railroad Commission which had the power to regulate production and thereby balance output and market demand.

Over the thirty-four years since it was established, OPEC has effectively changed the face of the oil industry. The organisation now works at the core of the energy economy to promote the prominence of oil and to safeguard the stability and security of producers and consumers alike. Its future now depends on the accuracy of its appraisal of the economic challenges ahead and the strength of its commitment to resolve them.

I would like to discuss first the impact of changes in the economy and then discuss four of the biggest challenges facing OPEC in the coming years; the challenges which will condition and give direction to OPEC's long term strategic planning. I also want to draw your attention to the concern for the environment which now tempers each of them.

As producers we are not isolated from the shift towards open market policies within the most developed economies and also in the developing world. Globalisation has gone hand in hand with the development of regional economic space.

Globalisation has not, however, given oil the benefits of improved economic stability which market based criteria seemed to promise. As the open market challenges regular and predictable funding sources, the world's largest traded commodity, oil, is pushed into a boom or bust situation. Oil is of too great strategic importance to be jostled like this.

In short, the invigorating but freewheeling changes to the global economy requires that we rethink our regulatory framework around the dynamic nature of market equilibrium.

In addition, OPEC has a vital role to play in working towards collaboration between producers and the main industrial consumers. Collaboration will be founded on mutual concerns but to succeed in the long term it must go on to seek reconciliation in those areas in which producer and consumer interests inevitably diverge.

As the nature of the market changes, we are also moving into a cycle of economic expansion. An upsurge in economic activity, led by the U.S., has spread to Europe. It incorporates all the elements for sustained growth over the next several years. The successful conclusion of GATT and NAFTA agreements should also contribute an additional 1% to world GDP growth.

In the coming years the demand for energy should continue to rise in keeping with the pace of economic development and oil should maintain its role as the swing energy source. We can, therefore, look for a steep rise in consumption from the less developed countries for whom the process of industrialisation will be energy intense. I refer to Southeast Asia and Latin America in particular. Demand

should double over the next twelve years. We also expect a steady increase in consumption from industrialised countries as they rally from recession without a corresponding investment in coal or nuclear energy. In the U.S. oil demand has increased significantly over the last two years. To take another example, in Japan the air conditioning sector has recently increased its demand for oil and its products in order to expand. Such changes would be more apparent were it not for the distorting effect of the Russian situation on IEA statistics.

Undoubtedly many of you are familiar with the figures. We favour a scenario which sets sustainable economic growth at approximately 3 per cent per year over the next ten to twelve years. What is more interesting is that developing countries – those that depend more heavily upon oil – may well grow at substantially higher rates, say 5 to 6 percent. By the year 2005, then, we expect world oil production to reach some 83 million barrels per day, with OPEC's share rising to 48 percent. Under these circumstances the call on OPEC oil (including condensates) may reach 40 million barrels daily and the organisation will in practice have strengthened its role as the dominant incremental supplier. By then it will control over 80 percent of the world's crude oil and gas reserves.

In order to fulfill its role responsibly there are four particular areas of concern which OPEC must consider.

Market Stability and Derivatives Trading

OPEC seeks a stable market and the market in turn looks to OPEC, as the marginal supplier, to exercise restraint in situations of over supply. Despite a fundamentally sound supply/demand balance, oil price volatility has risen to an average of 10 percent from 4 percent in the past twelve months. One must look elsewhere for the cause.

One direction is towards the financial markets. Derivatives trading is affecting the stability of oil prices. The term derivatives includes forward and futures contracts although it more often refers to swaps and options in an unregulated market. The effect of the swap is to transfer the price risk, and if the managers of the risk are not the owners of the capital their attitude to risk will be very different. This is of use in a volatile market but producers believe that this instrument itself encourages instability. Since the initial outlay is very small, decisions can rapidly become highly exposed, endangering company integrity and market stability. If one hedges against a rise in the oil price through futures this in turn impacts oil demand and its price. The phenomenon is further amplified by the mimetic effect on the market.

Just as the oil market looks to OPEC to police supply, so OPEC should look to the financial markets to introduce much tighter controls on derivatives trading. OPEC's only alternative is to use these markets and, with luck, transfer what undoubtedly will be growing price risks to others.

Taxes and Income

Secondly, producers are having to confront the tough issue of consumer taxation, including, more specifically, environmental taxes. A barrel of petroleum products in today's market brings the producer an average of \$15, while the consumer pays over \$100, some 80 percent of which is represented by taxes. And the gap is widening. The \$100 of today for the average barrel of products could easily rise to \$150 by the end of the decade. While crude prices at the source decrease, the pump price of products continues to rise

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in many European countries; (in comparison, U.S. taxes are relatively low.) It is not clear whether the governments of consuming countries are motivated by environmental concern or by the increase in revenue. Whatever their motive, as consumer related taxes creep upwards, the implications rebound on producers' income and, indeed, on oil's share of the energy market. Such tax increases are discriminatory. They distort or conceal price movements and have a negative impact on demand.

I feel that the sharp increases in consumer taxation are silently undermining the internally generated funds that the upstream industry desperately needs. As minister Jens Stoltenberg of Norway aptly said, "The increased taxation of petroleum products has altered the distribution of income considerably between oil producing and oil consuming countries."

The growing gaps between crude and product prices are likely to unsettle cooperation between producers and consumers as producers feel the frustration of the discrepancy between weak crude prices downstream and high product taxes. It is time for the consuming countries to slow down the increase in indirect taxation and take stock of the situation and its implications for all parties concerned.

Market Security for the Producer

I come to the third problem area which is the question of market security and, more generally, the way consuming countries treat imports. What plans there are for substantial investments upstream, and here I include investment in refining by oil exporting countries, should not be dampened by instability in the conditions under which hydrocarbons are imported or by regional discrimination.

For example, in my own country, Venezuela, U.S. import specifications for reformulated gasoline, which are not applied to domestically produced gasoline, have caused considerable hardship and loss of income. Equally and, I am glad to say, unsuccessfully, there have been attempts to discriminate against orimulsion, a product developed by PDVSA to provide an under boiler fuel which meets environmental regulation as an alternative for electric utilities.

These two examples provide tangible evidence of discrimination in relation to market access. Less tangibly, as new trade blocs are established, the introduction of regional bias in oil supplies may upset the geographical distribution of oil consumption and trade. Links within blocks tend to reduce trade with the outside. In view of this, oil producers can only strive to insure that consumers behave in an indiscriminate manner. There should be no preferential intra-area supplies or bilateral deals between countries.

The role of producers is now to ensure that the market is non-discriminatory and that there is "stability" in the terms and conditions under which oil is traded. They must work to reduce the underlying policy bias against oil imports.

The Perennial Problem of Capacity

With the global commoditisation of oil, mood and perception have come to play an important role in market behaviour. Markets believe that there is plenty of oil available and so there is; at least for now. Today's transparent markets do not send out directional signals. Prices are impervious to the future. In the meantime the upstream industry is a prisoner of long lead times and must patiently wait for the right signals, either from the market itself, which

may not be forthcoming, or from the policy makers. The question as to whether the market can cope quickly and efficiently with a supply squeeze arises. Past history suggests otherwise.

Let us look at the facts. Gone are the days when we were sitting prettily on almost 50% of unused production capacity with prices at levels double those of today. In 1984-85, only ten years ago, OPEC was producing at only 55 percent of capacity. This allowed for the great expansion of production in the late 1980s. In 1989 producers had a utilisation rate of some 80 percent. This was sufficient to offset the loss of both Iraq and Kuwait during the 1990-91 conflict. Let us now look at the present. Our estimate for 1994 capacity utilisation is 89 percent and, barring the reentry of Iraq, capacity utilisation should rise to 92 percent by next year when we can expect the call on oil to increase by more than one million barrels per day. Meanwhile, North Sea production will, to all intents, have peaked. This is not a cozy situation for the incremental supplier; especially in the first stages of a new economic cycle of unsuspected strength.

No wonder, then, that the "capacity question" has been termed "oil's perennial problem." Either we face the danger of over investing, if demand grows slowly or not at all, or we run the risk of investing too little, too late as delays plague investment plans and the strong economic recovery continues. We do not want to find ourselves locking the stable door as our horse disappears over the horizon.

The problem, then, is not only the timely recognition that new production capacity may be necessary but also the willingness and ability to invest from internally generated funds. We know the scope of the challenge: we will require up to 15 million barrels per day of additional production capacity from the OPEC area by the middle of the next decade. We need to find answers together, and rapidly.

Price signals from the market are, to say the least, not encouraging. Given that 180 billion dollars will be required in the next ten years by OPEC alone, we cannot expect an opportune mobilisation of capital but rather an under investment which will only become visible in the last years of the decade.

Nevertheless, sooner or later, it is clear that investment must and will take place in the upstream, in the OPEC area, and on a large scale. Apart from timing, the main constraint to the expansion of capacity in the OPEC area is one of financing. This raises the question regarding not only "when" but "who" invests. To my knowledge there are few producer countries which are not under severe financial constraints. As public finances deteriorate and social and economic claims increase, producer countries are reluctant to take on all the necessary investments themselves. Just as there are gains to be made and shared from the flow of trade across frontiers, so there are substantial gains to be made and shared in the flow of investment and technology resulting from industrial "alliances." Venezuela is a prime example of such progress; progress that will continue elsewhere but which requires both hard work and considerable understanding.

And the Environment

Environmental concern has an impact on taxation, on industry operations, on refinery yields and on the life of new

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products. It affects investment costs both upstream and downstream and the development of advanced technologies. As far as taxation is concerned, industrialised countries increasingly use the environment as a way of making tax increases more palatable to their electorate.

For producers who have to pay a significant part of the cost, responsibility for the environment is closely linked to economic growth and social development and undoubtedly will have a profound effect on the future shape of the industry itself. Environmental policy may increase direct industry costs by up to one third. Beyond this it is essential to insure that environmental costs related to the flow of emissions are apportioned fairly between producers and consumers. However, costs tied to the accumulated "stock" of green house gases are mainly the business of industrialised countries. The task of allocating environmental responsibility and cost is still in the infant stage and poses a major challenge to OPEC.

What Can OPEC Do?

It is OPEC's responsibility to project a cohesive vision for the future of oil over the next two or three decades; a vision that guarantees producers adequate remuneration and in which fresh investment and new technology push out the parameters of the industry.

To achieve this OPEC must extend the grounds of understanding between itself and non OPEC producers to establish not only the dimensions of a long term supply equilibrium but also how it might be achieved over time.

It must work to reconcile producer's and consumer's common need for economic security so that adequate production capacity can be developed smoothly and there is no longer discrimination against imported oil. There is no longer the "fat" left in oil consumption to cushion a crisis in supply. Previously a sharp drop in the use of fuel oil in industry, and in power plants in particular, absorbed much of any supply constraint. Now a crisis would cut into the heart of consumption.

OPEC must nurture the forging of new technological partnerships so that we can continue to exploit our hydrocarbons resource base and encourage the inflow of financial resources. Upstream this includes the transfer of advanced technology, capital and know-how on a cooperative basis in the form of externally funded industrial alliances; downstream this incorporates unimpeded investment in consuming countries.

OPEC must assume a more proactive role in developing, shaping and anticipating environmental policies to ensure a just distribution of impact upon producers, consumers and the oil industry itself.

As we have seen, new challenges have arisen in what we term an "environment" which is both uncertain and changing. Within it our responsibility is to determine that oil retains a preeminent role in the world energy economy. OPEC must look beyond the problems that face its competitors so that it can continue to meet incremental demand.

The articulation of this vision commits OPEC to a key position in the future of world energy. The organisation must ensure that producers interests are defended, that barriers to trade do not prosper, that discrimination is absent in the dealings between the producers and consumers, that invest-

ments are timed to avoid bust and boom situations and that environmental costs are apportioned justly. OPEC's role is enduring and strategic. It's position is unique. It is the only world energy organisation committed to establishing stability. If it fails, its failure will reflect the inability of consuming countries to "manage" their economies and by the same token, the world economy; if it succeeds, its success is, undoubtedly, its own.

IAEE International Conferences, 1996-97-98

At its last meeting, IAEE Council decided to place the 1996 International Conference in Budapest Hungary. The dates are May 27 to 30 and Professor Tamas Jaszay is the General Conference Chairman. This will be the first IAEE Annual International Conference in Eastern Europe.

Members are encouraged to contact Dr. Jaszay regarding topics, speakers and funding matters for the Conference. He may be reached at the Technical University of Budapest, Budafoki Ut 4, H 1111 Budapest, Hungary; Phone 36-1-181-3195 and Fax 36-1-166-6868.

The Council is now preparing the ground work for the international conferences of 1997 and 1998. Both these meetings will be discussed in detail at the Rome Council meeting on 10 April and the Washington meeting on 5 July.

Experience shows that the organization of an IAEE international conference is a demanding task and one that requires a long lead time – as much as 2 to 3 years for an especially good conference. Several Affiliates have already signaled an interest in arranging and hosting the 1997 or 1998 meeting. These include Benelux, Canada, India and Russia. Other Affiliates interested in arranging/hosting one of these meetings, or a later event, should contact the IAEE Vice President for Conferences:

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and debate important energy issues. I am most interested in what topics will be the main subjects of discussion and how they will be analyzed in coming IAEE publications and conferences.

To conclude, I would like to express my thanks to you for your election of me as president. In particular, I would also like to thank the IAEE Council, immediate past president, Jean Masseron, and Executive Director, David Williams, for the excellent job they have done.

May I wish you all a Happy and Prosperous 1995, both personally and professionally.

Kenichi Matsui

Energy Strategy for Europe Rome Conference, April 11-12

During Easter week, on April 11 and 12 in Rome, IAEE and AIEE have organized the first European Conference with the theme *Energy Strategy for Europe*. This will provide a special opportunity to delve into the evolution and prospects for all the European energy sectors and well as to visit the Eternal City. The conference will be held at the Banca di Roma Conference Hall.

The Conference will examine the evolving energy policy of the European Union, and specifically, the new Commission's energy strategy and its implications for member countries.

The Italian Minister of Industry will open the Conference. He will be followed by the European Commissioner for Energy. Speakers of important European companies involved in the electricity, oil and gas sectors as well as government representatives will debate the theme of the Conference.

The Conference itself will be divided into sessions dealing with national energy policies, electricity, oil and gas markets in the European Union and the relation of Europe with other regions of the world. The themes explored in these sessions will be privatization, the globalization of markets, East-West and North-South integration, the liberalization of imports and domestic markets and energy policies and environmental constraints of European countries.

A Gala dinner at Monti Martini Centre, the old power plant building of the town, will be held on Tuesday, April 11 for all participants and accompanying persons. This will provide a marvelous opportunity to network with colleagues of other countries, EU delegates, government members and energy industry representatives.

Excursions and city tours are included in the Conference program as well as post Conference tours. The latter are free. These will include visits to the Vatican Museums, Sistine Chapel, Roman sites and some technical centres.

April is a most pleasant month to visit Rome and see its unique places and monuments such as St. Peter's Basilica, the Pantheon, Spanish Steps, Navona Square, Trevi's Fountain and so on. The city's shopping is also excellent.

For further information contact: Secretariat of Energy Conference, AIEE, Via Giorgio Vasari 4, 00196 Roma, Italy. Phone 39-6-322-7367 or 39-6-323-4921; Fax 39-6-323-4921.

ENEL Privatization Underway

The first phase of the privatization of ENEL, the Italian electricity company, has been completed.

Last November the Italian government decided to begin to privatize Italy's largest electricity group, ENEL, the joint-stock company that has a monopoly in the country's electricity energy market. The company makes yearly investments of more than \$ 7.5 billion.

The first tranche of ENEL's shares will be sold next June; other tranches will be sold later.

The quoted ENEL will be different from the present company inasmuch as the government has decided to separate the company's production activities and to remove the dispatching function. The former will be partly resold to private companies and the latter will be constituted as an independent concern. A portion of the present plant and the whole transmission grid and distribution network will still belong to ENEL.

Following complete privatization, there will be an increase in the number of electricity companies in Italy. The market will be progressively privatized and liberalized according to EU regulations. In addition to ENEL's privatization, an Authority will be established to control electricity sector relations and regulate tariffs.

Book Reviewers Wanted!!!

Energy professionals interested in reviewing economics books (in any language) for *The Energy Journal* are invited to send a one page CV together with a letter listing their research interests to:

Richard L. Gordon
Book Review Editor
The Pennsylvania State University
Department of Mineral Economics
204 Walker Building
University Park, PA 16802
Phone: 814-865-0631
Fax: 814-863-7433

Publishers, academic presses and authors are invited to submit energy economic books in any language for review and annotation.

Conference Proceedings 16th USAEE/IAEE North American Conference Dallas, Texas, November 6-9, 1994

The Proceedings from the 16th North American Conference of the USAEE/IAEE held in Dallas, TX, are now available from IAEE Headquarters. Entitled *The World Oil & Gas Industries in the 21st Century*, the proceedings are available to members for \$55.95 and to non-members for \$75.95 (includes postage). Payment must be made in U.S. dollars with checks drawn on U.S. banks. To order copies, please complete the form below and mail together with your check to:

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**Emerging Policies for European Energy
Report on the RIIA/BIEE/IAEE Conference*
London, 28-29 November 1994**

This important Conference started from two assumptions implicit in its title — there is at present no European Union energy policy and energy policy cannot be considered in isolation from other relevant policies — economic, environmental, employment and social. It was well timed. The European Commission is conducting a major review of energy policy in preparation for the Intergovernmental Conference in 1996. It aims to publish a Green Paper soon and a White Paper in 1995. Environmental policies will come under review at the Berlin Conference of the Parties to the Framework Convention on Climate Change in 1995.

The Conference fell into four parts: Two opening sessions were mainly concerned with the context in which policies for European energy need to be formulated. The remaining sessions covered the three main issues currently affecting those policies — competition, liberalization and privatization, environmental issues, and energy security. The relatively short time devoted to the last reflected its declining importance relative to the other issues.

General Context

The opening remarks by the Chairman, Lord Tugendat, and the first two speeches set the tone of realism, and for some pessimism, which marked much of the Conference. For Karel van Miert, the European Commissioner responsible for competition policy, achievement of the Single Energy Market was the key to EU energy policy which equaled access plus markets. Competition would not do everything but other objectives could be sought in other ways. The French proposal for a single purchaser of electricity which would coordinate the activities of competing generating companies was inconsistent with competition and third party access. The Single Market would not be detrimental to environmental objectives but would lead to a balanced policy under which, for example, the construction of smaller power stations would minimize the waste of electricity in the transmission system. Special arrangements might be necessary to promote the rational use of energy and anti-competitive arrangements could be justified where there was strict environmental regulation. But social and environmental considerations did not affect the basic drive to competition and the Single Market.

Svend Auken, the Danish Minister of the Environment and Energy said bluntly that although great progress had been made in relation to SO₂ and NO_x the EU was far from a genuine and productive joint approach to the challenge of global climate change. The proposal for a carbon/energy tax was effectively blocked by the United Kingdom. The SAVE program for energy efficiency had been curtailed and the ALTENER program for renewable energies was meager. The indications were that the EU would fail to fulfill its commitment under the Framework Convention on Climate Change to stabilize CO₂ emissions at the 1990 level in 2000. There was no agreement on goals for the years after 2000 when emissions were likely again to increase. The situation was so serious that the EU might have to resign from the Climate Change Convention. The basis for a new and constructive approach was, however, provided by the pro-

posal for energy levies in the Commission's White Paper on Growth, Competitiveness and Employment. Denmark supported liberalization of the electricity and gas sectors provided that stringent common environmental standards were set for the two industries. He hoped that the Intergovernmental Conference would spell out clearly the principle that long range environmental interests should always be more important than short term economic gains.

Many of Svend Auken's themes were reiterated by Ken Collins, MEP. There was a need to see energy policy in the context both of the alarming increase in CO₂ emissions and the existence of 20 million unemployed in the EU. EU energy policy was now giving less emphasis to security and more to competitiveness and the environment. Energy liberalization, environmental protection and job creation were not necessarily mutually exclusive. Expenditure on the efficient use of energy and other forms of environmental protection would improve competitiveness, the environment and employment. Intervention in the market was, however, vital to promote rational energy use. Unfettered markets would result in environmental destruction and the squandering of energy. The Environment Committee of the European Parliament was likely to favor a carbon/energy tax provided that it was fiscally central; was 50% energy and 50% carbon based; included exemption for large industrial users of energy, provisions to promote energy saving and reductions in carbon dioxide emissions and a possibility of suspension of the tax in some Member States. The Commission's proposal was, however, currently blocked in Committee because the Council seemed to be moving towards some sort of ineffective compromise based on export duties.

David Howell, former UK Secretary of State for Energy and Chairman of the House of Commons Select Committee on Foreign Affairs, reminded the Conference of the wider international context. The main political thrust of the EU was to assist the establishment of pluralistic societies and market economies in the former centrally planned economies and to ensure that these countries did not become lost to some form of Fascism. Account should be taken of this political imperative in all other policies although economic and energy policies should not be distorted on that account. Impending competition from Eastern Europe, with its high skills and relatively low labor costs, made it urgent to unscramble high cost practices in the EU. In these circumstances the objective of EU energy policy should be to obtain supplies of energy at internationally competitive prices in a way which:

- was consistent with security of supply and the safeguarding of the environment;
- avoided impairing and if possible supported economic development in Eastern Europe.

International competitiveness was also the main theme of Christopher King, former Chairman of BP Europe and a member of the European Round Table Working Party on Competitiveness. Industry:

- wanted to be able to buy its inputs freely at negotiated prices which enabled it to compete locally, nationally and internationally: energy was only one such input although an important one;
- preferred the taxes necessary to raise revenue to be on outputs rather than inputs and wanted to see the total tax take in Europe reduced;
- wished alternative means of achieving environmental goals

to be considered along with proposals for environmental taxes;

- needed a stable policy framework for investment.

In the energy sector the priorities were to introduce more competition particularly by breaking up the state monopolies in electricity and gas and to review the objectives and comparative levels of energy taxes by a process of "benchmarking" which compared pre and post tax energy prices with those in the main competing countries. EU institutions now had a clear five year run ahead of them. This provided an opportunity to set policy objectives on a time frame which others could not manage and to tackle the complex task of integrating policy.

In the final presentation of this part of the Conference, Kevin Leydon, Head of Energy Analysis and Forecasts in the European Commission, suggested that on present policies EU energy consumption might grow moderately over the next quarter century with an effect on CO₂ emissions and an increase in import dependency from about 50% to about 75%. The main growth would be in the individual sector of consumption (cars and homes) and in small and medium sized enterprises. The key question was how to persuade the citizens of the EU to change their habits and lifestyle — a question which was particularly acute in the transport sector. Energy Ministers would be addressing:

- The role of markets. They do work but there are legitimate questions about the environment, supply security and economic and social cohesion.
- Integration of energy and environmental policies and internalization of environmental costs.
- The role of the Union in energy policy.

Competition, Liberalization and Privatization

These sessions were opened in a forceful speech by Nigel Lawson, former UK Chancellor of the Exchequer and Secretary of State for Energy. For the British Government, privatization had been a policy objective from 1979 driven by the need to increase economic efficiency rather than to raise money. There were special problems in the energy industries but nevertheless clear economic advantages in privatizing public utilities. The true natural monopoly element in them was less than the whole (for example electricity generation was inherently competitive). It was desirable to separate ownership from regulation. The introduction of the private sector disciplines of competition, of reliance on capital markets and of the share price required a change of ownership. The act of privatization exposed costs in a transparent way. Thus the issue of ownership was as important as the introduction of competition. The burden of proof was now on those who opposed privatization of the energy industries.

Other speakers were perhaps a little less sure. Angelo Camplani of ENEL while arguing that privatization was driven by fundamental historical forces also pointed out some of the problems to which it gave rise — more emphasis on the short term at the enterprise level; maximization of profits given priority over strategic considerations; a loss of traditional cooperation as a consequence of greater competition; refocussing of research and development on processes close to maturity at the expense of the long term. Approaches to privatization, unbundling of activities and downsizing varies between Member States of the EU according to their historical experience and economic and political culture. With

privatization and liberalization, high risk research would need to be transferred to the public domain. Energy policy would have to strike a balance between market, security of supply of imported fuels and environmental actions. Richard Morse of Kleinwort Benson examined some of the practical problems of privatization. Investors preferred privatization as a monopoly but not if the monopoly was unsustainable. They tended to judge the utilities by how effectively they dealt with the regulators. They were particularly concerned with the intrusiveness of regulation and the extent of political influence on the industries, which could be greater when the constraints of ownership were removed.

The arguments for greater competition, including third party access, in the gas and electricity industries were supported by most speakers although Klaus Kabeiltz of Ruhrgas and more tentatively Christopher King warned of the possible risks to security of gas supply. The possible clash between competition and environmental objectives was noted but was generally seen as being soluble through a suitable regulatory framework. However, competition did not necessarily solve all problems. Gunther Marquis of Saar Electricity pointed out that the lower electricity prices in France than in Germany were not the result of greater competition in the French electricity sector. Restructuring of the legal framework under which the utilities operated was not enough. There was also a need for the governments of Member States to follow more coherent energy policies.

As was admitted by most speakers little progress has been made on the EU Directives to develop a competitive single market in electricity and gas. The reasons for this failure were examined by several speakers. Karel van Miert argued that whereas industry saw electricity and gas as commodities, the public generally saw them as services. David Howell suggested that damage had been done by applying the logic of the market and competition without tempering it with reasonableness. Eric Vaes of ABB Europe pointed to the problems caused by the national characteristics of the large generating companies and the absence of a single electricity model in the EU. Hans-Jurgen Budde of VIK stressed the opposition to competition arising from advantages of the private monopoly system to managers and shareholders in the utilities and to the state authorities, politicians, trade unions and sellers of combustion plant. The fullest analysis was, however, given by Dieter Helm of Oxford Economic Research Associates Ltd. Reform inevitably involved both gainers and losers. The introduction of the single market as a whole had involved a package of measures large enough to make all Member States net gainers. The proposals for a single market in electricity and gas which followed later had not provided such a package. Other problems were the immaturity of the European electricity grid, the dominance of Electricite de France with its surplus of nuclear electricity in the electricity sector, the lack of a gas interconnector between the UK and the Continent and the powerful role of regional and local governments in the electricity and gas sectors in several Member States. The political trend, with the current emphasis on "subsidiarity" was against the Commission proposals.

On the way forward Karel van Miert and Dieter Wolf, President of the Bunderskatellamt, saw some possibilities in

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First Things First Global Environment Challenges and Priorities

By Clement B. Malin*

Challenge and Change

Ours is and will be a world of change and challenges – political, economic and social. Not that it has not been before, but the magnitude and pace of change and challenge sometimes astounds and terrifies us. Take, for instance, the pace of change in the technology of communications. The ability to communicate in seconds around the world has forced us to confront the “here and now” here and now. This perceived urgency allows us precious little time to assess, analyze, research and explore and test options, all the things economists like to do before recommending policy initiatives. We have become a world of crisis managers, responding to the “issue du jour” while an impatient public watches on CNN. We take appropriate action only by chance and rarely for the long term. Too often we do not even get the questions right. I would submit that concern for the environment now seems to fall into this category. Too often we fail to define the issues before trying to effect solutions.

Concern for Environment is Real

Public concern, both local and global, for the environment is real. Understandably! Environment is all around us. It is what we breathe, it is what we see, drink, feel and smell. It is at the heart of the quality of life. It is both a necessity and a luxury.

We can and will determine what that environment will be. It is local and it is global. Each of us has his or her own particular environmental concern - the water quality of our towns, the air quality in our cities, the disposition of waste. Global environmental treaties may be made in Rio but local enttreaties are made in villages, towns, and cities by individuals and concerned groups of citizens directly affected. As luck would have it, these same environmental concerns are now driving energy policy.

Petroleum Industry Response

Environmental concerns and the regulatory responses to them have had a significant impact on the petroleum industry. Substantial investment has been required to improve product quality and operating processes. Remediation costs, both real and litigated, have been mounting alarmingly. Judgments on performance and the level of regulatory standards have escalated with time and technology. And now we confront the ultimate challenge to the survival of the industry – climate change or “global warming.”

Too often industry’s response has been defensive. We deny any wrongdoing, we point to the economic and competitive costs of complying with regulations, and we raise questions about technology and science. In many instances, we are “right” but we are painted by the environmental community, and too often by the media, as uncaring Neanderthals.

We have trouble convincing others, perhaps even our-

* Clement B. Malin is Vice President, International Relations, Texaco, Inc. This article is based on a talk given at the 16th annual North American Conference of the USAEE/IAEE, Dallas, TX, USA, November 6-9, 1994.

selves, that there are differences between ground-level environmental concerns (the ones we see, taste, and smell and feel) and atmospheric concerns (ozone holes and climate change.) Those are good questions to begin with.

Ground-Level Concerns

Ground-level concerns are familiar to us all. They can be measured scientifically for the most part, and their correction, elimination or alleviation can be calculated reasonably well in economic terms. Here we are talking about air and water quality, waste management, toxic emissions....everything from exploration to the service station.

Certainly we have made significant progress in the United States. We have cleaner burning fuels, we have made major reductions in emissions, process modifications for improved environmental performance of refineries, and so on. Environmental concerns and responses have been exported to Europe and Japan, and even the countries of Southeast Asia that are experiencing dynamic economic growth are now concerned about air quality, particularly in the cities. In the United States, however, we are rapidly moving up the cost curve with each successive environmental initiative, an area of inquiry that energy economics should address. How much will the next increment of tailpipe emissions reduction cost? How clean need industrial sites be remediated? These are real questions and we should be addressing them both here in the United States and elsewhere around the world.

Atmospherics of “Global Warming”

When the discussion moves to climate change, knowledge and understanding plummets. Interest wanes, yawns are stifled and eyes glaze over. For some, the sky is falling. For others, global warming is dismissed as nonsense or faced fatalistically — “even if it is happening, there’s no way to avoid it.”

Scientific validation is probably decades away. In politics, however, unlike science, perception is reality. The politics of global warming is, therefore, driving the government’s energy policy initiatives; not only energy policy but research and technology budgets and transportation policy initiative. In this politically charged arena, the voice of science, admitting to vast areas of uncertainty and ignorance in the excessively complex science of climate change, goes largely unheard or is misused by politicians with social agendas, with little assessment of whose ox may be gored. Thus we have the Framework Convention on Climate Change signed by over 150 nations in Rio in 1992. We are rapidly closing on the first Conference of the Parties of the Convention scheduled for late March 1995 in Berlin. There some countries will urge that commitments to reduce greenhouse gases be undertaken for the Post-2000 timeframe. This, before so-called “commitments” for the year 2000 have been implemented or reached, commitments that increasingly look unattainable in the absence of significant and unwanted economic decline.

Footshooting?

We face the real possibility that we may do something foolish and economically imprudent. Voluntary national action plans could become mandatory, energy/CO₂ taxes

could significantly change energy mixes, energy efficiency and conservation programs could go well beyond “no regrets.”

All of this, as noted, notwithstanding the fact that few national action plans have been implemented. And few developing countries, where most of the increase in CO₂ emissions will occur over the next 50 years, have even inventoried their existing emissions. There has been no significant breakthrough in the science of climate change, and there are no real alternatives on the economic horizon to the current array of fossil fuels and energy systems. And, of course, there has been virtually no public debate over all of this, its costs and economic and social impact. One might well ask: Have we lost our collective senses?

Let's Get the Questions Right

While the industrialized world contemplates “climate flux,” “radiative forcing,” and “reservoirs and sinks,” the other 80% of the world's 5 plus billion people grapple with environmental basics – air, water, waste, land, food. Remember, environment is, above all, local. The newspapers remind us daily, if we look beyond the sports and crime sections, that poverty, in the end, is our most daunting environmental challenge. As Gregg Easterbrook points out in his excellent *New York Times Magazine* feature (9/11/94), it is not ozone depletion or Alar that kills huge numbers of human beings today, it is “dung smoke and diarrhea.” He goes on: “1.3 billion people in the developing world live in zones of dangerously unsafe air... one billion lack access to drinking water that meets the crudest safety standards....(there is) more toxic water pollution in...(China) than in the whole of the Western world.”

Meanwhile, in Russia, Eastern and Central Europe, and the other countries of the former Soviet Union, the extent of environmental abuse tolerated in a “command and control” economy that ignored basic health and safety concerns as well as degradation of air, land and water, continues to astound us. And what are we in the West talking about? “Sustainable consumption.” Sustainable development.” First things first. Let's get our global priorities straight.

Priorities and Challenges

What should energy economists be reminding us? We should be talking about “sustainable growth.” Economic

development *and* environmental protection. “Sustainable growth” is about rising standards of living, job creation, economic expansion, improved health and safety. It's about responsible stewardship of the environment. It's about economically efficient use of natural resources. It's about wealth creation. Too often overlooked, but without continued wealth creation, a commitment to the environment is unsustainable. A certain level of economic well being must be enjoyed by a society before environmental protection is politically feasible.

Cost-effective solutions to clearly defined problems help. But we do not need to replace under-depreciated pieces of equipment simply because of more “environmentally friendly,” “best available technology.” Risk assessment can help, particularly with respect to health and safety. Science should support the process of defining risk but in the end, much of public policy will be made in the presence of incomplete science. Recognizing this, we should try to avoid economically costly programs wherever possible. This is the real meaning of “no regrets.”

What should industry be doing? Industry, particularly the petroleum industry, must become engaged proactively in the global environmental policy arenas. It is industry that invests and implements, develops technology, marshals capital. We have a right and an obligation to be heard in policy making.

The energy industry need not be defensive. We should not abandon the field to environmentalists. Our record on environmental stewardship is impressive. We may be seen by some to be the problem, but we are, in fact, part of the solution. Our fuels are still, and will be well into the next century, the fuels of choice.

First things first. Let's get the priorities right. Let's ask the right questions and define the issues in economic terms, leaving emotion to others.

Remember, it is our environment, too. We have and can demonstrate responsible environmental management and stewardship. We have the capacity to do things. We can develop technology. We can generate financial capital. We can manage investments and operate facilities. And we can do it with respect for the environment and make money. That, in sum, *is* our business.

The Changing World Petroleum Market Order Form

The Changing World Petroleum Market, special issue of *The Energy Journal*, includes sections on Petroleum Demand and Supply, Refining, Natural Gas, Industry Structure and Evolving Markets, Changing Financial Requirements and Resources, and Policy Issues. Edited by Helmut Frank; 380 pages. U.S. and Canada, \$65; other countries, \$75, including mailing and handling. Use the form below to order, and mail together with your check to:

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a “bottom up” approach under which existing competition law, whether at EU or national level, would be used to develop more competitive arrangements on a case by case basis. This could, however, lead to an unbalanced outcome. David Howell and Gunter Marquis called for a less dogmatic approach by the Commission on the legal framework and a respect for national sensitivities and interests reasonably put. Dieter Heim suggested that a new effort should be made to include electricity and gas liberalization in a wider package as part of the 1996 Intergovernmental Conference but he failed to suggest the specific elements in such a package.

A recurring issue in these sessions was the question of regulation to promote competition. Edmund Wallis, Chief Executive of PowerGen, considered that more effective regulation was needed in England and Wales if a drift back to vertical integration was to be avoided. Initially at least such regulation was likely to be intrusive. This, however, was part of the price which had to be paid to secure the benefits of competition.

Environmental Issues

The scene for this part of the discussion was set in a comprehensive presentation by Jurgen Henningsen, Director for Environmental Quality in the European Commission. The EU Fifth Environmental Action Programme had made important changes in the approach to environmental policy. Rather than relying on specific directives it looked for the integration of environmental considerations into other policies. It recognized the need to adopt new instruments for pursuing environmental objectives, particularly taxes and other economic instruments. It addressed the environmental policies of the EU, Member States and regional and local governments as a whole. However, the enthusiasm for environmental policies of the late '80s and early '90s had recently been muted by other concerns — the economic recession and German reunification. The appointment of a new Commission for five years and the fact that the economic recession seemed to be over gave some grounds for optimism.

The question of environmental and energy taxes was introduced by Mathias Mors of the Directorate General for Economic and Financial Affairs in the European Commission. The use of economic instruments could increase the effectiveness of environmental policy in the EU without heavy handed regulation. The consequences for employment of a shift from taxes on labor to taxes on energy would probably be small but positive. There would be some effect on international competitiveness but other forms of environmental policy also had a cost. A move to energy taxes might shift part of the tax burden either to purchases of finished products or to energy producing countries — an advantage which was seen as a problem by others, notably Alirio Parra former Minister of Mines and Energy, Venezuela, and former President of the OPEC Conference. The political debate was moving in favor of energy and environmental taxes, particularly higher taxes on gasoline, in most EU countries. The principle of subsidiarity limited the scope for EU action but the market imposed limits on the fiscal sovereignty of Member States. Some minimum levels of tax set at the EU level might be a sensible approach. These

arguments were reinforced by Michael Kohlhaas of DIW on the basis of modeling work done by his Institute and by Thomas Sterner of the University of Gothenburg on the basis of Swedish experience with environmental taxes.

Other speakers dealt with specific factors in the interface between energy and environmental policies:

- Stephen Tromans of Simmons and Simmons discussed the crucial but often ignored problems of environmental liability. Progress on this issue seemed for the time being to be more likely at the level of Member States than of the EU.
- Jacqueline Karas of the New Economics Foundation put the case for giving greater weight to environmental considerations in the use of the EU structural funds. The historical record in this respect was poor. The new regulations for the structural funds required environmental considerations to be taken into account but existing procedures were not sufficient to meet the requirements of sustainable development.
- Michael Grubb, Head of the Energy and Environmental Programme at the Royal Institute of International Affairs described recent developments in the debate on climate change. On the scientific level there was now greater confidence in the underlying climate models but also greater recognition of the complexity of the climate system and of the large natural forces involved against which human interference could be viewed either as marginal or as a possible trigger of instabilities. In the first national reports submitted under the Climate Change Convention no OECD country had said that it would fail to meet its commitments although there were problems in countries like New Zealand, Norway, Sweden and Switzerland where the electricity system was not carbon based. It was uncertain whether the EU as a whole would meet the target of restricting CO₂ emissions in 2000 to the 1990 level and there were problems thereafter. Agreement was difficult as questions of sovereignty in the energy sector were involved. One approach would be for the EU to set specific national emission targets combined with provision for exchange of quotas between Member States on agreed terms. The Conference of Parties to the Convention in Berlin in 1995 seemed unlikely to agree on new protocols. It would do better to focus on supplementary decisions and on selective amendments to the Convention.
- Wolfgang Eisner of the Directorate General for Transport in the European Commission noted that transport could not be environmentally neutral. Policy could only minimize the environmental damage it caused. The Commission's document on a Common Transport Policy was designed to develop a policy of sustainable mobility. This involved action at several political levels; the use of economic instruments under which the most polluting forms of transport cost more than those which were environmentally less damaging; the development of efficient transport networks which would facilitate transfers from one form of transport to another; and the use of advanced technology to make the transport infrastructure more efficient.
- Andrew Warren of the Association for the Conservation of Energy developed a theme already stated by Svend Auken and Michael Grubb — the weakness of EU policy for energy conservation where agreement had been reached on the end but not the means. The EU 1995 targets for energy

saving would not be achieved. The original carefully thought out SAVE program had become a shadow of what was intended. The Commission's record of energy efficiency in its own buildings was deplorable. There was, however, some encouragement to be derived from the expected publication of the long awaited Directive on integrated resource planning in electricity and from the interest of the German Presidency in developing the SAVE program. Despite subsidiarity the strategic importance of energy should give the EU a major role in energy efficiency policy.

Energy Strategy and Security

John Mitchell the Chairman of the Energy and Environmental Programme of the Royal Institute of International Affairs argued in his keynote paper that there was still a problem of energy security but that it had changed from the 1970s and early 1980s when the problem was predominantly one of oil security. The security problem had two aspects — disruption of supply and structural damage to importers from monopolistic pricing. The fact that oil was highly fungible meant that the market could cope with even a significant reduction in supply, say 10%. The economic effects of an increase in oil prices were limited by the relatively small role of oil in total EU imports — about 10% by value and likely to diminish. Trade in oil was a two way process and was as important to the exporters as to the importers — often more so. Natural gas did not have the same international trading pool as oil to draw on in case of disruption. The rapid rise in gas consumption in Western Europe, depending heavily on supplies from Russia and Algeria, involved some security risks. The price transmission mechanism for gas would not have the effect of re-allocating supplies. This would have to be done administratively by the gas transmission companies. The risks of an oil or gas supply crisis could be further limited by a better understanding of how to deal with a disruption, by the avoidance of pro cyclical tax policies and by developed country investment in the exporting countries. The dependence of the French electricity system on nuclear energy and of the German system on domestically produced coal made them, in theory, vulnerable to an accident or to a strike respectively.

This analysis was broadly supported in the subsequent panel discussion. Alirio Parra stressed that the producing countries recognized the benefits of trade and interdependence. Cooperation in investment and technology would give a new dimension to security of supply. The producing countries were, however, concerned about consumer taxation, the unilateral trade actions of some countries and the tendency of trade blocs to have a regional bias. Alexander Arbatov of the Russian Academy of Sciences made the same point in a different way — the failure of the former Soviet Union when it tried to use energy supplies as a political weapon in Eastern Europe and the Baltic states. Current disputes with the transit states for the movement of Russian gas to Western Europe emphasized the need for a wide international approach to gas security. Klaus Kabelitz also took the point that producing countries could not afford to lose gas revenues for a long period. Consuming countries could achieve short term security of supply by interruptible contracts with consumers, back-up supplies and cooperation with neighboring gas companies, and long term security of supply

by long term take or pay contracts and diversification of supplies. Walter Hohlefelder of VEBA discussed some security issues affecting EU's electricity industry and Georges Deschamps outlined the European Commission's efforts to promote the renewable energies.

Some Questions

The Conference raised, but by no means fully answered, some important questions:

- *The price of energy and transport.* Several speakers emphasized that the prices of energy and transport in the EU were too low. This should be rectified by removing subsidies and other distortions and by using taxes or other instruments to reflect environmental and other external costs in prices. Fine in theory — but how should the effects of higher prices on the competitiveness of EU industry be tackled? How should their regressive distributional effects be remedied? How can the strong political opposition to higher energy taxes be overcome?
- *Efficiency in energy use.* The advantages of greater efficiency in energy use were agreed. As always there was less consensus on practical measures to achieve it. Most speakers suggested regulation or economic instruments. Less attention was paid to mobilizing market forces in support of energy conservation. As Kevin Leydon dramatically put it — how can someone be motivated to sell energy efficiency with the same effectiveness as McDonald's sells hamburgers?
- *Subsidiarity.* There was a sharp clash between those, such as Tim Eggar the UK Minister of Industry and Energy and most of the speakers from the EU energy industries who saw it as an obstacle to the development of effective EU policies. Can these approaches be reconciled by securing agreement that subsidiarity is not a one way street and that it requires national and lower levels of government to take effective action to promote agreed EU objectives? How can this accountability best be established? What is the role of targets and of review procedures?
- *EU Energy Policy.* Only Tim Eggar directly addressed the meaning of "energy policy". He saw it as the creation of a stable and fair framework which allowed the market to operate effectively and competition to flourish, but with enough regulation at the national level to meet social obligations. Is this definition sufficient to ensure the degree of coherence in energy policy across the EU which a single market requires and to resolve conflict between objectives such as minimizing costs, promoting energy security and protecting the environment? Is there any practical possibility of going further and developing a coherent set of policies at EU level designed to influence the level and pattern of energy production and use in the best interests of the Community and its Member States? How would such a set of policies define the role of government at Union, national and regional/local levels and the role of markets? How could it be made sufficiently flexible to cope with changing circumstances?
- *Integration of policies.* The main emphasis was on the integration of environmental considerations into energy and other policies. How can a wider, multifaceted integration of policies be achieved? Are EU institutions

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RIIA/BIEE/IAEE Seminar (continued from page 11)

adequate to secure such integration? What practical reforms are possible?

- *A Treaty Chapter on energy.* The absence of such a chapter and the failure to secure the inclusion of one in the Treaty on European Union were noted. What are the prospects of securing such a chapter as a result of the 1996 Intergovernmental Conference? What should be the contents of such a chapter? On what issues should it provide for decisions by majority voting and are there issues such as energy security where unanimity should still be required?
- *Political Will.* As Ian Graham-Bryce, the chairman of the environmental sessions pointed out, where there is a political will to make progress a means can be found. How can the political will and the broad public support needed to advance energy and environmental policies be sustained when political leaders and public opinion are concerned with other apparently more pressing issues?

Conclusion

The Conference raised questions which are at the center of the political debate about European integration, environmental policy and energy policy. Many speakers clarified the factors and issues at stake and some proposed answers – but unsurprisingly, there was no consensus on what these would be. The next step in the debate will be the Commission's forthcoming Green Paper on energy policy. This needs to be followed by a wide and well-informed public discussion.

David Jones

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Petroleum Products in Asia: The Picture from Singapore

The recent months of weak and negative refinery margins in Singapore have called into question received wisdom among analysts of demand and supply fundamentals. Reflecting the first cut in crude runs since 1987, the medium term outlook among a number of Singapore refiners no longer conveys the confidence normally associated with the world's most profitable refining center. One local oil report cites a trading manager of a Singapore-based oil major who suggests that "the demand prophets of recent years be shot."

One need not be a prophet to project rapid demand growth for petroleum products among the high-performing Asian economies. Nor, given current costs of setting up grassroots facilities, does it require prescience to believe that — despite ambitious refinery building plans throughout the region — distillation capacity will at best only just keep pace with present consumption trends. The region faces a substantial deficit in refined petroleum products, and dependence on extra-regional product imports, primarily from the Mideast area, is expected to mount as Asia-Pacific demand reaches about 20 million b/d by the end of the decade. In short, fundamentals in the region have not changed. Distillation capacity is expected to remain tight throughout the decade, and with a relatively low cracking/distillation ratio, the mismatch in the demand and supply barrel is expected to be most critical for middle distillates. From an estimated current shortfall of over 350,000 b/d, it is not unlikely to see the region importing some 1 million b/d of middle distillates by as early as 1998.

The question remains, have Singapore's negative refining margins last summer confounded the predictions of oil analysts? Robust Asian demand growth failed to support OECD refining margins that have been simultaneously subject to recession and heavy investment requirements imposed by increasingly stringent environmental restrictions. And Singapore's mop-up role (as the premier trading center for the Asia-Pacific) for the refining surpluses of the rest of the world, an entrenched assumption for oil analysts since the Gulf War, has come into question.

Evidence suggests that the state of the Asia-Pacific market this summer has been a result of a coincidence of factors which together proved depressing for margins. Stepwise increases in the supply of oil products, in particular the re-establishment of Kuwaiti product exports to pre-War levels by June 1994, have presented one bearish factor. The commissioning of the Malacca and Exor-1 refineries in Malaysia and Indonesia respectively, while not amounting to much in terms of surplus middle distillates, nevertheless added to the summer's depressed differentials between crude and distillates.

On the supply side, the surge in North Sea crude liftings and the increased displacement of Arab Heavy with Arab Light and Berri crudes, together with the increase in cracking capacity among refiners worldwide, have been factors as important as the resurgence of Kuwaiti refining capacity. At the margin, the impact of the lighter global crude slate combined with increased cracking capacity has been substantial on distillate-fuel oil differentials despite the rapid growth in demand for middle distillates in Asia.

On the demand side, China's attempts to control product trade after an unprecedented surge in imports in the last quarter of 1993 have been seen as a major bearish factor by Singapore traders. Unless one compares current import levels with the situation in the closing months of 1993, official statistics do not justify the widespread perception that China has been importing drastically reduced volumes of petroleum products. Iran's much reduced dependence on mid-distillate imports in the course of this year — believed to have been cut by 200,000 b/d — may have had an impact on Asia's product deficit as important as "the China factor."

Perhaps the least appreciated aspect of the summer travails of the Singapore refiners has been the role of product traders who have been increasingly aggressive in exploiting arbitrage plays whenever windows of opportunity emerged. Over the past two years, product imports from the Mediterranean, the U.S. West Coast and other long haul regions, once seen as one-off arbitrage cargoes, have become increasingly common. In particular, large product shipments moving over long distances became an established feature of trade in the Far East last year, a situation propelled by China's fourth-quarter import frenzy.

Although Singapore refinery margins have improved recently, de-bottlenecking and capacity additions in the region along with the importation of large volumes of products from outside the region will continue to restrict margins. While Asia's long term demand growth for oil products is expected to continue undiminished and the region will remain supportive of product/crude differentials (especially in mid-distillates), more consistent product flows from almost all other regions with exportable surpluses together with a more transparent and competitive trading environment may have made Singapore's traditionally high refining margins a feature of the past.

Tilak Doshi

Energy Journal Publishes Special Issue

The Changing World Petroleum Market, a special issue of *The Energy Journal*, edited by Helmut Frank, has just been released.

Three hundred and eighty pages in length, this special issue "is intended to provide *The Energy Journal's* readership with a *tour d' horizon* of various aspects of the world oil market," says G. Campbell Watkins in his preface to the issue.

According to findings included in the issue, there is more bad news ahead for oil producers and some brighter prospects for consumers. The report sees continuing growth for oil demand in response to increases in real incomes in the industrialized countries. And oil use in the developing world will climb at least twice as fast as in the 1980s. This will not be enough to help producers because the world is "running into, not out of" oil. OPEC's markets will prove "frustratingly modest," and come under increasing strain, though a complete breakdown is not seen any time soon.

Ample supplies mean consumers will not face sharp oil price increases in the next 15 years (but no collapse either), *The Energy Journal* says. Oil prices will stay low initially and then rise at an inflation adjusted rate of about 2.5% a year.

This comprehensive issue features a series of separate studies on the major issues facing the petroleum industry ranging from world oil supply and demand, to refining, natural gas, industry structure and financial markets.

Major contributors include Morris Adelman, MIT; Stephen Brown, Federal Reserve Bank of Dallas; Carol Dahl and Meftun Erdogan, Colorado School of Mines; Dennis Eklof, Cambridge Energy Research Associates; Edward Erickson, North Carolina State University; Dermot Gately, New York University; James Griffin, Texas A & M University; Keith Hamm, Petroleum Economics Limited - London; Hillard Huntington, Energy Modeling Forum, Stanford University; James Jensen, Jensen Associates; Alex Kemp, University of Aberdeen; Hoesung Lee, Korea Energy Economics Institute; John Lichtblau, Petroleum Industry Research Foundation; John Mitchell, Royal Institute of International Affairs, London; Knut Mork, Norwegian School of Management; Peter Odel, Erasmus University, Emeritus, Rotterdam; Marian Razetzki, SNS Energy, Stockholm; Joe Roeber, Joe Roeber Associates, London; John Treat, Booze, Allen & Hamilton; Lawrence Vielhaber, Marathon Oil Company and Campbell Watkins, Charles River Associates.

Editor Helmut Frank, University of Arizona, Emeritus, was the founding editor of *The Energy Journal*, serving from 1980 to 1989. He brings superior credentials to the Editor's job, beginning with a doctoral dissertation on the pricing of Middle East oil. This was followed in 1966 with his publication of a book, *Crude Oil Prices in the Middle East: A Case Study in Oligopolistic Price Behavior* and subsequently extensive academic research on energy demand (especially natural gas), on oil and natural gas supply and on U.S.-Canada energy trade. In addition to his publications on all of the latter, he has published on the tanker market, electricity and energy policy.

All IAEE members who are subscribers to *The Energy Journal* should have received their copy of this special issue by now. Those members who do not subscribe to the *Journal* may secure a copy by using the order form on page 9.

The Second International Conference on: Development of the Russian Arctic Offshore - "RAO-95"

September 18-22, 1995, St. Petersburg, Russia

The development of Russian Arctic offshore HC reserves poses a wide range of engineering and economic challenges. International offshore oil and gas development expertise is of great interest to Russia, being a natural basis for cooperation in joint offshore oil and gas projects and mutually advantageous development of Russian energy reserves.

The Second International Conference, "Development of the Russian Arctic Offshore" will continue the dialogue, started at "RAO-93", between Russian and foreign experts and cover a wide range of issues pertaining to offshore oil and gas field development in the Russian Arctic.

The conference speakers and audience will include representatives from the Russian Federation Government, regional authorities from the Russian Northwest, officials from the Ministry of Fuel and Energy and State Committee for Higher Education and other relevant government departments, staff from RAO "Gasprom" (R.J.S.C.), JSC Rosshelf, specialists from leading Russian R&D centers and manufacturing companies involved in the offshore exploration and production technology. Major American, European and Asian companies are also invited to take part in the "RAO-95".

The conference program involves a wide range of presentations from keynote papers to standard presentations and special sessions, as well as roundtable discussions and interest group meetings.

Conference topics include the following:

- Development planning for Shtokman, Prirazlomnoye, Yamal and other oil and gas fields in the Russian Arctic area.
- Regulatory and legal aspects of the offshore development.
- Geologo-geographic study on the Arctic offshore.
- Hydrometeorology, economic geology and environmental protection.
- Technological layout for surface facility construction, drilling and development of oil and gas fields.
- Offshore oil and gas producing structures.
- Specific oil and gas producing floating structures.
- Underwater pipelines.
- Ecological and industrial safety.
- Geotechnical challenges.
- Ice-technical challenges.

Russian and English will be the official languages of the Conference with simultaneous translation of the presentations and discussions. For complete registration materials, please contact the following:

In St. Petersburg: Dr. Alexander Bolshev, St. Petersburg State Technical University, Polytechnicheskaya 29, St. Petersburg, Russia 195251, Fax: 7-812-534-12-27, E-mail: SPGPI@SOVAM.COM.

In Moscow: Vyacheslav Kuznetsov, ROSSHELF Co., Sq. Kurchatov 1, Moscow, Russia. Phone: 7-095-1966097. Fax: 7-095-9430023. E-mail: EPV@INTERCOUN.MSK SU

Problems and Perspectives of Energy Saving in the Northwestern Region of Russia

In spite of difficult economic conditions and restrictions on industrial activity, the Northwestern region of Russia (Saint Petersburg, Leningrad, Pskov and Novgorod oblasts) retains the role as one of the largest fuel and energy consumers in the country. Annual consumption of electroenergy in the region is now above 38 GWH and consumption of fuel (mostly natural gas), about 40 mil. tons

Conservation efforts are related to the continuing increase in energy prices. For example, in October 1994 the cost of electricity for industrial consumers in the Northwestern region was approximately 35-40 percent above that of Western European countries. Thus many consumers appear to have an active interest in energy conservation, and the potential for conservation totals 500-600 thousand tons annually.

However, since many industrial consumers are in financial difficulty, they have limited wherewithal to adopt new, energy saving technology. The energy saving that does occur is primarily the inexpensive type of equipment modernization, the application of different schemes of heat utilization and the installation of simple control equipment and systems, etc.

Many enterprises, including the former military, have begun to produce different types of automation equipment and systems geared to energy savings. These include equipment for regulating combustion processes, tubes with polyuretan isolation, electric and heat meters for multilevel tariffs, local installations for heating and ventilation and others.

It is important that western companies from Denmark, Finland, France and Germany participate in the production, export and installation of the needed energy saving equipment. Such participation accelerates the penetration of modern western technologies into the Russian energy market. Successful participation, in many cases, is connected with special programs of the European Community for support of energy conservation.

One of the things limiting serious energy conservation is the absence of market mechanisms and legal organizations. It is expected that in 1995 a regional fund for the support of energy conservation will be created. In accordance with the suggestion of the Russian Ministry of Fuel and Energy, this fund will be generated by special payments by energy companies - 0.5 - 1.0 percent from energy tariffs. Another funding method suggested is that of direct investment by energy companies in energy saving programs with compensation to companies coming from the savings made. Application of this method, already adopted by utility companies in the USA, requires an updating of rate basing procedures as well as a modernization of the regulatory system in the region.

Initial realization of energy conservation programs in the Northwestern region is expected in 1996 and 1997.

L. Khabatchev and V. Sharygin

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Publications

Transport: The New 'Energy Crisis'?, Stephen Peake (1994). 128 pages. Price: £12.95. Contact: Nicole Dando, Energy and Environmental Programme, Royal Institute of International Affairs, Chatham House, 10 St James's Square, London SW1Y 4LE. Phone: 44-71-957-5711. Fax: 44-71-957-5710.

Minerals, Energy, and Economic Development in China, James P. Dorian (1994). 304 pages. Price: £34.00. Contact: Oxford University Press, Walton Street, Oxford OX2 6DP. Phone: 44-865-56767. Fax: 44-865-56646.

Romania Rebuilds, Walt Patterson (1994). 212 pages. Price £12.95. Contact: The Royal Institute of International Affairs and Earthscan, Chatham House, 10 St James's Square, London SW1Y 4LE. Phone: 44-171-957-5700. Fax: 44-171-957-5710.

Oil and Gas Equities: Evaluation and Trading, Nick Antil & Robert Arnott (1994). 258 pages. Price: \$135. Contact: Woodhead Publishing Limited, Abington Hall, Abington, Cambridge CB1 6AH England. Phone: 44-0-223-891358. Fax: 44-0-223-893694.

Alternatives to Traditional Transportation Fuels: An Overview (DOE/EIA-0585/O). Contact: The United States Department of Energy, Energy Information Administration, National Energy Information Center, EI-231, 1000 Independence Avenue, SW, Washington, DC 20585. Phone: 202-586-8800.

Solar Collector Manufacturing Activity 1993 (DOE/EIA-0174-93). Contact: The United States Department of Energy, Energy Information Administration, National Energy Information Center, EI-231, 1000 Independence Avenue, SW, Washington, DC 20585. Phone: 202-586-8800.

Financial Impacts of Nonutility Power Purchases on Investor-Owned Electric Utilities (DOE/EIA-0580). Contact: The United States Department of Energy, Energy Information Administration, National Energy Information Center, EI-231, 1000 Independence Avenue, SW, Washington, DC 20585. Phone: 202-586-8800.

America's Electric Utilities, Past, Present and Future, fifth edition, Leonard Hyman. Price: \$50.00. Contact: Public Utilities Reports, Inc., PO Box 17008, Arlington, VA USA 22216-9848. Phone: 703-243-7000. Fax: 703-527-7000.

Electric Vehicles: Economic Costs and Environmental Benefits, Garth Reene, Clyde Carr and Michelle Heath. Price: \$250.00. Contact: Canadian Energy Research Institute, #150, 3512-33 Street, NW, Calgary, AB, Canada T2L 2A6. Phone: 403-282-1231. Fax: 403-282-1231.

Alternative Transportation Fuels: Natural Gas, Propane, Methanol & Ethanol Compared with Gasoline & Diesel, Michelle Heath. Price: \$200.00. Contact: Canadian Energy Research Institute, #150, 3512-33 Street, NW, Calgary, AB, Canada T2L 2A6. Phone: 403-282-1231. Fax: 403-282-1231.

Energy, Emissions and Social Consequences of Telecommuting (DOE/PO-0026). 112 pages. Contact: The United States Department of Energy, via Oak Ridge National Laboratory, Office of Scientific and Technical Information, Oak Ridge, TN USA. Phone: 615-576-8401.

Clean Coal Technology, The Clean Coal Technology Program - Lessons Learned (DOE/FE-0315P). Contact: The United States Department of Energy, Office of Clean Coal Technologies, FE-221, 1000 Independence Avenue,

SW, Washington, DC 20585. Phone: 301-903-9451.

The Politics of Coal's Decline: The Industry in Western Europe, Mike Parker (1994). 76 Pages. Price £12.95. Contact: The Royal Institute of International Affairs, Chatham House, 10 St James's Square, London SW1Y 4LE. Phone: 44-171-957-5700. Fax: 44-171-957-5710.

An Analysis of the Principal Manufacturers of Electrical Equipment and Their Markets, Price \$800.00. Contact: ABS Publications, 75 Updown Hill, Windlesham, Surrey GU20 6DS, United Kingdom. Phone: 44-0-276-474828. Fax: 44-0-276-471796.

An Analysis of the Major International Electrical Engineering Consultants and Their Markets, Price \$1,000.00. Contact: ABS Publications, 75 Updown Hill, Windlesham, Surrey GU20 6DS, United Kingdom. Phone: 44-0-276-474828. Fax: 44-0-276-471796.

Comprehensive Dictionary of Petroleum Science and Technology, Magdeleine Moureau and Gerald Brace. 1040 Pages. Contact: Alette Louis-Mauvier. Phone: 33-1-47-52-62-07. Fax: 33-1-47-52-70-96.

Calendar

7-8 February 1995, 1995 Energy Efficiency & the Global Environment Conference. Newport Beach, CA, USA. Contact: June Appel, Synergic Resources Corp., 111 Presidential Blvd., Bala Cynwyd, PA 19004 USA. Phone: 215-667-2160. Fax: 215-667-5593.

2-3 March 1995, The Fourth Annual Electricity Conference: Charting the Course. Washington, DC, USA. Contact: Executive Enterprises, 22 West 21st Street, New York, NY 10010-6990. Phone: 1-800-831-8333. Fax: 212-645-8689.

3-5 April 1995, IGT's Eighth International Symposium on Energy Modeling. Atlanta, GA, USA. Contact: Jared Smith, Institute of Gas Technology, 1700 S. Mount Prospect Rd., Des Plaines, IL 60018. Phone: 708-768-0814. Fax: 708-768-0842.

4-8 April 1995, 3rd Moscow International Oil & Gas Exhibition & Conference. Russia. Contact: International Trade & Exhibitions, Oil & Gas Division, Byron House, 112a Shirland Road, London W9 2EQ, United Kingdom.

11-12 April 1995, Energy Strategy for Europe, sponsored by the AIEE (Associazione Italiana Economisti dell'Energia). Hotel Sheraton Rome. Contact: AIEE, Via Giorgio Vasari, 4, 00196 - Roma - ITALY. Phone: 39-6-3227367. Fax: 39-6-3234921.

8-10 May 1995, 1995 International Conference on Energy & Environment. Shanghai China. Contact: Prof. Zhi-Hang Chen, Conference Chairman SIME, PO Box 482, 516 Jun Gong Rd., Shanghai 200093 P.R. China. Phone: 86-21-5435883. Fax: 86-21-5431258.

6-8 June 1995, 4th International Continuous Surface Mining Symposium. Aachen University of Technology, Aachen. Contact: Prof. Dr.-Ing. R.D. Stoll, Institut für Bergbaukunde III der RWTH Aachen, Att. Dipl.-Ing. F. Rese, Lochnerstraße 4-20, D-52064 Aachen. Phone: 49-241-80-5683 Fax: 49-241-8888-250.

28-30 June 1995, 7th National Demand-Side Management Conference. Dallas, Texas, USA. Contact: Pam Turner, Electric Power Research Institute, 3412 Hillview Ave., Palo Alto, CA 94304 USA. Phone: 415-855-8900.

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Calendar (continued from page 15)

29-30 June 1995, 1995 European Oil Refining Conference & Exhibition. Cannes, France. Contact: Edward Bradfield, WEF Energy, Mappin House, 4 Winsley Street, London W1N 7AR England. Phone: 44-171-631-0757. Fax: 44-171-631-0754.

5-8 July 1995, 18th IAEE International Conference. "Into the Twenty-First Century: Harmonizing Energy Policy, Environment, and Sustainable Economic Growth." Washington, DC, USA. Contact: IAEE Headquarters, 28790 Chagrin Blvd., Ste. 210, Cleveland, OH 44122 USA. Phone/Fax: 216-464-5365.

18-20 July 1995, Energy Models for Policy and Planning. An IFORS special conference at the London Business School. Contact: Professor Derek W. Bunn, London Business School, Sussex Place, Regents Park, London NW1 4SA, England. Fax: 44-71-724-7875. E-mail: energy@lbs.lon.ac.uk.

18-22 September 1995, Second International Conference on Development of the Russian Arctic Offshore. Saint Petersburg, Russia. Contact: Dr. Alexander Bolshev, St. Petersburg State Technical University, Polytechnicheskaya 29, St. Petersburg, Russia 195251. Fax: 7-812-534-12-27. E-Mail SPGPI@SOVAM.COM.

3-6 October 1995, 3rd Kazakhstan International Oil & Gas Exhibition & Conference. Kazakhstan. Contact: International Trade & Exhibitions, Oil & Gas Division, Byron House, 112a Shirland Road, London W9 2EQ, United Kingdom.

8-13 October 1995, 16th World Energy Council Congress, "Energy for Our Common World: What Will the

Future Ask of Us?" Tokyo, Japan. Contact: Organizing Committee, Shuwa Kamiyacho Bldg., 4-3-13 Toranonmon, Minato-ku, Tokyo 105, Japan. Phone: 81-3-3437-4727. Fax: 81-3-3437-4678.

9-12 October 1995, International R&D Conference, "Water & Energy 2001: Needs, Development, Utilization". New Delhi, India. Contact: C.V.J. Varma, Member Secretary, Central Board of Irrigation and Power, Malcha Marg, Chanakyapuri, New Delhi-110021, INDIA. Phone: 91-11-3015984. Fax: 91-11-3016347.

1-12 October 1995, 4th International Energy Efficiency & DSM Conference: The Global Challenge. Berlin, Germany. Contact: Synergic Resources Corporation, 111 Presidential Blvd., Ste. 127, Bala Cynwyd, PA 19004-1008. Phone: 610-667-2160. Fax 610-667-3047.

1-4 November 1995, 1st International Indian Oil & Gas Exhibition & Conference. India. Contact: International Trade & Exhibitions, Oil & Gas Division, Byron House, 112a Shirland Road, London W9 2EQ, United Kingdom.

3-7 June 1996, The 6th International Energy Conference and Exposition - Energex '96. Beijing, China. Contact: Liu Feng, China International Conference Center for Science and Technology, 44 Kexueyuan Nan Road, Shuangyushu, Beijing 100086, China. Phone: 86-1-257-5681. Fax: 86-1-257-5691.

11-15 November 1997, Fifth Chemical Congress of North America. Cancun, Quintana Roo, Mexico. Contact: SNACC Congress Secretariat, c/o American Chemical Society, Room 420, 1155-16th St., NW, Washington, DC 20036. Phone: 202-872-4396. Fax: 202-872-6128.

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