

IA INTERNATIONAL ASSOCIATION FOR ENERGY ECONOMICS EE Newsletter

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President's Message



I WANT TO TAKE this occasion to wish you a very Happy New Year and to thank you for your support of the IAEE on behalf of your friends and colleagues who serve on the IAEE Council. As we approach our 20th birthday the organization has expanded from primarily a small national organization of elite professional economists who produced energy data and analysis into a world-wide organization which now includes policymakers, corporate leaders, major

consulting organizations, and end users in industry, academe and government. Transparency and informational technology now allow nearly anyone who has the interest to gather accurate and timely data and to do significant energy and policy analysis.

The membership of the IAEE has been in the forefront of this movement which, of course, has paralleled similar developments in science, economics, financial affairs and many other fields. The IAEE home page (<http://www.iaee.org>) now provides an excellent means for members and nonmembers to share research or contact others who might provide useful research and analysis. If you have not done so we urge you to contact the IAEE home page and list your current interests and contact numbers. As we progress, the home page will expand to meet new challenges and requirements of the members.

As President in the year 1997, I would like to share some thoughts about the organization and goals for this very important transitional year. Transition is the key word because we must face new challenges if we are to continue to improve the quality and relevance of energy economics in the energy world.

Let's take a moment to review the past and the present so that we might have a better perspective on the future of IAEE.

The conferences of the IAEE have always been the major activity of the Association, from the excellent Washington Conference in 1979 to our most recent Boston, North American Conference in October of last year. After a series

of conferences which varied in quality, in 1990 the Council established an elected Vice President for Conferences and established the first conference guidelines which began a significant improvement in the quality of content and conference administration. The selection of Administrative Management Services in 1993 to manage the affairs of the IAEE brought experienced conference managers providing discipline, quality and sound financial management to the IAEE conferences. Since 1993, the IAEE Council has worked with AMS in further developing the above principles and as a result the Dallas (1994) and Boston (1996) North American Conferences and the Washington (1995) and Budapest (1996) International Conferences have been the most successful IAEE conferences in terms of substance and administrative quality. They have been very successful financially and have contributed nearly a quarter of a million dollars in earnings to the IAEE and its affiliates. Many outside observers and participants have commented they are the best conferences around and outshine any and all commercial or professional conferences. As a member of the program committee for the

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Editor's Note

The issue contains several articles based on talks given at the 17th Annual North American Conference in Boston last October. These include an article by Morris Adelman on *No OPEC* - what the world would look like without the Organization of Petroleum Exporting Countries. He concludes, among others, that prices would be lower and more stable, consumption would grow faster and the ex-OPEC nations would greatly expand output. His logic is interesting.

William Hecht of Pennsylvania Power and Light looks at *Choice in Electricity* and concludes that it makes sound public policy in the United States. He makes the point that we should generally not have economic regulation if the marketplace can set prices and encourage efficiencies. He goes on to

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first Washington Conference, a past General Conference Chairman who recommended the administrative changes, and General Conference Chairman for the Dallas (1994) and Washington (1995) conferences, I am pleased that we have achieved high standards and quality in our meetings. We all owe a special vote of thanks to the many people who served on the conference committees, and in particular, Tony Finizza, Hill Huntington, Tamas Jaszay and Mike Lynch who served as program chairmen for those conferences and AMS who made good conferences better.

And what of the future? Arild Nystad, Vice President for Conferences, has done an excellent job in developing quality conferences for 1997 and the future. Our international meeting in New Delhi and North American meeting in San Francisco have interesting programs and will provide increasing value to the members who attend. Beyond 1997, we have international meetings scheduled in Quebec City (1998), Rome (1999) and Seoul (2000).

Our challenge is not to maintain our high standards but to make our conferences even better. The Council welcomes your thoughts and participation in accomplishing this goal. For example, our European affiliates have some excellent national conferences and have the capability to establish an annual regional meeting of the stature of the North American. We could also establish some smaller round tables and working groups that would focus on more specific issues. Finally, we need to look at how our conferences fit into a future world in which electronic conferencing and information technology might further affect our interest in energy and the IAEE. I have asked Arild Nystad to form a task force to look into this issue.

Our quarterly publication, *The Energy Journal*, under the capable leadership of Len Waverman, has become well accepted in the field. Len took a good product and made it even better, and as he retires and turns the reins over to Campbell Watkins and Adonis Yatchew, I'm sure the improvement will continue. Our challenge here is to look to the future and determine the best way to make the journal available to the membership and the world energy community.

The next challenge relates to people, the people who have made the IAEE and the people who will make the IAEE in the future. Our European affiliates have made major strides in developing membership in the FSU and Eastern Europe and deserve special thanks for that effort and encouragement to continue their efforts.

We have not achieved our potential in Latin America and that should be a special effort for our NAFTA affiliates and Venezuela. I would like to appoint a special task force headed by Mariano Bauer to do that.

The Asia-Pacific and South Asia areas are the most exciting in growth and change in energy economics and IAEE has strong chapters in Australia, Indonesia, India, Japan, Korea, Taiwan and Singapore. We are also fortunate to have strong affiliations with the major research organizations which focus on the region as well, including the IEE, KEEI, APEC Research Center and the East-West Center. We can reach out much further, however, and expand our membership. Strategic Alliances may be the answer here and the newly formed Pacific Economic Cooperation Council (PECC) Energy Forum and the APEC Energy Ministers Forum are important in shaping the energy future of the region. The

IAEE helped the PECC Energy Forum and the APEC Energy Ministers develop a very successful meeting of business leaders for the first APEC Energy Ministers meeting in Sydney in August, 1996, and will cooperate with the first PECC Energy Forum Symposium at the Fairmont Hotel, San Francisco, September 3-5, 1997. As Executive Director of PECC Energy Forum, I want to encourage all IAEE members to become involved in this meeting which will bring energy leaders from the eighteen APEC economies and five guest nations to San Francisco just prior to the North American meeting. We expect a great deal of synergy between the two meetings. You may contact uspecc@erols.com or call Steve Burns at 202-293-3995 for more information regarding the PECC Energy Forum or APEC.

I would like to appoint a special task force including Hoesung Lee, Kenichi Matsui and Fereidun Fesharaki to consider our efforts in Asia and the Asia-Pacific and advise the Council on our programs and strategy in the area.

We must also look deeper within our leadership and membership. The IAEE is deeply indebted to a small group of members who have worked very hard for the organization since its beginning. They are people who attended the conferences and became involved in the work of the IAEE and became a network within the organization to work for the organization. With rare exception these leaders have put the organization first before their own interests and have made the organization what it is. Perhaps two hundred people have made up this group and have appeared to be "an old boys and girls club" in the membership. From my experience, anyone who was willing to contribute some time to the IAEE could enter very easily. Still, as I look around I see many old familiar faces some which date from the early 1980s involved in the leadership. From experience, that tells me we must open the organization more and develop the future generations of leadership for the organization. With the formation of a U.S. affiliate in 1993, and most recently the selection of the new slate of officers of that organization, a number of new faces appear and that is very encouraging.

The challenge for the IAEE is to develop new leadership in every affiliate and the IAEE Council. I would like all members to identify new leaders as well as members and bring them to the attention of the Council of the IAEE as well as affiliate heads.

Another important challenge is to raise our profile in the energy and broader policy worlds. You will note that the President's Advisory Panel has been greatly expanded this year and Peter Davies has been asked to chair that group and more fully utilize our friends in important places. Important organizations like the World Energy Council, APEC Energy Working Group, OPEC, the World Petroleum Congress, the Asia-Pacific Research Center, and the Korea Energy Economics Institute, among others are represented.

In addition, we now have distinguished energy journalists on the Councils of the IAEE and the USAEE. Our challenge is to better market the contributions of the IAEE and its members to an energy world and to play a more important role in the making of that world.

There are other challenges in scholarship, education and other fields which time does not allow us to discuss in this first newsletter. I hope that you will contact me by e-mail or directly with your reactions and ideas and we can address them in future newsletters.

Dennis O'Brien

Editor's Note (continued from page 1)

develop the case for an open generation market, an independent agent operating transmission systems and one company granted exclusive delivery rights in geographic areas.

The impact of deregulation on the oil industry is examined by Keith Hamm of Petroleum Economics Limited. After looking at the impact on both downstream and upstream operations he suggests that in the broadest sense, deregulation is apt to bring downward pressure on margins and perhaps even the absolute price of oil.

We're favored again with an article by Mamdouh Salameh, this time on Saudi-Iranian-United States relations. He reports on the state of Iran's oil industry and the economy's extreme dependence on oil revenues and further notes the impact on Iran of Saudi Arabia's oil policies. He notes the role trust or the lack thereof plays in Iranian-Iraqi-Saudi relations, and the impact of the U.S.-Saudi military relationship. He concludes that an improvement in U.S.-Iranian relations must be looked on in Riyadh with mixed feelings and that it is in the Saudi ruling elite's best interest to keep Iran and the United States apart.

Xiaojie Xu examines the oil and natural gas situation in China and discusses five aspects thereof: (1) the interaction of a growing economy with shortfalls of oil and gas, (2) regional disparity in production and consumption, (3) infrastructure needs and related financing, (4) regulatory matters, and (5) security and strategic issues.

We have a plethora of reports on recent affiliate meetings and workshops which we hope readers will find of interest.

As always, your editor encourages submissions for the *Newsletter*.

The Jane Carter Prize

The British Institute of Energy Economics, the International Association of Energy Economics and the Association for the Conservation of Energy invite the submission of essays for the 1996-97 award of the *Jane Carter Essay Prize*. This is offered annually in memory of Jane Carter, former Chairman and Vice President of the BIEE, President of the IAEE and Head of the Energy Conservation Division of the U.K. Department of Energy. The prize for 1996-97 will be a cash award of US\$800 together with a plaque.

Essays can be on any aspect of energy efficiency and conservation. The aim, however, is to encourage new thinking on energy conservation policy. The emphasis of the essay should, therefore, be on the policy rather than the scientific or technical aspect of the subject.

The competition is open to anyone under the age of thirty-five. Essays should not be more than 8,000 words long. The winning essay will be considered for publication in a range of energy journals and a summary will be published in the *IAEE Newsletter*.

Essays should be submitted in English, in triplicate and in typed form, by 30 September, 1997 to:

Mary Scanlan, Administration Secretary
British Institute of Energy Economics
37 Woodville Gardens
Ealing, London W5 2LL
United Kingdom

Essays should include a 150 word summary. The name, address and age of the author should be on a separate sheet which can be detached from the essay which will be judged anonymously. Manuscripts will not be returned.

Energy Yellow Pages on Internet

AIEE, the Italian Affiliate of the International Association for Energy Economics, introduced the "Energy Yellow Pages on Internet," at *The Perspectives of Energy Policy in Italy* conference in Rome on 8 October. The conference was jointly organized with the LUISS University.

The *Yellow Pages* (300 pages) is the first guide to Internet WEB sites in the energy field and includes more than 200 university, government, company and research sites.

The reader can access the Internet through several

electronic addresses/WEB pages and obtain accurate information and suggestions as to how to reach sites where energy data can be found.

The volume includes home pages with illustrated contents as well as several links.

The English or Italian version of the Energy Yellow Pages is on sale at the AIEE, via Giorgio Vasari 4, 00196 Rome, Italy. Phone: +39-6-3222-73-67 Fax: +39-6-322-4921; E-mail: aiee@euronet.it

Conference Proceedings 17th North American Conference Boston, Massachusetts, October 27-30, 1996

The Proceedings from the 17th Annual North American Conference of the USAEE/IAEE held in Boston, MA, are now available from IAEE Headquarters. Entitled *(De)Regulation of Energy: Intersecting Business, Economics and Policy*, the proceedings are available to members for \$65.00 and to nonmembers for \$85.00 (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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The Impact of Deregulation on the Outlook for the Oil Industry

by Keith Hamm*

The fundamental shift away from government involvement in industrial activity has had only a limited impact on the oil industry thus far. This shift, driven by changes in political philosophy which now allows a greater degree of choice to the consumer rather than being limited by the structure established by governments, has been most apparent in the developed economies of the Northern Hemisphere where the consumer usually already has a great deal of choice between competing suppliers. In this instance oil has been different from electricity or gas where until recently it was thought there could be little or no competition between suppliers. These industries are now being *deregulated* to give the consumer a choice. In the oil industry, deregulation of the market, such as it is, has been limited largely to consumer pricing issues; designed simply to remove governmental barriers to prices to the consumer (excluding tax) falling to the levels evident in international markets. Even privatization of dominant companies has generally taken place in markets where there was already a competitive environment. However, in these cases, the changes in ownership are at least likely to reduce the extent to which strategic rather than commercial decisions influence the economics of the market.

Perhaps, in the longer term the oil industry will be affected more fundamentally by the impact of reduced government involvement in the upstream sector. By reducing the role of the state in developing the oil resource base of a number of countries, it is likely that oil production capacity will grow much more rapidly than would otherwise have been the case. Moreover, not only will capacity rise but it is likely that the oil will get to market more quickly than hitherto (as a result of commercial decisions, rather than strategic, determining production rates). Indeed the reduced role of governments in production in OPEC member countries may make it more difficult for the organization to "manage the surplus" as effectively as it has done over the last twenty or so years.

Therefore, taken across all phases of the oil industry, deregulation in its broadest sense is likely to bring downward pressure on margins and perhaps even the absolute price of oil.

Downstream Deregulation

When we think of deregulation in the energy industry we tend to concentrate on policies being adopted by governments to protect consumers by means of increasing competition between suppliers rather than by government regulations or eliminating those designed to protect local companies from being overwhelmed by the large internationals (such as by restrictions on the channels or volumes of imports of products). Underpinning these policies is the general political move away from government intervention in industry but they get specific impetus from a number of features apparent in the energy industries. These include:

- the growth in size of markets which allows for more companies to compete while still retaining a viable scale for their operations;
- the fact that in many developing countries the need to support indigenous industries as part of the overall industrializing process is no longer required;
- technological developments which allow for competition in sectors which had previously been thought of as natural monopolies.

To these general features has been added the fact that the oil industry has been characterized by major structural surpluses in all phases for some twenty years. Although these have been *managed* in the upstream by OPEC there has been no similar organization in the downstream and thus competition between refiners and marketers has been intense. In such circumstances, government intervention to *protect* the consumer is not only unnecessary, it is usually counterproductive; government set maximum prices include elements of cost recovery that can not be realized in the open market while also providing a benchmark to which marketers relate their prices, rarely offering sufficient discounts to bring them down to open market levels. Similarly, policies designed to protect local industries have been put under intense pressure by the availability of relatively low cost product on the open market undermining political support.

Therefore, deregulation of the downstream of the oil industry has largely been a matter of governments removing price or import controls or other mechanisms which had been designed to provide protection either to the consumer or the local operator. As such it has generally resulted in a reduction in margins downstream, not necessarily matched by a reduction in consumer prices as some of the savings have been taken by the government in the form of higher excise duties or the like.

In sharp contrast, deregulation has done little to reduce the operating cost of those refining or marketing. In fact the continuously tightening restrictions on refining storage, distillation and marketing operations and the ever changing specifications on product qualities, (in both cases to limit the impact of the oil industry on the environment), are increasing operating costs. Indeed, while a great deal of emphasis has been given to deregulation of the oil markets, in many countries environmental issues (be they Clean Air, Global Warming or the risk of damage from accidents) are resulting in the downstream of the oil industry becoming increasingly regulated.

The Upstream

While Downstream deregulation may be the most apparent, perhaps what is taking place Upstream is of more underlying importance to the oil industry. In particular this refers to the accelerating process in many countries of reducing the restriction on who can explore for and develop the oil resources within their borders. Countries which have previously reserved E&P to their state owned companies are now allowing foreign companies in, while those which had previously insisted on restrictive terms for foreign companies (particularly by not allowing companies any rights to the oil produced) are now offering terms which are attractive to the oil industry.

While this process has been evident for much of the last

* Keith Hamm is Chairman, Petroleum Economics Limited, London, England. This article is based on his presentation at the IAEE/USAAE 17th Annual North American Conference, October 27-30, 1996, Boston, MA.

ten years in countries outside of OPEC, in recent times a growing number of countries which are members of OPEC have also begun to adopt such policies. In these cases the purpose of this deregulation is to speed development of a country's resource base which had previously been held back by constraint on expertise and/or finance. By broadening the number of companies able and willing to explore and develop oil, these constraints can be overcome.

Clearly, the result of successful deregulation in this form would be to increase crude oil (and gas) producing capacity on a global scale. There may be some scope, with companies having greater choice of where to explore than hitherto, for this to result in reallocation of E&P budgets rather than these simply being increased in line with the increase in opportunities. However, it is likely that companies will concentrate on the areas with the greatest potential and, therefore, production capacity should still be greater than if opportunities were limited. Moreover, the growth in production capacity is likely to be magnified by the fact that foreign companies now able to explore once again in areas from which they have been excluded for twenty or more years, have developed in that time their expertise and techniques to ensure viable and prolific oil production from areas considered much less prospective. When these techniques and expertise are now applied to the new open, more prospective areas who knows just what their potential will prove to be.

A further feature which could magnify the impact of oil developed in OPEC member countries is that this oil is likely to be fully available to the market much more quickly than most oil developed by OPEC countries in the last twenty years. This is because the oil is being developed by foreign companies (albeit in joint ventures or the like with the state oil company) and they essentially insist on having the right to produce the oil they discover as fast as prudent reservoir management will allow. It is highly unlikely that this oil would be shut in to support, for example, an OPEC agreement to set a production ceiling below capacity in the member country concerned.

One aspect of OPEC's relative success in "managing the surplus" in the upstream which has not been given enough consideration is the fact that in all OPEC member countries, production has been dominated by state owned companies. These companies are able to make strategic decisions, i.e., those the government believe are in the best interest of the country as a whole and not only the commercial interest of the company. With an increasing share of production in the hands of companies which will only make commercial decisions, the ability of OPEC members to restrict output in the future may well be circumscribed.

Corporate Deregulation

Overlaying the developments in the Downstream and Upstream sectors of the oil industry is the fact that reducing government involvement in the oil industry is changing the nature of the businesses involved in the oil industry. Privatization of companies is not only resulting in a change in ownership from state to private shareholders but is also changing their attitude to their business decisions. Once again the strategic interests of the state are no longer a priority, the commercial interests of the company become paramount (unless a country's strategic interest coincides with the company's commercial interests). In the down-

stream this is evident in the unwillingness of previously state owned companies to maintain uneconomic refining capacity, previously kept open for employment, industrial or prestige reasons. In this respect, privatization is removing a barrier to effective rationalization. Indeed, in a highly competitive market some of the weaker privatized companies may find it difficult to survive without government support and could be swallowed up by others.

However, this is many ways a regional phenomenon, concentrated in markets West of the Suez. The restructuring of state companies is much less evident in the Middle East or the Pacific although even here the nature of the state companies is changing. In particular, in recent years a number of these state companies have become increasingly international, particularly investing in downstream facilities in other countries. This has been apparent in the forward integration of state oil producing companies into refining/marketing in the United States, Europe and the Pacific. Now we are witnessing some of the state owned, or state protected, downstream companies from the Pacific moving into other markets. Often this remains within the Pacific region but increasingly these companies are becoming evident in the West. For these companies operating in foreign markets, commercial factors are likely to become of growing importance, first in relation to their foreign investments and then probably working back to influence the approach to their domestic markets. However, the extent to which they become fully commercial operations is likely to depend on the extent to which their protected position in their home markets is lessened. So far this seems to be happening only slowly. Indeed for a number of countries East of the Suez the flow is all one way - their state companies can go abroad but there remains formidable obstructions for new comers to carve out a share of their own dynamic markets, and where opportunities do exist the traditional international companies face stiff competition from the newly emerging internationals.

In these circumstances it seems quite possible that the structural changes to the industry will intensify the downward pressures on margins which are likely to result from deregulation in the downstream sector. Such a consequence can only be transitory, however, as, in the absence of government support, margins will have to be sufficient on their own to justify investment and, indeed, continued operation. Those companies that cannot stand on their own feet without some form of government protection are likely to disappear. Perhaps, therefore, the longer term consequence of deregulation will be an acceleration in the rate of downstream concentration, with markets increasingly becoming dominated by a limited number of large companies.

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Choice in Electricity: Sound Public Policy

By William F. Hecht*

After intense study of a topic that is of supreme importance not only to our business but to the nation's economy, at Pennsylvania Power & Light Co. we have concluded that increased competition in the electricity generation business is good public policy that will ultimately result in benefits for all the stakeholders of the utility business.

To fully explain why increasing customer choices in choosing electricity suppliers is good public policy, we need to look at why we have had a regulated industry in the first place – and why the electric utility business is among the last to be deregulated.

Economic regulation may make sense in a business that doesn't lend itself to multiple suppliers necessary to create a competitive marketplace – in a situation where there is a so-called natural monopoly.

Historically, we have thought of the electric utility business as such a monopoly. When we look more closely, however, we recognize that the utility business can be thought of as at least two distinct businesses: transmission and distribution: the delivery of the commodity; and, generation: the production of electricity.

The delivery business retains the characteristics of a natural monopoly. It is not appropriate – because of the high capital costs and environmental impacts – to construct competing transmission and distribution facilities.

On the other hand, most of us today would conclude that generation is no longer a natural monopoly – if it ever was. Therefore, as a matter of public policy, we should be working toward a deregulated generation market because a competitive marketplace more effectively encourages efficiencies than does even the best of regulation.

In fact, our current system of economic regulation for electric utilities can actually reward inefficient companies. By setting rates based on the physical plant in service, we actually are encouraging inefficient companies to build more inefficient facilities. For example, by increasing capital investment, a utility can – all things being equal – increase its rates. And, while it's true that the company rate of return may remain constant, the higher rates do result in an increased cash flow – and the perception of stronger financial performance.

A competitive marketplace will change that. In any competitive marketplace, business will shift away from the high-cost supplier to the lower-cost supplier. Over time, more efficient entities will be encouraged to build new facilities to serve customers and the less efficient operations will be discouraged from doing so.

The basic economic rules of the marketplace will produce the desired results: customer needs and supplies will drive prices.

We are convinced that such a system will result in prices for customers that will be lower than they would be under economic regulation. Even though we have done business in a regulated atmosphere for more than 75 years, we at PP&L

believe that economic regulation should be the exception and not the rule.

We should not, generally, have economic regulation if the marketplace can set prices and encourage efficiencies. And, we think that is the case in the generation portion of the electricity business. If one accepts the fact that it is no longer necessary to regulate all aspects of our business, then what would this industry look like if we were inventing it today?

First, there would be an open generation market. Multiple vendors would be in the generation business – and customers would have the opportunity to buy from the vendor they choose. Second, there would be an independent agent operating transmission systems to provide for both reliability and comparability of service for all users.

And, third, there would be one company granted exclusive delivery rights in geographic areas, as is the case today.

Such a system would provide customers with the reliability that they have come to expect at competitive prices. Obviously, my discussion until now has been a bit of an oversimplification in at least two respects:

First, we are not building a new industry. On the contrary, we have in place a complex, reliable and valuable system that has served us well up to this point.

Second, few economic systems operate in a purely free market. Social and other considerations must be accommodated.

The real challenge, then, is designing a transition to get us from where we are today to that competitive future – and to do it in a way that meets the needs of all constituents.

As we have been involved in this process, we are articulating four important principles that we believe are essential to this transition process:

1. All customers and suppliers must have access to the competitive marketplace; certain classes must not benefit disproportionately.

As the debate on customer choice has matured, we have all but discarded a notion that industrial users should be treated as wholesale customers, a concept that was expressed early in these discussions.

Today, there is general agreement that choice must be made available to all customers; residential users must be offered options as well as larger customers.

2. This transition must not endanger the reliability of the United States electricity system – which is widely considered the best in the world.

An important component in ensuring continued reliability is the concept of an Independent System Operator. The ISO, in a properly designed system, will ensure reliability by actually handling the day-to-day operation of the transmission system in a given region. The ISO also will ensure that there is comparable access for all customers and suppliers.

At PP&L, we believe that the consensus proposal filed earlier this year by the Pennsylvania-New Jersey-Maryland Interconnection represents an excellent example of how an ISO could accommodate a competitive marketplace while providing for competitive pricing.

First, let me explain how PJM operates today: All utility companies share information regarding the incremental cost of operation for each unit. The PJM office then dispatches facilities according to costs, regardless of which company

* William F. Hecht is Chairman, President and CEO of Pennsylvania Power and Light Company, Allentown, PA. This is an edited version of his paper given at the 17th Annual USAEE/IAEE North American Conference, October 27-30, 1996, Boston, MA.

owns a particular plant. As a result, none of the nine utility members of PJM actually generates exactly its load. Instead, the most efficient units run and the energy that is exchanged among companies is priced at the point midway between incremental and decremental cost.

Obviously, in a competitive marketplace, utilities and other suppliers will no longer be willing to share cost data as they are today. Instead, under the proposal we have filed with FERC, each supplier will place a bid with the ISO for supplying power on the following day. The ISO then will set a price for the following day and all suppliers that are dispatched the following day would receive that price – basically the market clearing price.

The plan also accommodates two-party transactions. Of course, this is a simple explanation of the concept, the filing is much more complex than this. We believe this ISO structure will provide us with the best of both worlds: continuing high reliability and competitive pricing.

3. Social programs now being supported by utilities must remain intact.

We must ensure that those who have difficulty paying their electricity bills are not disadvantaged by the move

toward competition. We also must make sure that environmental programs are not endangered by an increase in competition.

4. We must address recovery of utilities' stranded costs.

This component of the transition process has been discussed in great detail in a variety of forums, so there is little reason to fully examine it here. Suffice it to say that it is now generally accepted that the transition process must include a method for ensuring that utility shareowners are treated equitably as we move into a more competitive marketplace.

By addressing these basic principles, we believe that an equitable transition process can be designed – and implemented promptly. It is entirely possible for customers to be choosing their electricity suppliers before the end of this decade in Pennsylvania, for example.

In summary, we believe that more competition in the generation market is good public policy – a policy that should be adopted nationwide. This more competitive marketplace will result in further improvements in the competitiveness of American business and industry in the global marketplace.

Deregulation of the Electricity Sector in Germany

After many years of negotiation between the member countries of the European Union, a new European directive regulating the electricity market will be issued shortly.

The philosophies of regulation in the various member countries range from the market oriented pool system in the United Kingdom to the state controlled national monopoly in France. The European Union does not have the power to change the internal legal framework of member countries. The directive, therefore, leaves many details to national legislation. The basic idea of the directive is to open the electricity market at least for large customers. This requires access to the grids which can be achieved either by so-called negotiated third party access (private negotiation between customer, grid owner and supplier) or the single buyer model. In this model (tailored for French needs), the monopolist retains control of all activities but has to guarantee free access at published network prices.

The German government proposes to abolish all restrictions on electricity trade within the country. If the proposed reform law goes through parliament, all electricity customers will be able to choose their supplier in the future. Access is via negotiated third party access. At present no regulation of access pricing is being considered. According to German tradition the government would prefer for interested parties to reach agreement on these controversial issues by themselves. The law, however, has to pass the second chamber (Bundesrat), the representatives of the states (Laender).

In the Bundesrat there is strong opposition against this far reaching reform. Many states fear that a far reaching deregulation without clearly regulating access might lead to discrimination against local utility companies which traditionally produce a high share of power used in large urban areas, often in combination with heat. The union of electricity producers (VDEW) is at present developing a model for

network pricing which is based on American experience. This will require that a specific network price be calculated for each case of third party access. As the government proposal does not require the publication of network prices but leaves them to the parties involved, industrial customers fear that the possibility of trade will remain rather theoretical due to the high transaction costs involved in setting up individual contracts case by case.

In addition, critics argue that a dedicated regulatory agency would be required to resolve all disputes over TPA matters whereas the government maintains that the general competition law will be sufficient and resolution of conflicts should be left to the courts. Considering the time required for court proceedings (often years) and that judges and lawyers are not experts, it is assumed that this will slow down the process of change in the sector. It is quite clear, however, that due to the high level of electricity prices in Germany, industrial customers are willing to make use of any probable benefits of competition and also will make use of small margins.

Whatever the legislative outcome will be, deregulation is being anticipated now in utility companies of all levels. Some large companies are reorganizing in order to separate production from grid activities. Most companies have realized that marketing will be a very important tool in the future to keep customers. Also energy services are being considered as additional products to be offered. The GEE (Gesellschaft fuer Energiewissenschaft und Energiepolitik) – the German affiliate of IAEE – is actively involved in the ongoing process of reform by conducting meetings and seminars. Information about our activities is available from the Internet at the following address: <http://ourworld.compuserve.com/homepages/geed>

Wolfgang Pfaffenberger

A Report from the USAEE/IAEE Annual North American Conference

*Boston, Massachusetts, October 27-30, 1996**

Those who attended the Annual North American Conference enjoyed an excellent meeting which provided much more than any individual could take in. The title, "(De)Regulation of Energy: Intersecting Business, Economics and Policy," was appropriate; there were numerous excellent presentations on proceeding deregulation and its impact on energy markets.

In his keynote address, Dr. Alfred Kahn of Cornell University discussed deregulation of the gas and electric industries and asked, "Why is it taking so much longer to achieve deregulation in gas and electricity than in trucking, railroads, and airlines?" He noted that the most significant issue in deregulation of the telecommunications and electric industries is the degree to which regulation will continue. He commented that no one wanted competition when rates were below marginal cost but deregulation will continue even if cost relationships reverse.

(De)Regulation of Markets for Electricity

George McCluskey of the New Hampshire Public Utilities Commission addressed electric energy issues being dealt with at the commission. He noted that New Hampshire has the second highest electric energy rates in the nation and the shift in thinking in New Hampshire was directly related to the fact that the bankruptcy of Public Service Company of N.H. failed to resolve cost problems. He described the actions currently being taken in N.H. to deal with the issues.

Lydia Pastuszek, President of Granite State Electric Company, noted that electric energy rates are high in New England and that there is significant variation in rates among the utilities. She discussed the actions currently under way in New England, especially the pilot program in New Hampshire.

William Hecht, President of Pennsylvania Power & Light Company, said that PP&L strongly encourages a rapid transition to a competitive market. He stated that competition is good public policy which will produce public benefits. He suggested that, if the electric industry were created today, it would have deregulated generation, an independent system operator for transmission, and franchised distribution areas. (His paper is presented in more detail, elsewhere in the *Newsletter*).

William Hogan of the John F. Kennedy School at Harvard University noted that we have adopted certain conclusions and principles; competition, independent system operators, and stranded investment. The bad news relative to stranded assets is that we can't have both immediate cost savings and full recovery of stranded costs. The bad news relative to transmission is that we face the reality that the new rules will be exploited and all participants, not just the engineers, will have to understand how the system works. The central problem is the absence of well defined property rights relative to transmission.

* This is an edited version of the report appearing in the November issue of the *USAEE Dialogue*.

Energy and Security

Mark Rodekohr of the U.S. Department of Energy addressed the implications of growing Persian Gulf market share, projected to grow from 31 percent in the year 2000 to 39 percent in 2010. Non-OECD imports of Persian Gulf oil are increasing, creating a potential source of conflict, particularly with respect to China. He noted that the Persian Gulf is no longer the interest of the West alone; the Far East has an increasingly significant stake in the Persian Gulf.

Paul Leiby of Oak Ridge National Laboratory estimated the social cost of oil use from noncompetitive supply costs and oil price shocks. Costs related to future supply shocks depend on producers with idle capacity. He suggested that the path to maximize revenues might be to cycle between short-run and long-run price elasticities.

Andre Plourde of the University of Ottawa asked, "Security from what?" We want to avoid the shocks and yet we want some of the macroeconomic impacts of the shocks; we want the benefits but wish to avoid the costs.

Michael Toman of Resources for the Future discussed market failure vs. market adjustment and the targeting of policies (e.g., imports vs. consumption). He stated that OPEC is acting as a clumsy cartel. He pointed out that the impact of strategic shocks was swamped by market changes and he advocated diversification of energy consumption through R&D.

At the Monday luncheon, Commissioner Vicky Bailey of the Federal Energy Regulatory Commission (FERC) addressed new governmental approaches for the new electricity markets. She noted that significant progress had been made in deregulation of oil and gas markets and that rapid progress is expected on electricity markets. She referred to Order 888 as, "the ultimate extension of FERC's authority" and said that, "Users of the transmission system will have an opportunity to participate in development of the rules." She noted that it is difficult to proceed with deregulation within the framework of existing federal and state regulations; regional regulation seems to be the best approach but there are few models for regional operation.

At the dinner on Monday, USAEE Senior Fellow Awards were given to Guy F. Caruso, William W. Hogan, and Jack W. Wilkinson in recognition of their distinguished service in the field of energy economics and to the USAEE.

After the awards, Daniel Yergin, President of Cambridge Energy Research Associates, and author of the forthcoming book, *The Commanding Heights: The Battle Between Government and the Marketplace*, spoke on "The Energy World of the 21st Century." He reflected on lessons learned from his landmark Pulitzer Prize book, *The Prize*. He commented on the danger of forecasts and noted that (1) economics (supply and demand) rules the outcomes of most enterprises and (2) technology (especially information technology) plays a significant role in the success of such enterprises. Dr. Yergin noted the world-wide move to privatization and the global integration of markets, especially financial markets. He concluded that a big agenda lies ahead of us.

Continental Energy Integration

Roland Priddle, Chairman of the National Energy Board of Canada, said that the NEB has a statutory requirement to support NAFTA, including the energy related provisions of

NAFTA. He noted that regulators will have a continuing role to play with respect to those elements of utilities where market power will remain, especially transmission and distribution. He commented on the current problems in power trading because of the lack of reciprocity in wheeling. There is no Canadian equivalent of FERC's Order 888.

Gail Watkins of Haynes & Boone, LLP, noted that Dr. Paul Joskow had suggested in the 1970s that regulatory technology was a transferrable expertise. She noted that regulators cannot make markets work but they can create or remove obstacles and that "regulators go not gentle into that good night."

Commissioner Javier Estrada of the Comision Reguladora de Energia of Mexico addressed the political realities which are operative in Mexico. He noted that regulatory technology is available and, by using existing technology, Mexico can benefit from the errors made by others. He said that the Mexican view toward oil is changing but does not accept that control can be shifted to nonnationals.

Environmental Regulation: Regulatory Reform in a Political Economy

Richard Schmalensee, Professor, Sloan School of Management, MIT, discussed the implementation of the U.S. Acid Rain Program involving an SO₂ trading scheme. The program was a success in that emissions fell below the required levels and at a much lower cost than under a command and control (CAC) alternative. He cautioned, however, that a tradeable emissions program should not be taken as a miracle for global climate change, because there were unique factors involved, such as the use of Powder River Basin Coal.

Robert Stavins, Professor, Kennedy School of Government, Harvard University, discussed the political realities of environmental protection legislation. Although economists have long advocated market-based instruments on cost-effectiveness grounds, the use has been trivial relative to CAC regulations. Strong support for CAC instruments comes from both firms and politicians. Firms favor them because they restrict entry and allow for economic rents to be earned. Politicians favor them because they tend to hide the costs of pollution control and offer much greater degrees of political control over distribution effects, thus facilitating the formation of coalitions.

Richard Morgenstern, Visiting Scholar, Resources for the Future, discussed the strong presence of economics in environmental regulations, such as the Safe Drinking Water Act and Executive Orders by Presidents Reagan and Clinton. There have also been many regulations that either explicitly prohibit the use of economics or specify a limited role. In interviews with former chiefs of the Environmental Protection Agency, Morgenstern found that the culture of the agency has been dominated by an overriding goal to look beyond self-interests and make a lasting impact on the state of the government.

At the luncheon on Tuesday, the USAEE Paul Frankel Award was given to Morris A. Adelman of MIT in recognition of the entire body of his work in energy economics. Dr. Adelman reminisced on the friendship he shared with Paul Frankel. He commented on the oil and gas industry, noting that there has been a significant change in perception; little concern is heard about shortages or declining reserves. "The

only thing that matters is how much reserve can be created, how soon, and at what price." He noted that one persisting problem is taxation which attacks revenues rather than rents. He also commented that, "One benefit of deregulation is getting down to a short list of those things which the market can't do well and then regulating those activities better."

Paul L. Joskow of MIT addressed the changes which are taking place in electric systems world-wide. He stated that, "Generation has never been a natural monopoly," and that the source of monopoly rationale has more to do with the characteristics of the transmission network. He said that the key technical challenge is to preserve the efficiencies of the monopolies. He noted that the current problems result from the difference between embedded rates and current technology. Dr. Joskow addressed the phenomenon of "turkey stuffing," i.e., the cost of social public goals which have been carried in utility rates. He stated that, "The pending reforms will be a good idea if done right. We have the ability and we can do it right." He was less confident that we have the political will to do it right.

Oil Markets in a World of Deregulation

Keith Hamm, Managing Director of Petroleum Economics, Ltd., spoke on the "corporate deregulation" of state-owned oil companies. He noted privatization, internationalization, and the continued formidable barriers to external competitors. He noted that the OPEC members are increasingly open to foreign investment. (See article based on the text of his remarks elsewhere in this issue.)

Trevor Christmas of the International Petroleum Exchange discussed deregulation of oil markets. He concluded that not all deregulated markets will develop spot markets and that even fewer will develop forward markets.

John Pierce Ferriter of the International Energy Agency discussed the broad effects of deregulation on the energy industries. He stated that, "The establishment of free and open energy markets is a fundamental shared goal of IEA countries, and it follows that deregulation is often the clearest path to undistorted energy prices, improved energy efficiency, and overall diversity, efficiency, and flexibility within the energy sector."

Finance: Theory and Practice

John Parsons of Charles River Associates addressed "The Risks of Hedging." He commented on the distinction between hedging and speculating, especially with respect to the infamous problems experienced by Metallgesellschaft in connection with heating oil. He noted that the "stack and roll" process used by MG earned them profits in the early stages but, eventually, the market recognized the weakness in MG's position and took advantage of it. Dr. Parsons also addressed the imperfect hedging which resulted in significant losses for gas traders in December 1995.

Brad Leach of the New York Mercantile Exchange discussed the development of NYMEX electric energy contracts for the California-Oregon Border and Palo Verde. He described the level of trading and the interest of various parties in the contracts. He also discussed the possibilities for development of contracts based on delivery at other points, such as the PJM interconnect.

(continued on page 10)

North American Meeting Report (continued from page 9)

Scott Jones of The Economics Resource Group described a process which ERG has developed for using financial market instruments to assign a value to stranded assets. He said the objective is to determine the value of existing assets or planned capital expenditures which do not have a readily available re-sale market. He said that the proper way to value the assets should consider management's opportunities to wait and see if prices recover in the future, allowing for periodic profitable operation.

Energy Reform Overseas: Experience and Potential

Focusing on natural gas markets, James Jensen, President, Jensen Associates, distinguished natural gas from oil in terms of high transportation costs and strong economies of scale in transportation. He outlined the conditions for a workable unbundled open access gas market which include the development of pipeline and distribution infrastructure that provides producer access to customers and also the maintenance of workable supplier competition with a large number of suppliers.

Silvia Pariente-David, Research Director, DRI/McGraw-Hill, spoke about the trend toward globalization in the electricity industry which she predicted would produce a few global actors operating across borders after a period of many new players. The driving forces in the globalization trend include: (1) deregulation, privatization, and introduction of competition in power generation in industrialized countries, (2) the need for outside sources of financing in developing countries, and (3) consumer demands for the lowest possible tariffs.

John Treat, Vice President, Booz-Allen & Hamilton, Inc., spoke about how international oil markets are changing in the direction of decreased state ownership and regulation, which is reflective of the belief that the private sector is the engine of growth. This more liberal environment has presented special challenges for firms and governments such as finding capital, volatile prices, mergers, and strategic alliances. Strategic alliances, which are growing by 42 percent, were traditionally focused on upstream, but now have been geared more toward downstream activities. These alliances can span up to 20 years.

Paul Roberts, Sylvia Bennett and Gary Flaharty

First Postgraduate Course on Energy Economics in Italy

The IAEE's Italian Affiliate, AIEE, has jointly organized with the LUISS Guido Carli University of Rome the first postgraduate course on Energy Management and Economics. It started in November at the Management School of the university.

The course lasts four months and is divided into two phases: the first one (150 instruction hours) will explain energy fundamentals including modules on Industrial Economics, Economics of Energy Sources, Industries and Energy Markets, Energy and Environment, Politics and Fiscal Legislation in the Energy Sector and Methods of Management.

The second phase (230 instruction hours) will provide more intensive knowledge of specific issues of energy management and economics and include modules on the economic and technical evaluation of investment projects in the energy sector, environmental evaluation in the energy sector, energy financing, regulation in energy utilities, prices and tariffs, corporate and regional planning, saving and energy audits, negotiation and contracts in the energy industry and quality of service in the energy sector.

The course is targeted at graduate students who want to acquire a basic knowledge of the energy industry as well as energy operators who want to study some specific subjects more thoroughly. Lessons deal with the most current problems of the Italian energy sector and are thus very useful to companies changing their structure due to privatization and market liberalization.

The course is sponsored by several very important Italian energy companies and associations and its teaching staff is composed of LUISS and other university teachers together with outstanding energy managers. The LUISS Management School is also studying the possibility of organizing a Masters program in Economics and Management of Energy Sources which would be open to foreign students and teachers.

The scientific director of the course is AIEE President, Edgardo Curcio.

Michael Hoel and Isabel Gorst Honored by IAEE

Professor Michael Hoel of the University of Oslo and Ms. Isabel Gorst of *Petroleum Intelligence Weekly* have been selected as the 1996 recipients of IAEE's two most prestigious awards. Hoel was selected to receive the Outstanding Contribution to the Profession award and Gorst to receive the Journalism award.

Commenting on Professor Hoel, Kenichi Matsui, chairman of the Awards Committee noted that his work dealt with three key aspects of natural resource economics: market structure, uncertainty and the environment. Among his publications are, "Resource Extraction, Substitute Production and Monopoly," "Resource Extraction when a Future Substitute has an Uncertain Cost," "Resource Extraction and Recycling with Environment Cost" and "Resource Extraction, Uncertainty and Learning." He has been published in many learned journals including *The Journal of Economic Theory*, *Review of Economic Studies*, *Journal of Environmental Economics and Management*, *Bell Journal of Economics* and, of course, *The Energy Journal*.

Matsui commented that Ms. Gorst has worked as the Moscow correspondent of *Petroleum Intelligence Weekly* for five years. Before moving to Moscow she worked for PIW and the *Oil and Gas Journal* in London. Her reporting career has taken her throughout Russia, the former Soviet Union, Central Europe, Singapore, China and Australia. In 1994-95 she participated with Lev Churlov, former Soviet Minister of Oil and Gas, in preparation of the text for *Lifblood of Empire*, a history of the rise and fall of the Soviet Oil Industry.

The 1996 Awards Committee was composed of former award winners Dale Jorgensen, John Lightblau, Neil Fleming and Yves Smeers in addition to chairman Matsui.

SCENES FROM THE NORTH AMERICAN MEETING



Kathleen Cooper, USAEE President, with Morris Adelman, Paul Frankel Award Winner.



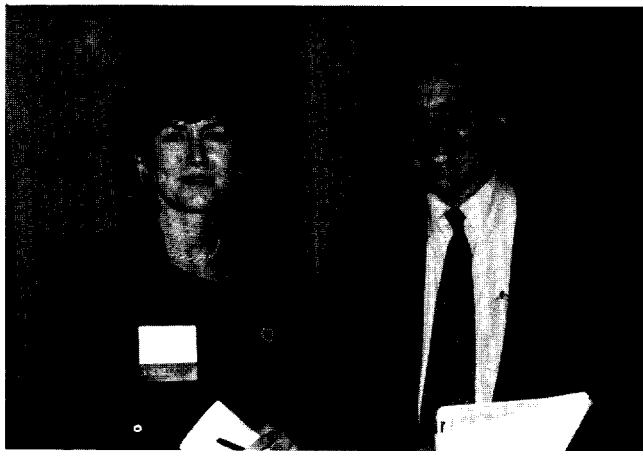
Dennis O'Brien, the IAEE President-elect after presenting Past President Jack Wilkinson with his USAEE Senior Fellow Award.



USAEE Dialogue Editor, Paul Roberts with Paul Joskow, Professor of Economics, MIT, luncheon speaker.



Dennis O'Brien with USAEE Senior Fellow Award winners and IAEE Past Presidents, Jack Wilkinson and Bill Hogan. Guy Caruso was also presented the award, in absentia.



Kathleen Cooper with dinner speaker Daniel Yergin.



Jack Wilkinson chats with Amy Jaffe, IAEE 1994 Journalism Award winner.

!!! MARK YOUR CALENDARS — PLAN TO ATTEND !!!

International Markets and National Policies

18th USAEE/IAEE Annual North American Conference - September 7 - 10, 1997
San Francisco, California, USA - Fairmont Hotel

Sponsored by:
USAEE/IAEE

If you're concerned about the future of the energy industry and profession, this is one meeting you surely don't want to miss. The 18th USAEE/IAEE Annual North American Conference will detail current developments within the energy field so that you come away with a better sense of energy supply, demand and price. Some of the major conference themes and topics are as follows:

Energy and International Security

- Short-term Disruptions: Prospects and Policies
- Long-run Transitions and Economic Security

Energy and Environmental Issues

- Quantifying Environmental Externalities
- Carbon-cycle Policies

Creating and Restructuring Energy Markets

- Electricity Market Restructuring
- Evolving Natural Gas Markets

International Trade

- International Energy Markets and Institutions
- Pacific Basin Energy Issues

Energy System and Economic Outlook

- Pacific Basin & North America

In addition, approximately 28 concurrent sessions are planned to address timely topics that affect all of us specializing in the field of energy economics.

Companies today are investing and trading in intensively competitive international energy markets. How these market conditions develop and what kinds of opportunities they create depend very much on the policies governments adopt, not only for promoting competition but also for meeting certain societal goals such as environmental protection. Since markets transcend national boundaries, policies adopted in one country or region may affect competition elsewhere as well as domestically.

The 18th USAEE/IAEE Annual North American Conference provides a unique opportunity for leading experts from business, government, universities, and research institutions to discuss and debate the future of energy markets in this era of commodization, decentralization, and internationalization.

The meeting will emphasize the applicability of the most recent, cutting-edge analysis for helping private and public organizations frame decisions and choose appropriate strategies. As a gateway to the Pacific Basin, San Francisco provides an ideal venue for discussing these issues.

In the past, USAEE/IAEE conferences have attracted outstanding speakers. Below please find a listing of some of the influential individuals who have attended and addressed this important conference.

Mike Bowlin, CEO, ARCO

John-Pierce Ferriter, Deputy Exec. Dir., IEA

Peter Gaffney, Sr. Partner, Gaffney, Cline & Assoc.

Hazel O'Leary, Secretary of Energy, U.S. DOE

Dr. Subroto, Former Secretary General of OPEC

Alfred Kahn, Special Cnslt., Nat'l Econ. Research Associates

Nordine Ait-Laoussine, President, NALCOSA

Herman Franssen, Ministry of Petro. & Min., Oman

Riwani Lukman, Secretary General, OPEC

Alirio Parra, Sr. Advisor, Ctr. for Global Energy Studies

Robert Wilhelm, Sr. Vice President, Exxon Corp.

Daniel Yergin, Pres., Cambridge Energy Research Associates

You can be sure that prominent speakers who are on the cutting-edge of energy economic issues will once again address this annual meeting.

San Francisco, California is a wonderful and scenic place to meet. Single nights at the Fairmont Hotel are \$167.00 (contact the Fairmont Hotel at 415-772-5147, to make your reservations). Conference registration fees are \$450.00 for USAEE/IAEE members and \$550.00 for non-members. Special airfares have been arranged through Traveline (for absolutely the lowest zone fares, call Traveline at - 216-646-8525). These prices make it affordable for you to attend a conference that will keep you abreast of the issues that are now being addressed on the energy frontier.

There are many ways you and your organization may become involved with this important conference. You may wish to attend for your own professional benefit, your company may wish to become a sponsor or exhibitor at the meeting whereby it would receive broad recognition or you may wish to submit a paper to be considered as a presenter at the meeting. For further information on these opportunities, please fill out the form below and return to USAEE/IAEE Headquarters.

International Markets and National Policies

18th Annual North American Conference of the USAEE/IAEE

Please send me further information on the subject checked below regarding the September 7-10, 1997 USAEE/IAEE Conference.

Submission of Abstracts to Present a Paper(s) _____ Registration Information _____ Sponsorship Information _____
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Will Domestic Competition Benefit Gas and Electricity Consumers?

Notes from the Third BIEE Seminar on Competition and Regulation of Energy Utilities, 18 September 1996

Michael Morrison of Caminus Energy opened the discussion with the following points:

- Considerable progress had been made in introducing competition in nondomestic markets, both in gas and electricity, and in both industries this process had been associated with substantial reduction in "real" prices. Competition thus had a good track record so far.
- There was substantial scope for cost reductions in the supply of both domestic electricity and domestic gas. This was so even though supply costs *per se* represented only a small proportion of the total costs to final consumers. The crucial point was the effect of competition in the domestic market in reducing "wholesale" electricity and gas prices (represented by generation prices and "beach prices") which were by far the largest part of unregulated costs. Without full competition in the domestic sector, effective price competition in the wholesale electricity and gas markets could not be sustained.
- Domestic electricity and gas under competition will take on many of the characteristics of other retail markets. The keynote would be innovation built around new information technology. New entrants such as supermarkets, insurance companies and financial services would become involved; and there would be new "alliances" and joint ventures (with considerable scope for the "building" of electricity and gas.)
- Domestic competition is likely to lead to more customer segmentation and "targeting." Sophisticated metering is the key to cost-reflective pricing. In this process, it is by no means certain that lower income groups will lose out.

Much of the ensuing discussion was concerned to test the proposition that domestic sector competition was essential to obtain the benefits of lower wholesale electricity and gas prices for fuel consumers. Some of the points made included the following:

- Competition in fuel markets, which prevented simple cost "pass-through" was inherently superior to "economic purchasing" regulation. It was the size of the domestic sectors in both electricity and gas which made them crucial in influencing wholesale price competition.
- Once the gas interconnector with Continental Europe was in place, the wholesale price of gas would become linked to prices in the West European gas market as a whole. There were differences of opinion as to whether, in these circumstances, the introduction of domestic gas competition would have a material influence on beach prices.
- The present position, whereby different players had widely different gas costs, was the transitional effect of unwinding the former BG monopsony, and was unlikely to be sustained.
- In electricity, the main competitive mechanism which would reduce wholesale (i.e., generation) prices would be the costs of new entry to generation, since incumbents could not afford indefinitely to sell at above new entry

costs. It was argued that the process would be weakened if domestic competition was abandoned.

Other points made in discussion were:

- Reductions in prices of electricity and gas in already competitive sectors owed much to other factors such as falling coal and gas prices under conditions of surplus.
- Currently load factors were not recognized in domestic tariffs for electricity and gas. Although much of this question concerned regulation of the monopoly networks, competition in the domestic sector would increase pressure to make regulation of the networks more cost-reflective.
- It was by no means clear that the market mechanisms in the wholesale gas and electricity markets would be sufficiently developed to underpin full competition in 1998. Electricity and gas might become more like oil, with sophisticated spot markets and financial instruments to set prices, manage risk and balance supply and demand.

M. J. Parker

The Outlook for U.K. Coal: Short-term Plenty, Long-term Famine?

*By Michael J. Parker**

The year 1995 was a good first year for the privatized U.K. coal industry. Output and sales both increased and the industry was generally very profitable. Broad stability should continue to 1998.

However, when the major coal contracts with the electricity generators expire in March 1998, the *fundamentals* become much less favorable and the industry will be exposed to much greater risks. This is for a number of reasons:

- The increasing impact of gas-fired generation and, above all, of new SO₂ emission limits from 2001, will make it almost certain that the demand for U.K. coal will continue to fall.
- The planned end of the Regional Electricity Companies' monopoly franchises in 1998, and further increases in competition, will make it very difficult for U.K. coal producers to contract forward for a term of years at predetermined volumes and prices, giving greater exposure to the uncertainties of international prices and exchange rates.
- It is almost certain that prices available to RJB Mining (which makes up three-quarters of the industry) after March 1998 will be significantly lower than those in current contracts, and very likely that sales volume will also decline, with much smaller profit margins.
- The market outlook is not conducive to major deep-mined investment (as distinct from routine replacements). Yet in the absence of major investment, deep-mined output could halve over the next 10-15 years; and future opencast output will depend on planning permission for new sites, which is likely to be increasingly difficult.

Thus, after 1997-98 the U.K. coal industry will be a high-risk, declining business for the foreseeable future.

*Michael J. Parker is a Consultant in London, England. This is a synopsis of his talk to the BIEE on 25 September 1996.

No OPEC

By Morris A. Adelman*

How would the market look without OPEC?

Since 1973, world oil has been upside down. Low-cost sources have been the suppliers of last resort. They restrain output to support the price while high cost producers have expanded.

With no cartel, the industry would come right side up. Every seller would produce to the point where more expansion cost too much. As before 1973, lower-cost producers would grow faster.

The spot price of oil would drop, as the ex-OPEC put all their current capacity to work. Past the short term, as consumption grew, the price would be determined by investment and output in ex-OPEC and in non-OPEC.

In ex-OPEC, there would be an investment surge. Higher output would save something from the wreck of lower revenues. Even a lower price would afford high returns on incremental investment.

But expansion would not be smooth because most OPEC output is by governments. In 1975-1987, Middle East-African OPEC members spent 1.7 percent of revenues on oil production investment. They would need more today, but still a pretty small percent. Yet even then they were chronically short of investment funds.

OPEC governments run big deficits because they cannot reduce spending on subsidies, consumption, and weapons. Oil investment, even maintenance, must get in the queue with other spending, and is postponed. It is a painful, absurd position: they struggle to find relatively small sums of money for hugely profitable investment. They also lack management-engineering know-how.

OPEC nations have for years tried and failed to attract foreign investment which requires foreign ownership of producing capacity and freedom of sale. Ownership of the in-ground resource is superfluous. "Sovereignty" was settled in 1950, when taxes were unilaterally hiked.

By 1970, taxes were nine-tenths of profits. Expropriating the companies in the 1970s made people feel good. "Throw the rascals out!" Should they now bring the rascals back? Insiders would lose jobs, contracts, perks and payoffs. There is also what the Italians call "sacro egoismo." Oil is a symbol, a fetish. These barriers to investment would not disappear, but they would be eroded by lower prices.

A look now at non-OPEC. Always it was about to shrink because of "limited reserves." In 1986, Petroconsultants Inc. of Geneva revealed to an anxious world that a decline in non-OPEC output was "imminent and unstoppable . . . well before the end of the decade." That is, well before 1990. This was based on "analysis of reserves;" data and analysis proprietary, of course. In the three years after 1986, outside of the USA and the Former Soviet Union (FSU), non-OPEC grew. Their growth supplied 16 percent of what the industry refers to as "the call," i.e., world consumption growth plus

declines in the USA and the FSU. In 1989-92, their growth supplied 44 percent of the "call," in 1992-1995, 76 percent. In 1996-1997, the IEA expects the fraction will be even larger. I would not extrapolate those trends. But non-OPEC is a lively corpse, worth a pause to think about the basics of supply.

But what about 2010 AD - can you prove that something awful won't happen by then? Of course not. In 1789, there was worry about British coal. As production rose, so did worry. A famous book was written in 1865 to warn of coal shortage ahead. Similarly, people knew 30 or 15 or 10 years ago that we would run short of oil. They now know it for the next 10 or 30 years. God give us patience!

Predictions of shortage are driven by estimates of "ultimate" reserves. They are implicit forecasts of the amount which will be profitable to find, develop, and produce in the future. The estimators are doing economics without knowing it. They also assume they know what drives future cost and supply - future technology and future knowledge of the earth. In fact, nobody knows, and nobody ought to pretend to know.

The limits are set by cost and price. The industry will never run out of oil, not in 10,000 years. Some day, it may run out of customers.

Every mineral industry is a perpetual tug-of-war between diminishing returns and increasing knowledge. From place to place, we win a few, lose a few, but overall, humanity has won big - so far. In technical language, as the industry moves up its supply curves, the curves mostly shift to the right.

The non-OPEC surge is an example. In 1995, the real price was about one-fourth of 1981. Yet in 1995, the industry in non-OPEC areas installed nearly twice as much new capacity as in 1981. That massive rightward shift was not a uniform trend. Some areas, above all USA crude oil (but not natural gas), slid back or just held on.

Some of the rightward supply curve shift is due to the growth of knowledge. But not the whole. The price decline was a bucket of cold water on non-OPEC government and public opinion: stop dreaming of riches, start thinking of tax and regulatory reform, and privatization.

Much has been done, but the non-OPEC countries are still under-achievers, slouching toward their potential. Production taxes will be lowered and aimed more at net profits, less at gross revenues. The supply curves will keep moving rightward.

The Former Soviet Union (FSU) is the worst under-achiever. The pieces of the old national monopoly were given to insiders skilled in maneuvering to seize wealth, not investing to create it. Production fell. The FSU governments have been unable to discard an irrational system, and create the laws and taxes needed for private investment, especially by foreigners leading the way. The end of OPEC, and lower prices, would remind them for whom the bell tolls.

A basic fact in a world without OPEC is the cost differential between the Persian Gulf and the rest of the world, due largely to the discrepancy in oil flows per well. The differential has shrunk, but so has our knowledge as data become more scarce. On one side: there has been gold plating and mismanagement. On the other: costs seem to have come far down in the North Sea, and must have dropped elsewhere, but not as much. Instead of knowledge of

*Morris A. Adelman is Professor of Economics Emeritus, MIT, Cambridge, MA. This paper was given at the 17th Annual USAEE/IAEE North American Conference, October 27-30, 1996, Boston, MA. Much of this paper is based on Dr. Adelman's Book, *The Genie Out of the Bottle*, Cambridge, MA, MIT Press, 1995.

investment per unit of reserves or capacity, we have incoherence: so-called "finding costs per barrel of oil equivalent." In fact, nobody knows what was found in any recent year; and there is no such thing as "oil equivalent."

In summary: a world without OPEC would soon see lower prices. They would be stable, not rigid. Consumption would grow faster. The ex-OPEC nations would expand output greatly. They would also raise internal product prices to cut consumption and raise exports. In non-OPEC, lower crude prices would push down the supply curves, but improved laws and technology would push the curves to the right. With lower output in some areas, higher output in others, on balance non-OPEC would grow. The ex-OPEC nations would gain market share, but not, I think, enough to permit a return of the cartel.

AIEE Has a Busy Fall

The Italian Association for Energy Economics (AIEE) had a very busy Fall.

In early October it held two meetings. The first was a joint round table meeting with ENEA and the Trilateral Commission to discuss the latest report of the Commission on *Maintaining Energy Security in the Global Context*. The next was a Conference on *The Perspectives of Energy Policy in Italy*. This was held in Rome at the Great Hall of LUISS-Guido Carli University as part of the postgraduate course the AIEE has jointly organized with the University. Finally, in late October, the AIEE and Unione Petrolifera, the Italian Association of Oil Companies, jointly organized a meeting/reception to present the latest book by Marcello Colitti and Caludio Simeoni, *Perspectives on Oil and Gas; The Road to Interdependence*. The book is now in the AIEE library.

In early December, the AIEE and IEFEE held a round table meeting at Bocconi University in Milan to introduce the book, *The Energy Code* by Pier Giuseppe Torrani and to discuss the theme *Constraints and Possibilities for Italian Energy Policy*. In mid-December the affiliate jointly organized a conference on an *Overview and Perspective on the Oil Industry in the former USSR and Implications for Europe*. ENI-Enrico Mattei Foundation was the joint sponsor of this meeting, held in Milan. This was followed by a workshop on *1996 Balances and Short-term Forecasts*, held at the IRI Management Auditorium in Rome.

A busy Fall, indeed!!

Edgardo Curcio

1997 Directory

The 1997 Membership Directory will be published in April for mailing in early May. By now members should have received *Directory Information Forms* either directly from Headquarters or through their Affiliate head. Members are urged to complete the forms and return them to Headquarters as soon as possible. If you have changed your address, phone, fax or e-mail address since submitting the form, simply drop a note to Headquarters advising of any changes and they will be made.

European Foundation for Cooperation in Energy Economics

In cooperation with

The IAEE and the Austrian Association for Energy Economics

First Announcement and Call for Papers
for

THIRD EUROPEAN CONFERENCE ON ENERGY ECONOMICS

THE INTEGRATION OF CENTRAL EUROPEAN BALTIC AND BALKAN COUNTRIES INTO THE EUROPEAN ENERGY ECONOMY

To be held at the Vienna Hilton Hotel
Vienna, Austria
2-4 July 1997

Topics to be addressed will include:

- The economic and legal background of East-West energy integration.
- Pricing policies and restructuring of the energy sector.
- Privatization and foreign investment in the energy sector.
- The future European energy market.

High-level speakers will be invited to address these subjects. IAEE members wishing to present a paper dealing with one of the topics should submit a one-page abstract to:

EFCEE Secretariat
35/1105 Electricity Street
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Telephone/fax: +32-15-20-48-57

The basic registration fee for IAEE members is 4,500 ATS (+450 US \$). An attractive accompanying persons program will be provided. Favorable hotel rates are available.

SPECIAL BUSINESS SEMINAR

4 July 1997 - afternoon

PROBLEMS AND PROSPECTS FOR ENERGY BUSINESS IN EASTERN EUROPE

This seminar addresses the day-to-day problems encountered by executives of the oil, gas, electricity and coal sectors doing business in Central Europe, the Baltic and Balkan countries.

On the basis of replies to a questionnaire, the topics to be discussed will be selected. Colleagues from the Eastern countries will present their views.

Saudi Oil Power Keeping Iran's Economy in Check

By Mamdouh G. Salameh*

With its economy in free fall, growing popular alienation, a political system facing a crisis of legitimacy, and problems with the outside world, the Islamic Republic of Iran (IRI) is at a crossroads. The economy is stagnant and severely burdened with debt repayments to foreign creditors – a source of extreme humiliation – that consume almost \$8 bn annually, over half of the country's oil revenue.¹

Whether it survives the crisis is open to question. The 'unwarranted' optimism of a number of Iranian technocrats – who foresee Iran successfully meeting its obligations to its creditors in the short term, and transforming into an economic powerhouse in the long term – is not universally shared. Even the clerics are increasingly worried. The economic and political crisis of the Iranian state has been further exacerbated by Saudi oil power which has frustrated Iran's oil policies inside the Organization of Petroleum Exporting Countries (OPEC) and also by the United States total trade embargo on Iran.

Economic issues, including oil, are of great importance both to Iran and Saudi Arabia, although in different ways. In Iran, initially, Islamic leaders attempted to deny that the revolution would be judged by its economic performance. However, years of war and destruction, rapid population growth, corruption and economic mismanagement have sapped Iranians' support for further sacrifice. The population is simply unwilling to accept more hardship. With the pressing needs of reconstruction, the demands of a burgeoning population and the decline in fervor among the revolution's faithful, the political salience of economic development has grown. Underscoring this is the number of scattered protests and riots over economic conditions in the country since 1992.²

Saudi leaders have never been under any illusion about the importance of economic resources. They have learned in the past decade or so that the role of the state as universal provider of goods and services may have to be reduced. Even with massive funds at its disposal, the state has found that it cannot at a time of depressed oil revenues meet all of its commitments as easily as once it could. Instead, it must make choices and priorities. This has had an impact on the expectations of a population used to a lavish scale of public subsidies and well aware of the ruling family's conspicuous wealth. This process has been particularly marked since the 1991 Gulf War, with the enormous costs of that effort and a continuing softness of oil prices.

The Saudi strategy has been to maximize oil revenues by maintaining production at a high level. Saudi Arabia is determined that its own oil production should not fall below 8 million barrels per day (mbd) and that it should retain its 35 percent share of OPEC production. At the same time it is unwilling to press for dramatic increases in the price of oil.

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¹ See footnotes at end of text.

This is partly because of Saudi concern about the effect of this on the West's industrialized economies, the consequences for future oil demand (and Saudi revenues), and the U.S.-Saudi relationship. However, its unwillingness is also due to the Saudi government's awareness that a significant rise in oil prices could only be achieved by a dramatic reduction in its own oil production, given the poor discipline of some OPEC members and the growing volume of non-OPEC production.

The Iranian regime, determined to reduce its reliance on oil income, has been unable to provide a political environment conducive to developing the private sector, and has thus been unable to realize this reduction. Oil revenues have fluctuated dramatically over the past decade, with a steady downward trend. In real terms, oil was cheaper in 1995 than in 1973. In constant terms, the price of oil in 1994 was \$20 per barrel; in 1995 it had fallen to \$15-\$17 per barrel (versus \$40 in 1983-84).³ For Iran, this situation posed serious problems. Inflation in 1995 ran at 58 percent.⁴ Per capita GDP has fallen 50 percent and per capita earnings from oil, in real terms, are no more than one-quarter of the pre-Revolutionary level. The hardest period for Iran's economy, which is trying to service a short term debt of roughly \$5-7 bn a year until 2000, coincides with the anticipated period of relatively low oil prices.

Iran's Economic and Social Failures

One of the greatest structural economic problems that Iran has faced is its overwhelming dependence on oil-export revenue accounting for 85-90 percent of its total revenue. The Islamic Republic's goal was a long-term strategy to reduce this chronic dependence on oil revenue. Yet, today Iran is still highly dependent on oil revenue.

Consequently, its budget remains subject to the volatile fluctuations of the oil market. While the oil slump of 1986 seriously affected Iran's ability to wage war with Iraq, the sudden jump in oil prices in 1990-91 following the Gulf crisis netted Iran income of \$18 bn. The subsequent drop in oil prices has had a catastrophic effect on economic reconstruction programs. In 1992-93 Iran earned \$16 bn in oil-export revenue, while in 1994 it barely made \$12 bn. Compounding its falling income is the decline in the productive capacities of its major oil fields, poor maintenance of equipment and lack of sufficient technical and managerial expertise, all of which have hindered Iran's ability to reach its maximum production capacity of 4.2 mbd. Such fluctuations and structural weaknesses within Iran's oil industry have made it very difficult for the government to implement economic reconstruction plans.⁵

Foreign borrowing proved to be controversial. Iran emerged from the war with Iraq with virtually no debt problem, unlike Iraq. But from 1989 onwards, it became clear that the economic reconstruction and recovery program required access to Western capital. The government did not have any significant budget surplus and private investors in Iran were reluctant to invest in productive enterprises, preferring to put their money into dormant savings or property speculation.

In order to maintain a political consensus the government eschewed long-term debt obligations – the Western states were also reluctant to lend to Iran on a long-term basis and settled on short-term loans to finance its recovery program. The sudden surge in oil prices following Iraq's invasion of

Kuwait and the subsequent disappearance of both Iraq and Kuwait from the oil market, tempted the Iranian government into a spending spree. The government's inability to control spending caused a severe debt crisis by 1993, with the country acknowledging short-term debts of \$30-40 bn. By early 1994 the country was \$10 bn in arrears to its Western creditors.⁶ This crisis has had a ripple effect on the rest of the economy.

Iran's Ailing Oil Industry

Problems compound one another; Iran has barely maintained its oil fields well enough to sustain a high level of production. To maximize its production capacity or even to maintain it, Iran needs cash, yet the current situation does not allow for such vital investments. These either have to be postponed or paid for by committing Iran's future oil production. Equally grave are the political constraints that prevent Iran from cutting its profligate domestic oil subsidies that lead to waste, smuggling and substantial loss of income. At current rates of domestic consumption, Iran may not have much oil available for export by the year 2000.⁷ Low oil prices have forced cutbacks, but the prospect of Iraq's return to the market hangs over and depresses the market, which would be further affected if it occurs before demand rises. This was confirmed by the lowering effect on prices after Iraq's acceptance of UN Security Council Resolution 986 in mid-1996, allowing it to export \$2 bn of oil. Furthermore, the economic embargo imposed on Iran by the United States in April 1995 has forced Iran to find alternative markets for its crude oil. Despite initial bravado, there are signs (such as the renting of South African storage facilities) that Iran has experienced difficulties adjusting to the embargo. U.S. oil companies were the largest purchasers of Iranian crude oil, buying about 30 percent of Iranian oil exports or over \$4 bn-worth on the open market in the early 1990s.⁸

Iran's claims to a share of any increases in OPEC's output ceiling, or its ability to resist a reduction in its quota when Iraq returns to world markets, may live or die by its offshore development plans. According to Iran's oil minister Gholamreza Aghazadeh, offshore output, currently 465,000 barrels per day (b/d), will account for nearly all future increases in production capacity. Aghazadeh claims Iran's sustainable capacity is 4.1 mbd. However, many Western oil observers assert that Iran is hard-pressed even to meet its 3.6 mbd OPEC quota on a sustainable basis.⁹

One major reason why Iran is looking offshore may be the anticipated near-term decline in onshore output. The National Iranian Oil Company (NIOC) claims that the future of the Iranian oil industry is in the Persian Gulf, rather than onshore. This is at least the theory. Unfortunately, the figures available don't seem to bear out this theory. The portion of Iran's total oil reserves that are to be found offshore, and the relatively high cost of developing them, do not appear to justify their being given such a high priority. Only 5-6 billion barrels (bb) of Iran's claimed 93 bb of proven recoverable reserves lie offshore.

Iran is thus facing a five-year period of austerity which could become a major economic crisis with political repercussions. How Iran responds to this, whether by increased cooperation in OPEC or by a more belligerent attitude toward its neighbors, remains to be seen. For price and revenue stability, cooperative relations with Saudi Arabia would appear to be imperative. This will have to include agreement

on how to accommodate Iraq's full re-entry to the oil market, and will involve an agreement on how to allocate cuts in production. Yet this will not be easy to achieve.

Saudi Oil Power Versus Iran

In 1990-91 Saudi Arabia, with the largest spare production capacity, quickly stepped into the gap created by the absence of Iraq and Kuwait from the market, and softened the shock effect on prices. Since the mid-1980s, the Kingdom has otherwise refused to act as the swing producer, reducing or increasing its production to suit OPEC or the market. It now insists that production levels be decided not according to historic levels, or income need, but by production capacity. The Saudi argument was fortified by its uniquely strong position during 1991-92. It devoted considerable resources to expanding its production capacity to ensure that it could produce 10 mbd by 1995 versus the 8 mbd it produced, thus allowing it a spare capacity unmatched by any other OPEC member.¹⁰ With bargaining power inside OPEC flowing from oil production capacity, the Saudis, producing one third of OPEC's output, need OPEC less than the other members.

Iran, with large revenue needs, little sympathy for the West, insufficient reserves to take a long-term view of the market and production at maximum capacity, saw Saudi oil policy as an extension of its alliance with the United States. There are some grounds for this interpretation. There is at least an implicit understanding that Saudi Arabia will keep oil prices low in exchange for U.S. protection.¹¹ To Iran, this represents (ideology apart) a real problem. Iran cannot match Saudi influence within OPEC and needs cooperation. Whether it can generate any compensating leverage that does not alienate Saudi Arabia is doubtful.

Since 1991, Saudi Arabia has assumed a dominant role in oil politics. Iran's attempts to match this by increasing its production capacity in order to recapture its pre-Revolutionary role as an OPEC leader, have been to no avail. Simply put, without Saudi cooperation Iran has been unable to achieve its economic and political goals, which are not necessarily compatible with those of Saudi Arabia.

In 1993, when prices slid to a five year low and Iran's much-needed oil revenues melted away, Tehran sought to pressure Saudi Arabia to cut production in order to force prices up. Iran accused Saudi Arabia of over-production, Saudi Arabia in turn accused Iran (and Nigeria) of 'chronic' large-scale cheating on quotas. OPEC's divisions accelerated the price slide. By autumn 1993, Iran took a different tack.

Reflecting sensitivity to the free fall in prices and revenues, Iran sought to avoid further quarrels which would continue to weaken the market. Iranian president Rafsanjani contacted King Fahd directly before the September 1993 OPEC meeting to arrange a compromise. The outcome was an agreement which presented a solid OPEC front, strengthening prices while boosting Iran's quota from 3.3 mbd to 3.6 mbd.¹² It was reportedly achieved because Saudi Arabia agreed to give up some of its market share to Iran, although it refused any suggestion that its production should fall below 8 mbd. It further agreed that Iran's quota should thenceforth be close to what it is already producing, thereby legitimizing Iran's *de facto* rule breaking. The Iranian decision to seek

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Saudi Oil Power (continued from page 17)

accommodation with the Saudis bore the hallmarks of Iran's President Rafsanjani's pragmatism. Isolating Iran's need to cooperate with Saudi Arabia on oil from differences on other matters was not easy. Nevertheless, the September 1993 OPEC meeting demonstrated that cooperation, when tried, could be beneficial to all.

Saudi Arabia's willingness to cut its own production enough both to placate Iran and to increase prices did not appear to harm it economically, since the small rise in prices tended to cover the small cut in Saudi production. For Iran, however, there was an advantage on both counts and this consideration appears to have weighed most heavily with the Saudi authorities. It is possible that the concession to Iran at OPEC was intended to create an atmosphere in which compromise over other regional issues could be achieved, dangling in front of the Iranians enticing possibilities of what might be gained in the realm of oil production and prices if cooperation and goodwill existed between Iran and Saudi Arabia.¹³

Goodwill was evident in January 1994 when the *Tehran Times* called for further cooperation by the two states in OPEC and on regional matters. The honeymoon was not to last. Within a month, Iran was criticizing Saudi Arabia for extravagant purchases in the United States, suggesting that Saudi Arabia had embarked on overproduction in order to appease the United States.¹⁴ The Saudis, in turn, refuted Iranian allegations, stating that the Kingdom adheres to its allotted OPEC quota and to all the agreements it signs and that it is Iran that adheres to its quota only when it is incapable of production and that the untrustworthy Iranian policy has become a source of annoyance inside OPEC and helped prices to fall.¹⁵

The record of the past few years has tended to demonstrate that Saudi Arabia is capable of and willing to cooperate with Iran on questions of oil pricing and production only if it believes that this cooperation is producing beneficial effects in other areas as well. This is because such cooperation is usually a Saudi commitment either to cut production or not to raise it at certain times, thereby risking a fall in revenue. However, the scale of these cuts has not been seen as adequate to fulfill Iran's desperate need for revenue. Iran will remain sensitive to economic conditions, vulnerable to weakness in the oil market and factors reducing the country's oil revenue unless it can devise a promising, alternative strategy for influencing the oil market. Those Iranian officials who can negotiate a cooperative agreement with Saudi Arabia on oil production and pricing may be in no position to offer Saudi Arabia the pragmatic quid pro quo that it seeks in other areas. If pragmatism prevails, Tehran will try to keep a cooperative relationship with Saudi Arabia in this area insulated from other areas of rivalry. Whether Saudi Arabia will accept this compartmentalization is an altogether different question.

Prospects for Iran-Saudi Relations

Iran's revolution and its accompanying foreign policy have made an always difficult relationship with Saudi Arabia worse. To competition for influence in the Gulf region has been added rivalry over competing conceptions of Islam and influence in other areas, such as the Palestinian territories. Hostility towards the United States and its presence in the

region exacerbates the situation. The experience of the past 17 years has increased Iran's sense of grievance, making it oblivious to the degree to which its actions have increased its neighbors' sense of insecurity. Yet, in the case of Saudi Arabia at least, that very sense of insecurity has led its government to an increasingly close military relationship with the United States, which Iran perceives as a direct threat to its own interests.

Economically and militarily weaker than in the past, Iran is not equipped to compete commercially in the post Cold War world. Its claim to represent a correct, authentic, caring, activist and independent Islam puts it in direct competition with Saudi Arabia. Iran is under pressure to perpetuate this role for two reasons. First, as the only Shi'i state it has to work hard to authenticate its Islamic credentials and to have any influence beyond its small sectarian constituency. Second, strong positions on Islamic issues are important for the regime's legitimacy.¹⁶

The legacy of the past decade and a half has made reconciliation harder, but there are no signs that Iran wants an appreciably different approach to regional relations. The struggle for power in Iran, together with the regime's essentially decentralized nature, make for erratic policies. Contradictory statements and actions make it harder for neighbors to assess Iran's intentions, consequently they judge its deeds. Growing economic problems do little to increase confidence that the Iranian leadership will change course, except perhaps to accommodate radicals by diversionary forays. There is, in short, no sign that its distinctive Islamic ideology or its volatility will diminish.

For Saudi Arabia, this is a worrying prospect. It realizes that it is at the forefront of much of the ideologically motivated criticism that surfaces in Iranian public life, including questions about the monarchy and privilege, the claim to Islamic virtue or the evils of U.S. intervention in the region. Furthermore, political volatility in Iran will keep the Saudi government guessing about Iran's true intentions at any particular moment and will cloud any agreement reached, suggesting that the slightest appearance of amity or cooperation will simply be transient.

In light of the ambiguous messages Iran has sent out over the years, there is little doubt that a U.S. security guarantee has become more than simply desirable; in the eyes of many Saudi policymakers it has become a necessity. For this visible and reassuring short-term security presence the Saudi government is willing to incur continuing Iranian wrath (as well as violent opposition within the Kingdom).

In the Saudi experience, conciliatory initiatives towards Iran have tended to end in one of two ways. They have come up against a series of unacceptable demands about larger issues, such as breaking the Saudi alliance with the United States, which the Iranian government says are necessary preconditions for any initiative. Alternatively, they have fallen victim to the ideological debate within Iranian politics which can seize small issues and turn them into questions of great symbolic power.

That said, under what conditions might there be scope for change in Iran-Saudi relations? On Iran's side a significant change in the dynamics of domestic politics or a marked departure in relations with the United States could precipitate such a change.

De-Islamization or the secularization of foreign policy,

with greater emphasis on national interest, diminished activism and less posturing in foreign relations, would be elements in this change. The most likely cause of this change would come from domestic transformations, such as increased centralization of power or a new national consensus resulting from widespread recognition of and reaction to the economic penalties of continuing current policies, perhaps generated by a sudden economic shock and its political consequences.

With the largely reactive and frequently defensive attitude that currently characterizes Saudi policy towards Iran, Saudi Arabia would respond to such a change. It is unlikely to take any initiative itself to change the current nature of Iran-Saudi relations, principally because of its inability to effect the kind of changes that would make a difference. As far as the security relationship with the United States is concerned, a marked improvement in Iran-U.S. relations would change the context of Saudi-U.S. relations. However, it is unlikely to change the perceived need in Saudi Arabia to continue close relations with the United States, since that need does not derive simply from the perceived Iranian threat.

Iran's Iraqi Option

Distrust is the common element in the triangular relations between the three major Gulf states. None trusts the other and each seeks to widen its area of influence and enhance its leverage against the others. With Iraq practically excluded from Gulf politics since 1991, Iran's rivalry with Saudi Arabia has been more direct. Iran has used the threat of a reconciliation with Iraq to increase its leverage with Saudi Arabia, the United States and the Gulf Cooperation Council (GCC) states. How real the *Iraqi option* is, and how much Iran will retain control over it, are also uncertain.

Iran has certain potentially overlapping interests with Iraq, but these are not weighty enough to dictate a decisive opening to Baghdad. Divergences are at least as significant as areas of common interest. An additional consideration is Iran's relationship with Syria which may be strained if Iran collaborates too closely with Iraq. Furthermore, if overlapping interests are a consideration, Iran may have many, if not more, in common with Saudi Arabia. A policy of equidistance between Iraq and Saudi Arabia might give Iran more options than an alliance with Baghdad. Opening up to Iraq in any case is not without risks. It may increase Iraq's leverage and give it new options, perhaps leading eventually to an Iraq-Saudi rapprochement. For example, Iraq might seek to exploit the insecurity of the GCC states vis-à-vis Iran by reviving its role as 'defender of the Arab East.' Hence, Iran risks a renewed polarization of the Gulf on Arab-Persian lines.

Iran's diplomacy towards Iraq is an uncertain venture; tilting towards Iraq promises increased leverage, but at the risk of diminishing Iran's current influence which has been achieved by Iraq's enforced absence. Iran sees Iraq as an asset in its difficulties with the United States. Less clear is how Iran views Iraq in terms of Gulf politics, and how it sees the presence or absence of that state affecting Iran's position with the other Gulf states.

Iran and Saudi Arabia both want a weakened, though intact, Iraq. Both Iran and Saudi Arabia have reason to feel threatened by a militarily revived Iraq, which could be a potential threat to each of them that neither poses, in the same way, to the other. A weak Iraq intensifies Iran-Saudi rivalry;

a revived or stronger Iraq would moderate it, while complicating the balance for both parties.

Not only does the existence of a perceived Iraqi military threat continue to excite U.S. policymakers, but it also underlines the importance of the continued U.S. military commitment to protect Saudi Arabia. This has two beneficial consequences for the Saudi regime. First, it allows Saudi Arabia to order the advanced American weapons systems which it might otherwise have had difficulty in acquiring. Second, the blatant military threat represented by Iraq reinforces U.S. determination to organize the military defense of the Saudi oil fields, and thus of the Kingdom.

An additional and critical question is whether Iran's strategic interests in the Gulf are served by Iraq's return to regional politics. It could be argued that a weak, isolated Iraq serves Iran better, it enhances Iran's role in the Gulf, it poses no military threat and, if excluded from the oil market it allows a revenue-hungry Iran to sell more oil. A revived Iraq in alliance with Iran would certainly challenge the United States, but in the process it would reduce Iran's weight in the Gulf and gravely complicate the oil market, which would have to adapt to Iraq's need to sell (more rather than less) oil.

Above all, if Iran engineered an alliance with Iraq, how would that fit in with its other Gulf interests – influence over Saudi Arabia and the GCC, an increased regional role, and the reduction or elimination of the U.S. presence and influence in the region? Iran would run the risk of both driving the GCC closer together and, under the Saudi wing, closer to the United States, as well as justifying the U.S. presence in the region. In brief, the 'Iraqi card' holds risks as well as opportunities for Iranian diplomacy. It may be more effective as an implicit threat than as a serious strategy.

Conclusions

Since the Iranian revolution, Riyadh has been alone in seeking privileged relations with Washington. Before 1979, Iran was the United States' favorite ally; it may be again one day. Although that day is not yet in sight, the idea of good Iran-U.S. relations must be considered in Riyadh with mixed feelings. On the one hand, it would mean a diminution in the threat from Iran; on the other the beginning of diplomatic rivalry for Washington's ear and the loss of Saudi influence. That preconditions for such a shift do not currently exist does not alter the belief among most of the Saudi ruling elite that it is in their interest to keep Iran and the United States apart.

The conclusion drawn from this is that the future of Saudi-Iranian relations and of regional security must depend on the state of the U.S.-Iranian relations, which in turn will be affected by domestic politics in Iran and by perceptions of Iran in the United States. It is unlikely, in the present atmosphere, that the United States will see beyond its peculiarly intimate animosity towards Iran to encourage rather than delay Saudi-Iranian dialogue and participate in its terms and aims.

Footnotes

¹ Ahmed Hashim, "The Crisis of the Iranian State," Adelphi Paper 296 (Oxford: Oxford University Press for the IISS, 1995), pp. 11-14.

² Shahrar Chubin & Charles Tripp, "Iran-Saudi Arabia Relations & Regional Order," Adelphi Paper 304 (Oxford: Oxford University

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Transport, Energy and Environment

*Report on the 3-4 October, 1996 Conference in
Marienlyst, Elsinore, Denmark*

This conference was attended by 75 transport economists, planners, and technologists from 15 countries, mainly European.

The conference attendees seem to be bracing for strong CO₂ emissions targets for the transport sector. Some countries, especially those in Scandinavia which have significant hydro and nuclear power where there are no emissions and hence no room for improvements, expect to be hard hit. The talk is for energy efficiency to contribute most of the savings potential, taxes especially on diesel for freight transport to be less important, and modal shifts encouraged by economic incentives to be least important. Some participants even talked about taxing travel.

Trends in Transport Energy and Environmental Constraints

Hans Koch, Director of Technology at the IEA, provided background for the meeting. He noted that transport demand is critical since: (1) It represents 33 percent of energy demand in the OECD and 23 percent in the rest of the world (ROW). (2) It represents the major source of incremental oil demand – 80 percent.

Recent trends in transport include: (1) More passenger transport. (2) More road freight. (3) In spite of the elasticity of demand, CO₂ emissions from transport are rising due to the demand for power cars, more fleets, the rise in vehicle miles traveled, lower car occupancy, the relaxing of speed limits, and increased congestion. (4) There is significant pent-up demand for automobiles in the developing world. The OECD has 494 vehicles per 1000, while the ROW has 23 per 1000. The FSU has 115 per 1000.

Philippe Mathieu of Statoil reviewed the World Energy Conference's transportation project. They developed three scenarios out to the year 2000. The common features of all the scenarios are: (1) The importance of oil demand in the OECD decreases. (2) A shift toward middle distillate use. (3) Small alternative fuels use. The study breaks 1970-2020 into three overlapping policy time-frames: (1) Energy security: 1970-1985, (2) Local pollution, 1980-2000, and (3) Global climate: 1990+.

John Turkson of the UNEP looked at transport issues in Sub-Saharan Africa. To control greenhouse gas emissions the area needs rational investments in road infrastructure and fuel efficient automobiles, not the inefficient used cars obtained from Europe and the United States.

Dirk Scheele of the Netherlands Government discussed the importance of freight transport which takes about 30 percent of energy used in transport. Unlike other parts of transport it is showing increasing energy intensity. The cause seems to be a modal shift in freight from rail toward roads. This, in turn, is attributable to the trend toward higher value and lighter loads that require greater flexibility that only road transport affords.

Manfred Walback of the Julich Research Center in Germany analyzed Germany's pledge to make a 25 percent reduction in CO₂ emissions by 2006 over 1990. He showed that the target will not be reached even with the 50 percent emissions reduction in Eastern Germany as that region

rationalizes its energy use and shuts down inefficient coal burning. (This work could be important because most analysts think Germany supports greenhouse targets since it thinks it can meet them easily.)

Pieter Vander Meiren of the Benelux Association for Energy Economics claims the proper balance between increasing energy use for transport and increased technological efficiency is impossible to determine.

Technological Development and New Transport Systems

Jurgen Willand, Head of Engine Developments at Daimler-Benz, discussed likely internal combustion engine developments. His points included:

1. There is significant fuel efficiency improvement left in the internal combustion engine.
2. Mercedes expects the new car fleet to average no less than 6 liters/100 km by 2005 (40 mpg+). They have prototype models that operate at 3 liters/100 km. He noted that you now could achieve 3 liters/100 km in a Mercedes C200 diesel with a driving style that does not include sharp accelerations or is subject to congestion.
3. Lightweight engine design can save a minimum of 5 percent of fuel consumption.
4. Variable valve timing can add up to a 19 percent savings.
5. Driver influence, driving style, time of day, route selection, gear selection, loading, tire pressure, and speed, can account for variations of up to 38 percent in fuel use for a given driver.
6. Intelligent combinations of spark ignition and diesel technologies will give autos significant improvements in fuel use.

Kaj Jorgenson from the University of Denmark and the RISO Laboratory discussed hybrid and electric vehicles. He showed that the potential efficiency improvements available from the vehicles is about 2 to 1.

Tor Ask of the Norwegian Technical University made a pitch for natural gas vehicles. Norway is experimenting with LNG vehicles, especially buses. They have had good success with lean burn engines. They expect the engine cost, currently more costly than diesel, to be comparable once economies of scale sets in. Most of the audience expects gas to only fill niche markets.

George Erdmann from Berlin Technical University envisions a fuel cell with 40 percent efficiency. They are currently doing life cycle analysis and examining market barriers and sensitivities. Germany and other European countries have a sizable methanol business and, in some countries, gas stations when they replace leaded fuel, will have an available pump and storage tank for use to sell methanol.

Lee Schipper of the IEA (and LBL) presented his work on mobility. He noted that:

1. Auto ownership and GDP are highly related.
2. The gap in auto efficiency among OECD countries is narrowing.
3. Auto fuel costs/km have *declined in real terms* in every OECD country.
4. The increase in travel activity is the largest contributor to CO₂ emissions.
5. In the U.S. only 50 percent of work trips are made by car.

6. Work trips are not growing, only other trips.
7. The average trip length is 12.6-15 km and 60 percent are less than 10 kms.
8. The U.S. travel, by purpose, is significantly higher than in other countries, but the mileage by purpose (work, social, recreational) is similar for all countries; only travel for family and civic purposes (including shopping) is higher in the U.S.
9. Car travel per capita in the U.S. is twice that of Europe.

Hans Andersen of the Danish Technological Institute showed that telecommuting (distance working) reduces transport and saves energy, but the savings is only of minor importance because of offsetting trips during nonwork hours.

A study of land use by Olav Hauge of Asplan Viak (Norway) concluded that neither municipalities nor transport ministries choose the optimal land use solution.

Megacities: Solutions to the Transport and Air Pollution Problems as a Precondition for Economic Development

Mariano Bauer of the University of Mexico discussed Mexico City's air pollution problem. Mexico City, built on a plateau surrounded by mountains with weak prevailing winds, has many of Los Angeles' problems, but they are way behind in implementing solutions. He noted that: 50 percent of energy use is transport; 75 percent of air emissions are due to transport; cars have low passenger occupancy; the average speed is 36 km/h (22 mph); the METRO only represents 14

percent of trips; the Minibus is the preferred public transport; ozone and particulate emissions are 3 times the national standard; other critical pollutants are under the national standard; the auto fleet is aged: only 30 percent are 1991 model year or newer (when catalytic converters were introduced); half of the gasoline is unleaded (they have introduced RFG); the average trip is 42 minutes; with the average trip to work in excess of an hour. This represents \$2.3 billion/year in lost wages due to transport times in excess of a 35 minute worldwide benchmark standard.

Ranjan Bose of the TATA Research Institute in India presented transport developments in megacities since 1950. Vehicles have increased ten-fold, while urban population has gone up 3.5-fold and total population only 2-fold. He noted that developed countries' strategy for sustainable growth is to focus on stability via state-of-the-art technology while developing countries opt for cost effective solutions, not necessarily state-of-the-art technology.

Effectiveness of Public Policies in Transport

Alexandra Katz of Statistics Norway found no significant causal relationship between public transport and productivity in the economy.

Niels Kristensen of COWI Consultants in Denmark calculated a strong welfare gain from stabilizing CO₂ emissions at 1988 levels by the year 2005. This seemed to differ from other work that showed a welfare loss.

Tony Finizza

London Week, 1996

The first week in December is traditionally the time when the European Affiliates of IAEE gather in London. The key event is the annual BIEE/IAEE/RIIA (Royal Institute of International Affairs) conference; the first of which took place exactly a decade ago. This year the eleventh conference, *Controlling Carbon and Sulphur: International Investment and Trading Initiatives*, took place in the refurbished home of the RIIA, Chatham House. A report on the proceedings of the conference appears elsewhere in this issue. This conference goes on record as one of the most successful in recent years with 270 attending from over thirty countries and including more than fifty representatives of major business corporations.

Through the support of the EFCEE, it was once again possible to assist delegates from IAEE affiliates in Eastern Europe to attend the conference on Thursday and Friday, 5-6 December and to take an active part in the administrative meetings over the ensuing weekend as well as to present the East European Workshop on Monday, December 9th (see report elsewhere in the *Newsletter*).

To be able to participate in the entire program, EFCEE delegates had to be in London for one week, arriving on Tuesday or Wednesday, 3/4 December and departing on Tuesday or Wednesday the following week, depending on the dates their national airline flew into London. However, the costs of accommodation and travel are kept to the equivalent of a three day visit (as incurred by all conference attendees) by the now well established practice of housing the EFCEE delegates with families in West London.

The venue for the weekend meetings centered on Hyde Park Corner. On Saturday, under Chairman Ulf Hansen of Rostock University, Germany, the Executive Committee of the EFCEE met at the Royal Air Force Club in Piccadilly - to review events in Europe in 1996 and prepare proposals for 1997. The Executive Committee was joined by other delegates and BIEE members at the Club later in the evening to enjoy the BIEE dinner for the visitors, hosted by Tony and Mary Scanlan.

On Sunday morning, on the other side of Hyde Park Corner, the main meeting of the Euro-Affiliates took place at the Caledonian Club, the elegant London offshoot of the Caledonian Club in Edinburgh, with its unmistakable Scottish flag, the blue and white cross of St. Andrew over the entrance. Twenty delegates from 14 of the 23 Euro-Affiliates debated a wide range of issues from 10:30 through a working lunch to 16:00. The final item was a presentation from the Netherlands by Frits van Oostvoorn on the *convergence* of energy policies and standards in Eastern Europe towards those in the nations that make up the European Union.

It was agreed that the next meeting would take place on the occasion of the forthcoming Vienna European Energy Conference in early July.

Tony Scanlan

BIEE Council Member and EFCEE Executive Committee

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Future Integration of the Baltic Sea States Gas Supply

*Report on the 28-29 November 1996 Symposium in
Tallinn, Estonia*

This symposium was organized by the Estonian Academy of Sciences, the Finish Academies of Technology, the Estonian Association for Energy Economics, the European Foundation for Cooperation in Energy Economics and the Estonian Gas Association and held at the Estonian Academy of Science in Tallinn. The event was sponsored by the Estonian Gas Association, the EFCEE and the Estonian Academy of Sciences. Chairman was Mihkel Veiderma, Vice President of the Estonian Academy of Sciences.

The meeting focused on gas supply strategy in the Baltic Sea region, including gas policy and gas demand, gas pricing, gas transport, the security of gas supply and integration, infrastructures and much more.

Forty-five participants, including representatives of energy and gas companies, research and consulting institutions and universities, ministries and other public organizations from all ten Baltic Sea states took part in the symposium. Sixteen papers were presented including twelve by speakers from energy, gas and expert companies including Statoil, Gazprom, Ruhrgas, Gasum Oy/Neste Energy, Imatran Voima Oy, Vattenfall Naturgas AB, Mellansvenska Naturgaskonsortiet AB, Dansk Olie & Naturgas AS, Polish Oil & Gas Company, and gas companies of Lithuania, Latvia and Estonia. The research institutions, Norwegian School of Management, Latvian Institute of Physical Energetics and The Estonian Energy Research Institute also participated.

Peter G. Claus, Secretary General of Eurogas gave an overview of the present and future state of gas supply in the European countries and Jasper K. Jensen presented the results of the study of the Baltic gas market prepared by DONG and PLE.

Harry Anton of Gasum Oy/Neste Energy introduced the basis of the Nordic Gas Grid project and the representatives of Statoil and Gazprom presented their action plans for gas production and export expansion and discussed the main points concerning gas supply in the Baltic Sea region. They support the building of a gas pipeline linking Finland, Sweden and Denmark or Norway which can be fed from the east by Russian gas as well as by North Sea gas from the west.

The representatives of national gas companies of the Baltic states concentrated on the expansion, modernization and restructuring of the domestic gas supply system, including the potential for interconnections to international gas supply systems. Professor Zeltinsh from the Latvian Institute of Physical Energetics described the facilities for the underground storage of gas in Latvia noting that capacity could reach 20 BCM in the future. For utilizing this potential, it is expedient to anticipate building a gas link from the Nordic Gas Grid (via Finland and Estonia or straight from Sweden) in the development plans for the Baltic Sea region gas supply. The direct link between Poland and Lithuania, suggested in the study of the Baltic gas market, produced contradictory opinions. According to the representative of Gazprom the two supply systems could be linked via the Yamal-Europe gas pipeline.

The most heated discussion was prompted by the proposal to develop a Baltic Gas Ring, as presented by Harry

Kaar, Director of the Estonian Energy Research Institute. The proposal would connect all the Baltic Sea countries in a ring, the ring integrated with the trans-European gas grid, thus insuring security of gas supply and competition in the gas market. Several participants in the symposium felt that the near-term priority should be access to the Nordic Gas Grid and the linking of the Latvian underground storage with the Estonian and Lithuanian gas network.

In reports on the uses of LNG in the Baltic Sea region, more rational use of gas for regional heating and for household heating, building of electricity and heat cogeneration plants and price formation with the liberalization of the gas market were discussed.

Most participants agreed that gas demand in the Baltic Sea countries will increase two-fold during the next fifteen to twenty years, reaching almost 40 BCM (Denmark and Germany, excluded). Therefore, it was felt that more development work was needed, particularly from the standpoint of supply security, cooperation, pricing and market liberalization.

*Mihkel Veiderma
Estonian Association for Energy Economics*

Is Competition in Electricity Markets Compatible with Security of Supply?

*Notes from the Second BIEE Seminar on Competition and
Regulation of Energy Utilities, 19 June 1996*

The discussion was opened by Tony Cooper, General Secretary of the Engineers and Managers' Association making the following points:

- Originally, the fear was that competition would inhibit investment in generation, but the special circumstances since privatization (surrounding the "dash for gas") provides little evidence as to whether this will be a problem in the longer term.
- At present, the more important issue arises from regulation of the monopoly activities (the "wires businesses"). What is the acceptable level of risk? No satisfactory market mechanisms exist to provide the answer, so should the regulators decide?
- The "optimum" balance between costs and benefits may not be publicly acceptable. Public aversion to risk of supply interruption appears to have increased since privatization. This suggests that security standards should be "political" decisions. But would this mean merely substituting civil servants for the regulator?
- There is a problem of lags. Increased short-term pressure from the capital markets may increase the temptation for managements to divert funds to shareholders at the expense of capital and maintenance expenditures on the infrastructure; but if the cuts were too great, it would take time for the effects to show, and when they did, additional expenditure to rectify these problems could be recouped through the next price review.
- To overcome these difficulties by regulation would involve detailed and intensive intervention by the regulator. An alternative approach could have the following elements:

1. Security standards for the "wires business," and the mandatory (much higher) fines that could apply in the event of failure, would be set by the political process, after public consultation and discussion.
2. Companies would be obliged to insure against the risk of failure. Once the standards had been set, the market decisions would be made in the insurance market.

In the ensuing discussion, the points made included the following:

- It should not be assumed too readily that the insurance market could deal satisfactorily with this issue.
- At present, there was only one product – electricity in continuous supply. But value of lost load (VOLL) varied greatly between customers. Demand-side management and interruptible tariffs needed to be considered. A single value for VOLL for the whole system might be quite inappropriate.
- The "disaggregation" of the supply security issue could raise difficult political issues, particularly if seen as a means of reducing security in the domestic market.
- If there were a range of VOLL's, should there not also be a range of penalties for failure of supply? How could the numbers be determined and how would the system be policed?
- Fully competitive supply markets will make it very difficult to impose social obligations on individual suppliers. Similar considerations apply to security of supply failures (other than those arising from defects in the infrastructure).

M.J. Parker

Saudi Oil Power (continued from page 19)

Press for the IISS, 1996), p. 66.

³ *New York Times*, 13 September 1993, pp. D1-D2.

⁴ *Financial Times*, 27 June 1995, p. 3.

⁵ *New York Times*, 20 November 1994, "Iran: An Economy in Disarray;" also Chris Kutschera, "Iran's Peeling Veneer," *The Middle East*, Sept. 1994, p.20.

⁶ Ahmed Hashim, "The Crisis of the Iranian State," pp. 13-14.

⁷ Comments by Iran's Oil Minister, Gholamreza Aghazadeh, 5 July 1995.

⁸ Fawaz A. Gerges, "Washington's Misguided Iran Policy," *Survival*, Volume 38, No. 4, Winter 1996-97, p. 6.

⁹ *Energy Compass*, Weekend Review, pp. 21-23.

¹⁰ Mamdouh G. Salameh, "The Price of Oil & the Future of the Saudi Monarchy," *IAEE Newsletter*, Spring 1996, p. 11.

¹¹ Rosemary Hollis, "Dual Containment & The Oil Market," Briefing Paper No. 24 (The Royal Institute of International Affairs, August, 1995), p. 1.

¹² *International Herald Tribune*, 30 September 1993, pp. 1 & 17.

¹³ Shahrar Chubin & Charles Tripp, "Iran-Saudi Arabia Relations," p. 69.

¹⁴ *Tehran Times*, 23 February 1994.

¹⁵ Saudi Oil Ministry Statement, 18 March 1994.

¹⁶ Shahrar Chubin & Charles Tripp, "Iran-Saudi Arabia Relations," p. 71.

Swiss Association Holds Conference on Opening the Electricity Market

In May of 1996, the Swiss Association for Energy Economics held a conference to consider the differing views on the opening of the Swiss electricity market.

The meeting was based on the report of the *Cattin Committee* which consisted largely of the representatives of the electricity industry and large industrial users.

Jean Cattin, president of the committee and Head of Section in the Federal Department of Energy Economics summarized the committee's recommendations:

- Introduction of Third Party Access.
- Unbundling and privatization of power plants, of which about 75 percent are owned by the state.

Cattin emphasized that liberalization was not a goal in itself but that it served both the purpose of increasing efficiency in the electricity market and the revitalization of the economy through low electricity prices.

Max Breu, Managing Director of the Swiss Association of Power Plants, agreed, putting additional stress on the necessity of reducing taxes and obstructive regulations.

Adalbert Huber, of steel company, Von Roll Stahl, AG, noted that progressive deindustrialization was responsible for the increase in unemployment. A considerable number of jobs, he said, are threatened by Swiss electricity rates which are higher than abroad.

Whether liberalization leads to more efficiency without a loss of supply reliability is ultimately an empirical question which Professor Peter Zweifel of the University of Zurich answered positively on the basis of the experience of Great Britain and Norway. He considered the grid the only natural monopoly that must be regulated by the state. As far as production and trade are concerned, he suggested the introduction of competition. Together with unbundling, third party access leads to more transparent electricity prices that increasingly take into account the cost limits of the firms.

Zweifel does not consider privatization of the British kind as absolutely necessary. The latter statement must have pleased Daniel Brelaz of Industrial Services of the City of Lausanne, who expressed great skepticism regarding the privatization of power plants and distribution systems as well as its effects on consumers. Brelaz even opined that the privatization would lead to a squandering of state property.

What the opening up of the Swiss electricity market will look like, once it has been realized, remains an open question in the face of the conflicting interests at the time. The fruits of a liberalization could, however, be harvested, at least partly, if there was a unilateral opening of Switzerland. At this point, however, Mr. Breu and Mr. Cattin's readiness for reform obviously stops: Mr. Breu didn't want a Swiss solo run and Mr. Cattin referred to reciprocity. Plainly and simply, the discussion could be summarized as follows: We will do something when the EC has done something.

Jurg E. Bartlome

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Controlling Carbon and Sulphur: International Investment and Trading Initiatives

Report on the Eleventh International Conference Convened by the IAEE, BIEE and RIIA

The 1996 annual tripartite conference which was sponsored by the *Financial Times* focused on the potential roles of joint implementation and emission trading in the international control of carbon and sulphur emissions. This was a relatively narrow but politically salient topic which attracted a large and well informed audience. The political importance of the conference was demonstrated by support from UNCTAD, the Japanese Environmental Agency and MITI and the U.S. Department of Energy and the U.S. Environmental Protection Agency.

Political and Institutional Developments

The first morning of the Conference was devoted to an update on political and institutional developments. Speakers included Carlos Fortin, Deputy Secretary-General of UNCTAD; Dirk Forrester, Assistant Secretary for Congressional Public and Interdepartmental Affairs in the U.S. Department of Energy; Professor Bert Bolin, Chairman of the Intergovernmental Panel on Climate Change (IPCC) and Ambassador Raul Estrada-Oyuela, Chairman of the negotiating committee on the Berlin Mandate on Climate Change. Three main issues were identified:

- *The interaction between science and politics in the international negotiations on climate change.* The early work on climate change had been led by scientists, but since the 1992 Framework Convention on Climate Change there had been a clear distinction between the scientific and technical assessment by the IPCC and the negotiation of protocols to the Framework Convention which, although very dependent on the work of the IPCC, was a political process. There was now a large measure of agreement on the scientific assessment but important differences of view about scenarios for future emissions of greenhouse gases and about options for responding to the challenge of climate change. Michael Jefferson of the World Energy Council strongly criticized the treatment of both these issues in the Second Assessment Report of the IPCC.
- *The involvement of the developing countries in measures to limit greenhouse gas emissions.* Quantified commitments to limit emissions have so far been made by the Annex I parties to the Framework Convention (the OECD countries and certain of the economies in transition). It will be necessary at some stage to secure stronger commitments from the Developing Countries – Dirk Forrester made it clear that some move from those countries might be needed to persuade the Senate to ratify protocols to the Convention. But it would be wrong and impracticable to try and prevent the economic development of the developing countries, which in any case on their own, lacked the resources and the administrative structure and skills to implement major programs to restrain emissions. Ambassador Estrada-Oyuela suggested that a possible solution was to set mandatory policy objectives supported by coordinated mechanisms for all parties to the Convention. Commitments to concrete policies and measures would be optional for the developing countries. Other possible

solutions were explored later in the context of joint implementation and emissions trading.

- *Differentiated emission targets.* Perhaps because of the specific scope of the Conference this difficult subject received less attention than might have been expected. However, the need for sensitivity to differences in environmental priorities among countries was generally agreed. The case for differentiation was argued by Harold Dovland, Adviser to the Norwegian Ministry of the Environment, on the basis of experience under the ECE Convention on Long Range Transboundary Air Pollution.

Joint Implementation and Activities Implemented Jointly

These sessions were opened by Professor Tim Jackson of the Centre for Environmental Strategy at the University of Surrey. He explained the general intention of the concept of joint implementation (JI) – to devise mechanisms which allow two or more parties to meet their obligations through activities implemented jointly. For example, one party to the FCCC might invest in greenhouse gas emission technologies within the geographical borders of a second party. Ultimately institutional arrangements might be put in place to allow the first party to seek full or partial credit from these investments towards meeting its own obligations for emission reductions. This would lower the costs of greenhouse gas abatement by seeking out the least cost options first, irrespective of geographical boundaries. However, as was pointed out by several speakers from developing countries as well as Professor Jackson, JI might turn out to be a way in which developed countries could avoid taking action at home by utilizing the low cost options in developing countries leaving those countries in the longer term to face the high cost options to reduce emissions. It was essential, if JI was to succeed, that institutional arrangements should be devised to overcome this difficulty. Agreed and clear environmental targets would be an essential part of such arrangements. One approach outlined by Professor Jan-Olaf Willums of the World Business Council for Sustainable Development, was to move from a transaction-based to an asset-based understanding of JI. Carbon offsets would be treated as a “mineable resource” similar to mineral resources. The host government could enter into an agreement in which a foreign entity provided the technology or capital that allowed this carbon offset resource to be developed and would either sell the product to someone who wanted to buy it or keep it in the bank for later. This was an interesting line of thought but it was not altogether clear how it would work in practice.

JI is at present in the pilot phase of “Activities Implemented Jointly” (AIJ) in which no emissions credit is given to the donor government or undertaking. Nevertheless, a number of governments have thought it worthwhile to undertake programs to provide experience of AIJ and the Conference was given accounts of the programs in place in Europe, Japan and the United States. These programs provide some encouragement to firms to participate in AIJ. However, if AIJ programs are to succeed the private sector must in the words of Berndt Bull, Norwegian Deputy Minister of the Environment, “be willing to consider the pilot period as an opportunity for investments in knowledge and practical experience without achieving credits for emission reductions.”

Tradeable Emission Permits

Many of the Conference speakers and participants were enthusiasts for some form of emissions trading. The alternative economic instrument of carbon taxes was seen, particularly by the U.S. speakers as politically impracticable: as Dirk Forrester put it the price of the Clinton Administration's attempt to introduce an energy tax had been a Republican Senate and a Republican House of Representatives. But interestingly the concept of emissions trading was also supported by UNCTAD who saw it as a means of securing resource transfers to developing countries which they estimated at US\$40-50 million a year – roughly equivalent to the current level of official development assistance. The main note of skepticism came from Jorgen Henningsen of the European Commission who argued that trading was only interesting if expensive measures were required to reduce emissions. However, there were at present many low cost measures available to reduce emissions of CO₂. The time to consider CO₂ emissions trading would be when it became necessary to move to more demanding measures.

The starting point for work on CO₂ emissions trading is experience of the U.S. tradable permit system for SO₂ emissions. This experience was described in some detail by speakers from the U.S. Government, the electricity industry and a brokerage firm. The U.S. system was developed in special political circumstances – the high costs of command and control regulation and the unacceptability of environmental taxes – and applied in a single country. Although there are some useful lessons, it is far from an analogy for a global system for CO₂ emissions. Accounts were given of work in hand to develop such a system in UNCTAD, the OECD and the IEA and of proposals for a pilot system of CO₂ trading from Centre Financial Products Limited, a brokerage company. John Palmisano of Enron Europe argued strongly against allowance trading and in favor of emission reduction credit trading but the audience was not convinced that this distinction was critical. Much more work needs to be done before it becomes clear whether a practicable and negotiable international system for CO₂ emissions trading can be developed. What is clear from the work described at the conference is that such a system would need to be simple and confined to countries which have accepted quantified emission limits.

Conclusion

The conference had limited terms of reference. This meant that certain basic questions were not raised – the extent to which resources should be devoted to reducing CO₂ emissions at the expense of other environmental and social objectives; how far it is possible to go on the basis of low cost no regret measures; and the balance between trading and other instruments to reduce emissions. But the limited focus on a salient political issue made for a well informed and enthusiastic conference. In his opening remarks Carlos Fortin said: "Infusing new momentum and enthusiasm into the process of consensus building and action (on climate change) will not be easy..... This conference is part of a necessary process of reflection and assessment and can make a lasting contribution to charting the way forward." The conference fulfilled that expectation.

David Jones

Edith Penrose Passes Away

Long-time friend of IAEE, Edith Penrose, passed away on October 11, 1996 in Waterbeach, near Cambridge, England. She was 81.

Dr. Penrose earned her doctorate from Johns Hopkins University. She retired in 1978 as a professor at the University of London's School of Oriental and African Studies where she was also head of the school's economics department. She had also been a professor and dean at the Institut Européen d'Administration des Affaires in Fontainebleau, France.

She began her work on the oil industry in the late 1950's when she was a visiting professor at the University of Baghdad, ultimately writing a book, *The Large International Firm in Developing Countries: The International Petroleum Industry*. This was published in 1968. By 1976 she was considered one of the world's top oil economists.

Dr. Penrose received her bachelor's degree from the University of California at Berkeley in 1936 and her doctorate in 1950. Her first book, *Economics of the International Patent System*, was published in 1951.

The Changing World Petroleum Market Order Form

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China's Oil and Gas: Crossroads and Strategic Choices

By Xiaojie Xu*

China is not only the fifth largest oil producer but also one of the top twenty major natural gas producers in the world. Oil and gas outputs account for 20 percent and 2 percent, respectively, in the country's primary energy mix. From 1963 through 1989, indigenous production increased steadily, thanks to major discoveries in East China. However, since 1990, China has encountered stagnation in its oil production while imports have steadily increased. Projections indicate that oil production on mainland China will reach 165-170 million tons in 2000 and peak at 200 million tons in 2010. The large gap between demand and supply will be satisfied by imports and increased use of natural gas. However, imports and further development of natural gas are constrained by financial problems, and the current planning system and infrastructure. In addition, environmental concerns have become stronger than ever before. It has been reported that three Chinese cities (Beijing, Xi'an and Shengyang) have been listed in the world's top ten most polluted cities. Several solutions are recommended. However, each requires important strategic choices.

Strategic Concerns

There are five strategic choices that will have to be made to keep the country on the path of sustainable development.

The Growing Economy vs. Large Shortfalls in Oil and Gas

In the last decade, the country had maintained two-digit GDP growth. This dynamic economic growth has propelled a strong demand for oil and gas. The elasticity of oil consumption (ratio between GNP growth and oil consumption) has fluctuated from -0.31 to + 1.59. In 1991-93, the elasticity jumped from 0.85 to 1.06. This soaring demand made China a net oil importer in 1993, earlier expected. The gap between oil supply and demand will rise to 70 million tons by the year 2000.

Since 1978, Chinese residential gas consumption has increased 8.7 times. China's demand for gas will more than double in the next decade. Table 1 gives the EIA's projection of oil and gas consumption over the next two decades.

Table 1
China's Projected Oil and Gas Consumption

	2000	2005	2010	2015
Crude Oil (mt)	220	270	330	420
Natural gas (bcm)	36.8	53.8	70.7	84.9

Source: EIA *International Energy Outlook, 1996*

Clearly, China's future oil and gas development entails not only increasing exploration and production (E&P) and improving energy efficiency but also involvement in the world's energy system.

Unfortunately, there is not an easy way to become

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involved in the world oil and gas system. Several efforts in this direction made in the Middle East have faced resistance. An effective entry strategy needs a systematic analysis of the world oil and gas system. According to the author's study of Asian oil and gas megatrends, balances and geopolitics, China's involvement in the world market is a must. Except for the Mideast and Indonesia, a large portion of natural gas will ultimately be transported from Russian Siberia, the Russian Far East and even from Central Asia by long distance pipelines. Eventually, participation in the world's oil and gas system will be an engine to promote Chinese long-term economic growth, assuming the Chinese government can revise its oil and gas strategy and restructure the petroleum industry.

Regional Imbalance vs. Challenges in Frontier Areas

Regionally speaking, China's potential oil and gas resources and consumption are out of balance. Currently, 80 percent of the proven oil reserves, 86 percent of production and 62 percent of consumption are in East China (see Table 2). Further, in the next decade, East China's oil production will decline to 50 percent. This should be balanced by oil rich areas like West China and the Chinese Offshore.

Table 2
China's Distribution of Oil Reserves, Production and Consumption
(percentage)

Area	Proven Reserves	Production	Consumption
East	80	86.5	62.4
West	12.2	8.2	12.9
Central	3.2	1.7	24.73
South	0.1	0.1	n/a
Offshore	4.0	2.7	3.2
Total	100.0	100.0	100.0

Source: *CNPC Statistics 1995*

There are four strategic gas areas. They are: Sichuan (Southwest China), Shenggangning (West China), the Tarim basin (Northwest China) and Yinggehai (Northern South China Sea). Huge reserves and production will come from Central China and West China in the foreseeable future, while a majority of consumption is concentrated on its eastern and southern lands. It is reported that gas demand in coastal areas of China will reach 20 bcm by the end of the century.

Table 3
Distribution of China's Gas Reserves in 1994
(percentage)

Region	Reserves	Output
Offshore	11.6	1.9
Onshore	88.4	98.1
East China	20.1	46.1
West China	5.6	6.4
Central China	52.5	45.0
South China	0.2	0.7

The immediate way to increase gas output is to enhance extraction in the Sichuan field, especially the East Sichuan area. However, to sustain its high GDP growth in the next fifteen years, priorities will also be given to acceleration of E&P activities in West China (Shanggangning basin and the Tarim basin) and offshore (the South China Sea along with the

East China Sea). As hoped by Chinese petroleum leaders, one or two "Golden Babies" in West China are badly needed. However, there is considerable uncertainty as to whether this hope can come true. One thing that is certain is that current limited foreign participation and financial arrangements in the Tarim basin are less than effective. This situation can be attributed to prevailing rigid policy and slow responsiveness to worldwide competition. Further implementation of this may bring a loss of foreign capital inflow.

Also, large potential gas reserves are expected in the East China Sea and the South China Sea (including Spratly Island). The challenge here is the fact that there are large historic territorial disputes and potential military conflicts in this area between China and its neighbors, including Japan, Vietnam, Philippines and Indonesia. It is essential for all parties to extract the oil and gas based on practical cooperation in these disputed areas even though it is impossible to make a final settlement of sovereignty in the short-term.

Infrastructure and Financing

Balancing the oil and gas markets in China depends largely on infrastructure and investment. Currently, there are 17,000 km of pipeline with 130 million tons of maximum transportation capacity over mainland China. These pipelines are divided among the Northeast, North, Lower Yangzi and Sichuan areas. A national trunk pipeline is severely needed to balance oil and gas resources in the West and demand in the East and South markets. Without long distance transportation, some Tarim gas has to be burned after extraction.

A T-form pipeline grid has been recommended. Basically, the T-form pipeline is to serve two functions. Initially, it should connect local pipelines; thereafter it should connect with the future national trunkline. A proposed south-eastward pipeline has been approved and designed to transport gas from the Russian Krasnoyarsk, Irkutsk and Yakutsk to the China Yellow Sea. This is estimated to cost more than \$4 billion. Also, future Sakhalin gas will be available to the Northeast Asian markets.

In addition, preliminary discussions regarding a pipeline running from Turkmenistan to East China, South Korea and Japan (6300 km) with an estimated investment \$10 billion have occurred. The Shangjing gas pipeline (from Shangxi to Beijing, 846 km) is the first stage of this plan.

Generally, a huge investment is required for this infrastructure construction. Traditional direct investment by the government seems no longer sufficient to meet the capital requirements. Thus strategic alliances as used elsewhere seem to be needed. It is essential for China to develop such strategic alliances with western oil majors.

Project finance is another option for some major profitable projects. The obstacle encountered in China is the traditional mentality and their preference to own, manage and operate on their own. Some BOT projects are hard to accept in China given the conventional mindset. Further "marketization" is required.¹

¹ This concept was developed by Dr. Michot Foss. It is the process of developing rules and institutional norms for a properly functioning energy market place.

Marketization vs. Regulatory System

China has been transitioning to *The Socialist Market Economy* since the early 1980s. However, its petroleum industry is still in the beginnings of its marketization program. The Ministry of Finance has sharply decreased its direct investment on natural resource exploration and development (from 100 percent to 2-3 percent in 1995). But the State Planning Commission (SPC) continues to maintain planning and pricing on oil and gas. In May 1994, the central government increased oil prices to relieve producers' cash flow problems. Oil pricing in China is still under political control.

Facing the new environment, it's imperative that market oriented oil planning and pricing systems be established. The new system should encourage producers to:

- undertake their E&P activities in light of long-term developments, and
- allow prices to move to and fluctuate with world markets.

Meanwhile, reduction of the current tax burden is also required. This reduction includes: (1) decreasing the value-added tax rate and extending depreciation deductions for oil's fixed assets; (2) upgrading current oil field maintenance allowances; (3) setting up depletion allowances applicable to marginal fields in line with international practice. In order to promote marketization of oil and gas sectors, revision of market-based oil taxation is under consideration.

However, marketization can only occur in parallel with legislation and deregulation. Currently, oil, gas and their products are highly regulated by the SPC, industrial ministries and Chinese national oil companies (NOCs). Moreover, some regulatory functions are confused with political and social obligations. On the other hand, due to the absence of a petroleum law and relevant rules compatible with *China's Law of Natural Mineral Resources* and an independent regulatory authority, a number of oil players are trading oil across provincial and national borders. Although their activities were curbed in 1994, the markets remain uncontrolled.

To achieve a healthy market order, the establishment of a Chinese regulatory system is recommended to oversee implementation of the *Resource Law*, industrial policy and market competition. The need here is fourfold:

- A guideline for China's future oil and gas development is required.
- Market access should allow or encourage foreign firms to participate more widely from upstream to downstream.
- Future regulation needs international reconciliation, especially in oil and gas taxation and pipeline access and transportation tariffs.
- Priority of deregulation be given to downstream and as applicable to upstream.

To encourage competition, industrial restructuring is imperative. This differs from privatization in other developing countries (for instance, YPF privatization in Argentina) and those restructurings occurring in developed countries. The focus of the industrial restructuring needs to be both on

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China's Oil and Gas (continued from page 27)

establishing a specific governance structure and on reorganization of the current NOCs.

Security and Strategic Position

Future Asian oil and gas security will be affected by new geopolitical relationships among the United States, Russia and China and other sensitive areas. Current geopolitical studies focus mainly on the United States role in the Middle East, U.S.-Russia and the possible dominance of the Mideast by Russia resulting from a coalition with Iran or Iraq. It is clear that China has a great opportunity to expand its economic and political will in Asia. Its involvement in the Asian oil and gas system will greatly impact the balance of new geopolitics, which include:

1. U.S.-China relations with regard to quests for Middle East oil;
2. Russia-Chinese relations regarding coordination of oil and gas transportation and distribution;
3. China's regional role in Northeast Asia, the South China Sea and Central Asia.

China's future oil and gas market development, its international policies and its involvement in the world energy system will closely link its energy security and geopolitical position. An aggressive geostrategy for oil and gas is required. As a result, oil and gas geopolitical relationships will be revised due to Chinese input, both region-wide and worldwide.

Conclusions

To meet the challenges discussed above, China must make realistic choices consistent with its future development goals. The central government faces a dilemma. The importance of oil and gas, full employment and high inflation risks are its overriding concerns. Further the Chinese economic system will enter a critical phase around 1997. Multiple crises (including agriculture, population, energy and environment) will loom large by the end of the century. More important, the Chinese political regime will face new challenges resulting from a major turnover of senior personnel along with Hong Kong's return. Its freedom of strategic choice is limited. And these choices and outside responses will be critical to the world energy system and geopolitics.

**IA
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East European Workshop

On Monday, 9 December following the 11th BIEE/IAEE/RIIA conference in London, the BIEE gathered representatives from the former CMEA countries to hold a Workshop on energy development based on the theme of *convergence*, that is to say, the increasing compatibility of energy practices in these countries with those of the European Union nations.

Other topics which some of the national affiliates have been working on with the EFCEE (IAEE's European Foundation for Cooperation in Energy Economics) are: Pricing Policies, East-West Energy Trade, Taxation and State Aid, Privatization and Foreign Investment and the Liberalization of Gas and Electricity Markets. Within the general theme of convergence the group could opt to focus on ongoing studies on one or more of these topics, or to describe the structural and institutional changes taking place in their own energy industries.

Participants from the Eastern European countries included Leonid Padalko, Polytechnic University, Minsk, Belarus; Mikhel Veiderma, Academy of Science, Tallinn, Estonia; Tamas Jaszay, Technical University, Budapest, Hungary; Vidmantas Jankauskas, Energy Institute, Kaunas, Lithuania; Nicolae Liciu, Energy Directorate, Bucharest, Romania; Alexander Arbatov, Academy of Sciences, Moscow, Russia; Tatiana Lisochkina, St. Petersburg State Polytechnic University, St. Petersburg, Russia and Natalia Shpak, Diplomatic Academy, Kiev, Ukraine.

This year, due to other commitments there were apologies from the Czech Republic, Latvia and Poland. Notwithstanding their absence, participants were presented with papers on the national energy economies of these nations which had been given at IAEE related meetings in the recent past.

The participating delegates were grouped into two sections:

- Morning - *Eastern Europe* - Estonia, Lithuania, Hungary and Romania.
- Afternoon - *Commonwealth of Independent States* - Russia (Moscow), Belarus, Ukraine, and Russia (St. Petersburg).

Within each half-day session there was a presentation from Western Europe. In the morning, Pieter Vander Meiren presented a paper on Slovenia and in the afternoon Morten Frisch gave a paper on the natural gas outlook in Europe in relation to the Yamal Project.

Participants also benefited from a special presentation from Mikhel Veiderma on the Baltic Gas Ring Conference in Tallinn in November (papers from this Estonian Conference are now being circulated by Veiderma).

Thanks to Shell (UK) a collection of the papers offered/presented is being made available to all participants.

Several points should be made regarding these workshops:

1. The delegates are usually in leading positions in their IAEE affiliate and not the top experts in any one topic,
2. EFCEE support for European cooperation is not solely directed to Eastern Europe (Portugal was invited the last two years) but in effect most of the levelling of the playing field is East-West,
3. The theme of this meeting - *convergence* - was not limited

to the applicant or future applicant nations of the former CMEA or Comecon to join the European Union. These belong to what is sometimes called Central Europe, the distinction being that they were not formerly part of the Soviet Union. The European Union PHARE program covers this region including the Baltic States. Further east the TACIS (Technical Assistance CIS) covers the European states of the former USSR, but excluding Central Asia and the Russian Federation Asiatic regions.

The European Union has a third project *Synergy* which aims at compatibility for states clearly beyond the European continent where nevertheless the aim to improve trade through *convergence* is mutually attractive.

And, of course, the concept is not limited to energy – the Ukraine, for example, could benefit enormously from the opportunity to secure major engineering projects in Europe as it has done in the USSR/CMEA and by which it has paid for its hydrocarbon imports.

So wherever European Union stops, there is always the trading partner next door – thus our theme was *convergence* without a capital “C,” which is an option for those who seek it within the larger perspective.

The great value of these Workshops is not only in understanding the respective national problems, but to see across the day a pattern of change and modernization. This was highlighted by commencing the Workshop with papers/presentations from the west. Four in particular stand out:

1. The Chairman of the EFCEE, Ulf Hansen, who unfortunately had to leave on Sunday, tabled a paper he had given at the first Minsk Congress which described the transition in the former East Germany in respect of energy industries.
2. The Czech contribution on their amazingly rapid strides to European standards harmonization is a reminder that the Czech Republic has become a full member of the OECD in the last 12 months.
3. Tamas Jaszay's presentation on Hungary was a watershed. Not only had he presided last May over the first ever IAEE annual conference to be held in a former CMEA region, but since then Hungary, too, had become a full member of the OECD, and a full member of the IEA as well.
4. Nicolai Liciu of Romania gave us a graphic account of the situation one week after the election of President Konstantinescu and before the new government structure was announced.

Estonia and Lithuania, with their currencies linked to the dollar and the German mark, as pegs on which to withstand inflation and root out energy inefficiency (inter alia) added to the general feeling that movement towards modernization is apparent right across the PHARE area.

Although Poland was not represented, participants were given the paper Jerzy Michna and Antoni Goszcz presented at the IAEE conference in Budapest last May (and which was reprinted in the Fall, 1996 issue of the *Newsletter*) which sets out the transition problems of the nation with the longest experience, antedating even East Germany.

One common theme in all these presentations was the energy import character of the nations. In the TACIS area sessions in the afternoon, the Moscow contribution of Alexander Arbatov, dealing with gas supplies, was a clear

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21ST ANNUAL INTERNATIONAL CONFERENCE OF THE IAEE

Chateau Frontenac, Quebec (Canada), 12-17 May 1998

Theme:

Experimenting with Freer Markets: Lessons from the Last 20 Years and Prospects for the Future

The last 20 years have witnessed a relaxation of the institutional constraints that had previously framed the development of energy industries in many areas of the world, especially North America and Europe. This headlong move into freer markets has transformed many of these industries, which are now considered as models for similar initiatives in other sectors and other areas of the world. This conference aims to provide an opportunity to step back from the developments of the last twenty years and assess the consequences of this increased reliance on market forces: What have been important areas of success? Where have the achievements fallen short of expectations? What would we do differently now? The experience acquired during the last few decades can also shed some light on future directions for change: What remains to be done? What role should we aspire regulation to play in the context of freer markets? How do environmental and sustainable development considerations factor into this trend? How relevant is this experience for other energy industries and for other countries and regions of the world? The conference will provide a unique forum where these and related issues will be debated by experts from around the world.

CALL FOR PAPERS

Deadline for Submission of Abstracts: 1 December 1997

Abstracts may be submitted for plenary as well as concurrent sessions. Anyone interested in organizing a session should propose topics, objectives, and possible speakers to the Program Chairman well in advance of the deadline for submission of abstracts. Abstracts should be between 300 and 500 words, giving an overview of the topic to be covered. Full details, including the full title of the paper, names of the author(s), affiliation(s), address(es), telephone, fax, and e-mail numbers, should also be sent. At least one author from an accepted paper must pay the registration fee and attend the conference to present the paper. All abstracts, session proposals, and related inquiries should be directed to:

Andre Plourde

Program Chairman

21st Annual International Conference of the IAEE
Department of Economics, University of Ottawa
P.O. Box 450, Station A, Ottawa ON K1N 6N5
CANADA

telephone: 613-562-5908

fax: 613-562-5999

e-mail: apLOURDE@praxis.cc.uottawa.ca

DEADLINES:

Abstract Submission Deadline: 1 December 1997

Notification of Abstract Acceptance: 15 December 1997

Manuscript Submission Deadline: 2 February

The Second Belarusian Energetic and Ecological Congress

This congress was held on October 9-10, 1996 in Minsk, the Republic of Belarus (RB). The meeting took place within the framework of the *Second International Specialized Exhibition, Belarus Energy, Ecology and Controls* which was organized jointly by the Belarusian affiliate of IAEE, the Technical and Commercial Centre (T&C) and the Ministry for Fuel and Energetics of RB. T&C is an exhibition company handling specialized international exhibitions, workshops, conferences and congresses in RB. Within the framework of the congress and plenary meetings, three specialized workshops were held: *The Ways of Modernization and Development of Energetics, Energy Saving and Nontraditional Energetics, and Geoinformation Systems and Technologies*.

The first workshop was dedicated to the problems of technical improvement and development of Belarusian energetics. The present problems are vital for all Eastern European countries. For example, the average age of electricity generating equipment in Belarus is 24 years, but part of the equipment has been in operation for 30, 40 and 50 years. Because of the fact that the equipment is generally worn out, large expenses are incurred for repairs and maintenance. Besides, this equipment, such as steam and gas energetic units, has a higher average fuel consumption than modern equipment. During the conference and at the energetic exhibition which was held at the same time, equipment of companies from Germany (Siemens, AEG) France (Gec Alsthom), Russia (Power Engineering Corporation) and others was presented. At the conference the possibilities and sources of investments for the development of energetics were discussed. In this respect the report on the pricing of energy, delivered by the Deputy Minister of Fuel and Energetics was of considerable interest. The former USSR has an obsolete pricing system for energy which needs to be considerably improved. It was noted that the prices of energy should reflect real costs of production and transmission in order to attract foreign investment. The conference touched on the matter of restructuring Belarusian electric energetics by the creation of producing, transmitting and distributing energetic companies. This restructuring is an unalterable condition to receive financial support from The World Bank.

The second workshop was dedicated to the problems of energy saving and nontraditional energetics. Energy utilization in Eastern European countries exceeds that in Western European countries by a factor of 200 to 300 percent. Energy

saving is an important source of additional energy resources. The cost of saving one unit of energy resource via more efficient production is several times less than the cost of a new unit of energy resource. The potential for energy saving in Belarus, for example, is 30 percent from the general volume of energy consumption which is approximately 8 million tonnes of fuel oil equivalent. Representatives of all branches of economics: industry, the municipal sector, agriculture, construction and others presented reports at the workshop. A series of reports was aimed at the problem of instrument measurement of energy consumption. This problem is especially vital for heat energy, gas and water. Some interesting reports from Germany and France on nontraditional energetics were presented. Siemens has proposed efficient energy generating equipment of small capacity of about one megawatt. These turbines can be installed both at operating boilers and at power plants. It was shown that 1.1 million tonnes of fuel can be saved annually in Belarus by the introduction of steam and gas energy units, and the retirement of old capacities. Economies of 1 million tonnes of fuel can be achieved by increasing the depth of oil processing and reducing fuel for electricity by efficient new generating plant. Considerable economy is provided by the application of efficient heat insulating materials in industrial plants, the municipal sector and other places.

The conference session on Geoinformation Systems and Technologies highlighted questions about applications of modern information technologies in the design and management of energetic equipment, environmental monitoring, and control and management of natural resources.

The present conference showed that the scientific and economic ties between Western and Eastern countries are expanding and deepening. There is a transition from consulting services to realization of concrete projects. In particular, with the assistance of the French company Gec Alsthom, the construction of power plants with the capacity of 62 megawatts is provided. The projects in the field of energy saving are beginning to be realized. We hope that the present conference will contribute to the development of energetics in Eastern European countries, and its integration into European energetics.

The next conference will be dedicated to the Problems of Energy Supply for Cities and will be held in Minsk on October 29-30, 1997. Those interested should call 375-017-223-33-86

Leonid P. Padalko
President, Belarusian IAEE Affiliate

Conference Proceedings 19th IAEE International Conference Budapest, Hungary, May 27-30, 1996

The Proceedings from the 19th International Conference of the IAEE held in Budapest, Hungary, are now available from IAEE Headquarters. Entitled *Global Energy Transitions, with Emphasis on the Last Five Years of the 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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East European Workshop (continued from page 29)

reminder that, alone in the region, Russia is a major exporter of energy. But the Ukraine and Belarus share the Eastern Europe deficit energy position – and this was also the perspective of the St. Petersburg contribution by Tatiana Lisochkina. Russia, in spite of her energy wealth, also needs modernization and efficiency in market consumption.

This is why the distinction of the former EEC, EFTA and CMEA economic blocks is worth maintaining, in spite of the transfer of the former DDR, Czech and Hungarian economies to the OECD and application for EU membership from former CMEA states. Before the Berlin wall came down seven years ago, each trading block (excluding CMEA in Asiatic USSR) had about 300 million people in vastly different systems. This distinction in geographical, political and economic terms is now blurred but the energy rationalization of the greater Europe, the 50 states of the Council for Strategic Cooperation in Europe, still has enormous problems and potential benefits to achieve, and which Workshops bringing these nations together can help to provide the perspective and thereby the motivation and momentum towards this goal.

Tony Scanlan

Publications List

Energy in China: Foreign Investment Opportunities, Trends and Legislation (1995). Price: £350. Contact: FT Energy Publishing, Maple House, 149 Tottenham Court Road, London W1P 9LL, England. Phone: 44-171-896-2241. Fax: 44-171-896-2275.

The New Geopolitics of Energy. Price: £14.95. 216pp. Contact: Royal Institute of International Affairs, Chatham House, 10 St. James's Square, London SW1Y 4LE, United Kingdom. Phone: 44-171-957-5700. Fax: 44-171-957-5710.

Maintaining Energy Security in a Global Context. Price: \$9.00. Contact: The Brookings Institution, Dept. 029, Washington, DC 20042-0029. Phone: 202-797-6258. Fax: 202-797-6004. E-mail: bibooks@brook.edu

Who's Who in the CIS Oil & Gas Industry. Price: \$445.00. Contact: Russian Petroleum Investor, 14755 Ventura Blvd., Suite 1-424, Sherman Oaks, CA 91403. Phone: 818-343-8474. Fax: 818-343-8475.

Petroleum Intelligence Weekly. Price: \$1575.00 by mail; \$2950.00 by fax. Contact: PIW Publications, 575 Broadway, 4th Floor, New York, NY 10012. Phone: 212-941-5500. Fax: 212-941-5509.

World Gas Intelligence. Price: \$795.00 by mail; \$1510.00 by fax. Contact: PIW Publications, 575 Broadway, 4th Floor, New York, NY 10012. Phone: 212-941-5500. Fax: 212-941-5509.

International Petroleum Finance. Price: \$645.00 by mail; \$1045.00 by fax. Contact: PIW Publications, 575 Broadway, 4th Floor, New York, NY 10012. Phone: 212-941-5500. Fax: 212-941-5509.

Oil and Gas Quarterly. Price: £800. Contact: Julia Thomas, The Royal Institute of International Affairs, Chatham House, 10 St James's Square, London SW1Y 4LE, United Kingdom. Phone: 44-171-957-5700. Fax: 44-171-321-2045.

Gas and Oil in Northeast Asia: A Briefing for Investors (Spring 1996). Price: £295. Contact: Julia Thomas, The Royal Institute of International Affairs, Chatham House, 10 St James's Square, London SW1Y 4LE, United Kingdom. Phone: 44-171-957-5700. Fax: 44-171-321-2045.

The New Geopolitics of Energy (November 1996). Price: £14.95. Contact: Plymbridge Distributors, Ltd., Estover Road, Plymouth, Devon, PL6 7PZ, United Kingdom. Phone: 44-1752-202-301.

Calendar

10-12 February 1997, Global Energy Forum: Strategies for the 21st Century. Houston, Texas, USA. Contact: Breda Nolan, CERA, 20 University Road, Cambridge, MA 02138. Phone: 617-497-0423. Phone: 617-441-2609.

16-17 February 1997, International Gas Conference. Kish Free Zone Island, Iran. Contact: Dr. Hamid Zaheri, Managing Director, Iranian Association for Energy Economics, No. 125 Zafar Ave., Tehran, Iran. Phone: 98-21-225-7633 or 98-21-225-7649. Fax: 98-21-222-0149.

24-26 February 1997, Developing, Negotiating and Contracting Retail Electricity Prices. Atlanta, Georgia, USA. Contact: IBC USA Conferences, Inc., 225 Turnpike Road, Southborough, MA 01772-1749. Phone: 508-481-6400. Fax: 508-481-7911.

17-18 April 1997, Fourth Annual Utility Strategic Marketing Conference: From Commodity to Service. Orlando, Florida, USA. Contact: June Appel, Resource Management, Inc., 111 Presidential Boulevard, Bala Cynwyd, PA 19004-1008. Phone: 610-667-2160. Fax: 610-667-3047.

21-22 April 1997, Oil & Gas in Latin America: The Challenges Ahead. London, England. Contact: Jenni Wilson, CGES, 17 Knightsbridge, London SW1X 7LY. Phone: 44-171-235-4334. Fax: 44-171-235-4338 or Katie Stainton, Centaur Conferences, 50 Poland St., London W1V 4AX. Phone: 44-171-434-3711. Fax: 44-171-287-8706.

21-23 April 1997, Asian Oil & Minerals. Bali, Indonesia.

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Conference Proceedings 18th IAEE International Conference Washington, DC, July 5-8, 1995

The Proceedings from the 18th International Conference of the IAEE held in Washington, DC, are now available from IAEE Headquarters. Entitled *Into the Twenty-First Century: Harmonizing Energy Policy, Environment, and Sustainable Economic Growth*, 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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Calendar (continued from page 31)

Contact: Europe Energy Environment Ltd., London. Phone: 44-171-600-6660. Fax: 44-171-600-4044.

28-29 April 1997, Oil & Gas in Latin America: The Challenges Ahead. London, England. Contact: Jenni Wilson, Centre for Global Energy Studies, 17 Knightsbridge, London SW1X 7LY, England. Phone: 44-171-235-4334. Fax: 44-171-235-4338.

29 April - 1 May 1997, Latin America Power '97 - Conference & Exhibition. Caracas, Venezuela. Contact: PennWell Conferences & Exhibitions, 3050 Post Oak Blvd., Ste. 205, Houston, TX 77056-6524. Phone: 713-621-8833. Fax: 713-963-6284.

1-2 May 1997, Second Annual Gas & Electricity Trading Summit. Orlando, Florida, USA. Contact: Peter Fusaro, Global Change Associates, 20 Harwood Avenue, White Plains, New York, NY 10603. Phone: 914-949-6798. Fax: 914-948-5301. E-mail: 76111,424@Compuserve.com

25-28 May 1997, 8th Global Warming International Conference & Expo. New York, New York, USA. Contact: Global Warming International Center, PO Box 5275, Woodridge, IL 60517. Phone: 630-910-1551. Fax: 630-910-1561.

2-3 June 1997, Oil, Gas & Power: New Opportunities from Latin America's Booming Energy Industries. La Jolla, California, USA. Contact: Institute of the Americas, 10111 North Torrey Pines Road, La Jolla, CA 92037. Phone: 619-453-5560. Fax: 619-453-2165.

17-19 June 1997, Sub-Saharan Oil & Minerals. Mauritius. Contact: Europe Energy Environment, Ltd., Johannesburg. Phone: 27-11-442-3230. Fax: 27-11-442-4198.

2-4 July 1997, European Conference: Austrian A.E.E. and EFCEE: "The Integration of Central European, Baltic and

Balkan Countries in the European Energy Economy." Vienna. Contact: Peter Vander Meiren, EFCEE, Belgium. Phone/Fax: 32-15-20-48-57.

7-10 September 1997, USAEE/IAEE 18th North American Conference. San Francisco, California, USA. Contact: USAEE/IAEE Headquarters, 28790 Chagrin Blvd., Ste. 210, Cleveland, OH 44122. Phone: 216-464-2785. Fax: 216-464-2768. E-Mail: IAEE@IAEE.org

11-15 November 1997, Fifth Chemical Congress of North America. Cancun, Quintana Roo, Mexico. Contact: 5NACC Congress Secretariat, c/o American Chemical Society, Room 420, 1155-16th St., NW, Washington, DC 20036. Phone: 202-872-4396. Fax: 202-872-6128.

10-11 December 1997, Second BIEE/Warwick University Academic Conference: "The International Energy Experience: The Economics of Markets, Regulation and Environment." Warwick, U.K., Contact: Mary Scanlan, BIEE, London. Phone: 44-181-997-3707. Fax: 44-181-566-7674. More details on this and the 1997 London Week (first week of December) will appear in the next Newsletter.

13-16 May 1998, 21st IAEE International Conference. Quebec City, Canada. Contact: IAEE Headquarters, 28790 Chagrin Blvd., Ste. 210, Cleveland, OH 44122. Phone: 216-464-5365. Fax: 216-464-2737. E-Mail: IAEE@IAEE.org

19-21 November 1998, 7th International Energy Conference and Exhibition - ENERGEX '98, Manama, Bahrain. Contact: Dr. W.E. Alnaser, Conference Secretariat, Dean, Scientific Research, University of Bahrain, PO Box 32038, Bahrain. Phone: 973-688381. Fax: 973-688396. E-mail: EA607@isa.cc.uob.bh

9-12 June 1999, 22nd IAEE International Conference. Rome, Italy. Contact: IAEE Headquarters, 28790 Chagrin Blvd., Ste. 210, Cleveland, OH 44122. Phone: 216-464-5365. Fax: 216-464-2737. E-Mail: IAEE@IAEE.org

IAEE Newsletter

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