

World Petroleum: Opportunities and Challenges; The Role of the Energy Economist

by Paul Tempest*

The question I would like to address today is, I imagine, the most fundamental issue facing every energy economist. The question is: Given the likely prospects for the petroleum industries, what chances has each of us of earning a living from energy economics?

First, I would like to explain briefly what the WPC Permanent Council and World Petroleum Congresses set out to do, so that you understand their role over the last 63 years as a top management forum, an engineers' network and a channel for technology transfer.

Second, I will summarize the focus of recent Congresses and what I think, is currently exciting and preoccupying the Executive Boards of the leading companies. These I have boiled down to 10 points.

Finally, I try to answer the question of where the energy economist might fit into these new developments.

WPC Objectives

The first WPC Congress was in 1933.

At that time, there was a great need for agreed standards and specifications in the oil industry. Basic WPC definitions of a proven, probable and possible barrel of oil in the ground negotiated at that time and at intervals since then, hold today. The Society of Petroleum Engineers (SPE) and the WPC have been working on an updated version of these definitions to be announced at our next Congress in Beijing in October 1997.

The second purpose from 1933 has been to make at each Congress a regular comprehensive review of all new technology in the industry and its impacts. The top Research and Engineering Vice-Presidents and equivalents on our Program Committees, mainly from Shell, Mobil, BP, Exxon, Total, Texaco, Chevron; also PDVSA, Petrobras, Statoil, Pertamina and Saudi Aramco pick 21 Forum Chairs and Speakers for 10 major Review Panels. The Chairs then each pick 4 or 5 speakers whom they consider the leaders in the field – none ever refuses a WPC invitation. So at present, our Program Chair is the President of Exxon Research and Engineering and our President (and former Program Chair) comes from heading the main Shell Research Laboratories in Amsterdam, our 21 Forum Chairs are widely recognized as the leading authority in each specific field.

So we end up with the heads and top management of almost all major oil companies, a large number of oil and energy ministers, 100 selected speakers of very high quality, and 200-300 poster presenters. The proceedings summarize the discussions and carry the final texts of the papers. They cost US\$1,200, and we sell a large number of sets.

The third purpose of the WPC, therefore, is a valuable network. Each of our 43 member countries, all

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major countries, have WPC National Committees based in almost all cases on an Institute of Petroleum, such as the American Petroleum Institute (API) in the U.S., or the Institut Francais du Petrole (IFP) in France. Ten of these Institutes have more than 1000 employees.

Each member state has three representatives on the WPC Permanent Council and each member state has one vote – the vote of Hungary as in our recent votes to select the Congress venue for the year 2000 is worth exactly the same as the vote of the United States or Russia. Hungary, incidentally, sent its own impressive delegation to the first WPC Congress in 1933 and plays a valuable role in our various committees.

That brings me to a key feature of the WPC. It has always been *totally politically independent*. No one country or group of companies can dominate. London was chosen in 1933 because it was neutral ground between Russia, the Middle East and the USA. Its prestige therefore rests on:

- Technical excellence of its papers
- Political neutrality
- A valuable network
- The work of its technical committees – standards, the environment, development, etc.

A word about the next Congress in Beijing. We expect this to be very large and preparation is well advanced. The Chinese have given us the Parliament Buildings in Beijing for the Opening Ceremonies with 10,000 seats to be filled in the Great Hall of the People. They have promised, as is the norm at WPC Congresses, the Head of State for the opening and also, concurrently, the largest oil and gas supply industry exhibition ever mounted in China. So I expect those 10,000 seats to be filled (our previous highest attendance was 9,500 in Frankfurt in 1963.)

The Focus of Interest of the WPC

In 1991 the WPC convened in Buenos Aires. Its discussions were structured on:

- the changing refinery configuration and product slate necessary to meet new environmental standards
- the fear of a projected global investment shortfall
- regional supply/demand imbalances and the implications for transportation and international trade (aging tanker stock, new gas trunk lines, etc.)

In fact, all the excitement centered on President Carlos Menem's announcements at the Congress concerning the liberalization and privatization of the Argentine petroleum sector.

In 1994 we met in Stavanger, Norway. Once King Haretid had opened the proceedings, the first speaker was the Norwegian Prime Minister, Mrs. Brundtland, and she carried two strong messages:

1. The need (much contested by parts of the petroleum

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- industry) for global environmental standards – emissions, spills, other pollution, etc, and
2. The need for a tighter fiscal system in the North Sea – also much contested by the North Sea operators.

For October 1997 in Beijing, we already have our 21 Key Forum Topics defined, our Chairs are in place and almost all of our speakers have been selected. The focus is very much on the Pacific and Asia/Pacific growth, the role of China and the steadily rising demand for oil and natural gas from that region, and how that might or might not be satisfied. On new refinery technology we have five key forums and the same number on new upstream technology, so that indicates where the weight of interest is being put at present.

What is Preoccupying and Exciting the Industry Today

Looking at the industry from the perspectives of the WPC – that is from the view of top-management and the top-engineers in the business – I sense a strong undercurrent of excitement and optimism and an exploration of new ideas and new areas of activity, particularly in the Pacific Area:

1. *Oil prospects*: after a long period of stagnation, the industry is beginning to plan for a major upturn in demand, including a doubling of Asian oil imports – from the current 10 mbd to 20 mbd before 2010 with perhaps another 5 mbd in Latin America and Eastern Europe and 5 mbd elsewhere if more demand emerges in North America and Europe.
2. *Gas growth*: the prospects for natural gas are for steady growth with excitement focused on a number of major pipeline and LNG projects (e.g., Bolivia/Brazil gas line and Qatar LNG.)
3. *Structural change*: the industry is preoccupied with structural changes in the market – the switch of Atlantic light sweet crudes to the Pacific markets, refinery investment in the Pacific area, refinery reconfiguration elsewhere.
4. *Improved finances*: the financial performance of the industry appears to have bottomed out; 1995 profits have been encouraging; refinery margins have improved; the stock market valuation of the industry is buoyant.
5. *New joint projects*: deregulation and privatization are providing a flood of new joint project opportunities worldwide.
6. *Cost-cutting*: rationalization and widespread sustained cost-cutting have delivered a very strong impetus to new technology and greatly enhanced efficiency. Mercifully, we seem to have reached a period of temporary respite from the accountant's ax.
7. *Petrochemicals recover*: the key petrochemicals sector of the industry is indicating a strong cyclical return to profitability.
8. *Environmental issues*: at last the industry appears to be recovering its nerve after a severe mauling by the environmentalist lobbies. The industry is now busy demonstrating good practice, mobilizing the arguments for a rational trade-off between sustaining new investment and growth and observing meticulously agreed standards of environmental protection.

Two further points:

9. *Contracting*: the problems of abandonment of offshore structures combined with strong pressure for further cost savings, has set the entire industry thinking about the minimization of risk. Not only is offshore construction largely subcontracted to the supply industry and transportation by tanker or pipeline to third parties; the offshore installations of the future may possibly be sold to new, independent entities and leased to the operating companies. Even the operation of production facilities may be performed by contractors. Theoretically, but unlikely in the short-term, the majors upstream could end up as little more than holding companies.
10. *Asset trading*: Downstream, competition from hypermarkets for the gasoline and diesel market is beginning to sink in. I foresee much more vigorous trading of downstream assets and market outlets between the major companies which will be the counterpart of the new upstream asset trading and leasing.

In summary, there is very considerable optimism about in the petroleum industry. I would go as far as to suspect it of complacency. I have three major reservations:

- Supply security,
- Assumptions regarding privatization, and
- Multinational/OPEC convergence.

Supply Security

Given that the bulk of incremental oil demand can only be satisfied by increased supply from the Gulf states, I hope that the lessons of the past will not be forgotten. Why should those Gulf states continue to increase capacity and production when a tightening oil market can deliver the same benefits through rising prices and enhanced revenue? There must be some point when the OPEC leaders begin to call the tune and when they begin to put a brake on production increases.

I never fail to be surprised to hear that new joint projects are based on flat oil-price assumptions of US\$15-20 real (Brent) or US\$20-25 (WTI) over a 20 year horizon; extreme prudence perhaps or tacit acknowledgment that the balance of probability is for upward pressures to come, strengthened by the average of three or so major supply shocks over each 20 year period in recent history.

Assumptions Regarding Privatization

The thesis that privatization of state energy entities opens up hitherto inefficient industries to global market forces and leads to greater efficiency was argued most fervently in the United States and preached by the World Bank/IFC. Certainly, it seems to be an effective device to decouple a state oil or gas company from domestic oil price problems, where, for political reasons, the state oil price has been kept low and out-of-contact with world prices. Yet the follow-up argument that privatization of all parts of the energy sector will automatically produce economic efficiency is one I find very difficult to accept. I would point you to most parts of the developing world and some of the industrial world where governments are determined to cling to what they regard as the dominant heights of

the economy and where, often quite rightly, many regard privatization, as jiggery-pokery designed to shift economic rent and capital value into the hands of a few individuals or a very small sector of the financial community.

Multinational/OPEC Convergence

The currently popular prediction of multinational/OPEC convergence based on the parallel interests of the multinationals as a group and the group of leading OPEC countries regarding the scale of oil production and the level of oil-prices, is also one where I have major reservations. The spread of investment by the multinationals is so worldwide that I regard multinational/OPEC convergence as a non-issue. In any case, at the end of the day in any major energy supply panic, even the multinationals have to listen very carefully indeed to what their parent and host-governments tell them and multinational/OPEC convergence assumes that OPEC unity can again reconcile, at least temporarily, the fundamental political differences between the leading OPEC states.

The Role of the Energy Economist

Where does the energy economist fit into this picture? Certainly, opportunities for employment within the major companies have, over the past five years, been very bleak, indeed, as corporate planning departments have been delayered, downsized or stripped out and the training, planning evaluation, public affairs and orientation functions have been very largely out-sourced. There has been plenty of work outside for consultants and short-hires on projects but little inside the industry at its heart.

The petroleum industry is very largely managed and directed, with high professionalism, not by energy economists but by engineers – those engineers who have been most successful in their companies, lifelong servants of their companies and, as they see themselves, first and foremost, engineers – with a broad range of specific interest. As engineers, they are well attuned and most happy constructing machines, installations, systems, etc., using teams of experts which they tend to disband as soon as a project is complete.

When I look at the key issues currently being faced by the top managers of the petroleum industry worldwide, I come firmly to the conclusion that these issues have very little to do

with engineering, geology or even product sales, and a great deal to do with energy economics, public and government acceptability and a market understanding of commercial, financial and geopolitical risk. These are areas where the well-trained and experienced energy economist can make a major contribution. In a new phase of industry expansion, the top managers will quickly recognize their needs. I, therefore, conclude my remarks with a high-probability prediction reached after some reflection:

As the petroleum industry moves into a new phase of expansion, and period of profitability, there will be plenty of work in the field of energy economics for the foreseeable future.

Scenes from the Budapest Conference



Award winners Neil Fleming (left) and Yves Smeers (2nd from right) with president Tony Finizza (2nd from left) and past president Jean Masseron (right). Fleming was presented with the 1995 Journalism Award and Smeers the 1995 Outstanding Contributions Award.



Laszlo Lengyel (l), Program Chairman, and Tamas Jaszay (r), Conference Chairman, smiling at the successful conclusion of the meeting.

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