

# OPPORTUNITIES IN NEW ZEALAND FOR THE PETROLEUM INDUSTRY

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## Abstract

Our Conference theme is a poignant reminder to the industry of the decline, through natural depletion over the next decade, of supplies of petroleum from New Zealand's largest producing field, Maui. Indeed, the contribution from all existing indigenous oil and gas reserves amounting to some 85% to the country's gas and transport requirements is predicted to fall to 50% or less by the year 2000.

The clear challenge to the industry is the replenishment of the country's diminishing petroleum resources. The recent high level of exploration activity underlines the growing confidence within the industry that there is more oil and gas to be found in New Zealand. The country is relatively under-explored, new geological concepts are encouraging, and the petroleum regime has improved to be more comparable with regimes in nearby and competing countries.

Given a positive outlook to New Zealand's future economic performance and growth, the demand for gas, LPG, condensate and oil for industrial, domestic and commercial uses is forecast to grow accordingly. Natural gas in particular has certain advantages over other fossil fuels in terms of efficiency and environmental impact. Co-generation and new fuel-efficient gas-fired power stations will become of increasing importance in meeting the country's energy requirements. Deregulation of the energy sector has enabled the evolution of a free market environment wherein market incentives and competition are being relied upon to promote market-related energy prices and efficient use of resources.

Given the challenge of replenishment, the economic, fiscal and operating conditions and a competitive energy environment, opportunities do exist in New Zealand for the petroleum industry.

## Introduction

This paper presents an overview of the petroleum industry in New Zealand. Of necessity it reflects on achievements of the past, but in the main the objective is to identify some of the key challenges and opportunities that lie ahead. Hopefully, this will provide a context and a platform for the many interesting and specific papers to be presented in this publication.

## Post-Maui Challenge

It is acknowledged that the key words of the conference theme, "the Post-Maui Challenge" underline the most direct challenge to our industry, namely the need to replenish the country's diminishing petroleum reserves. With natural gas contributing some 33% to New Zealand's primary energy supply, the importance of the Maui field to this country's gas infrastructure is highlighted by the fact that around 85% of natural gas comes from this one field. Similar statistics apply for condensate and LPG. In 1991, Maui operations and the industries directly dependent upon Maui (incl. NGC, Methanex, ECNZ) contributed some \$700 million to the GDP — ca 1% from the one field.

In the recent past there have been numerous guesstimates as to when Maui may eventually be depleted. I have no intention of entering this debate but I do of course recognise that Maui reserves are finite. However, I would point out that recent (mid-1993) discoveries of enhanced oil reserves

in the Maui B area, the reports on better than expected well deliverabilities from Maui B, the indications that exploration leads and prospects in the Maui Mining Licence and fringe acreage evaluated together with additional wells being drilled on Maui B all suggest welcome signs of more life in the 'old gal'. Nevertheless, as we all know in the industry lead times for exploration, appraisal and new development can be long, especially in offshore areas and unfriendly terrain. Therefore, the message inherent in the conference theme is as timely as it is pertinent.

## Demand Growth

Demand for indigenous oil and gas is promising. Indeed whatever the life of Maui, consistent with a number of the charts shown by the previous speaker, the PEANZ forecast of natural gas supply/demand (based on industry material) illustrates that even if supplies of gas could be held at current levels well into the next decade, a supply shortfall still results because the demand for indigenous petroleum is forecast to grow at rates which are very encouraging to producers (figure 1). Staying with natural gas, it has to be remembered that the natural gas infrastructure throughout the North Island is both comprehensive and well established; therefore the base load for gas is reasonably stable.

Looking at the three existing sectors and putting aside the question of allocation and available resources the following observations are made.

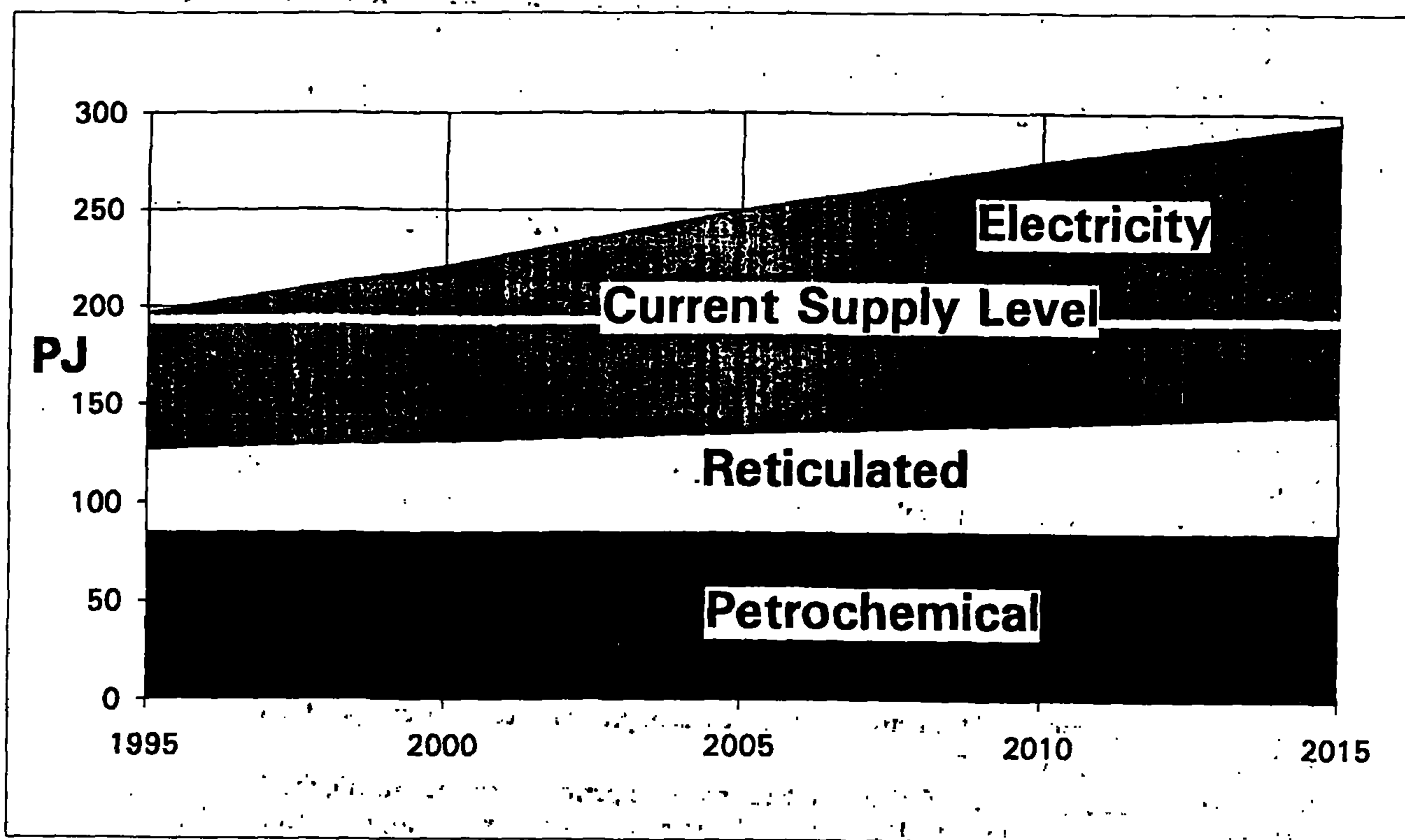


Fig. 1. New Zealand gas demand forecast.

## Demand for Gas

### Petrochemicals

At present, the petrochemical industry is the principal user taking just under 50% of all gas supplies. Contracts for Maui supplies are scheduled to end in or around 2003/2005. Nevertheless, there is no reason to believe that such plants could not continue to take gas beyond these dates provided sufficient uncommitted reserves were available.

### Reticulated gas

Information on growth expectations from the gas sector has been difficult to obtain, but assuming a 3% average annual growth in GDP to 2010, we have conservatively estimated the reticulated gas market to grow from the current level of 40PJ per annum to around 65PJ. Under the competitive environment that currently exists, I am confident this estimate will be easily attained.

### Electricity generation

This is the second biggest user at around 33%. The primary use is for "peak shaving". Putting aside energy efficiency considerations, natural gas for electricity generation remains a certain element of the demand for gas, especially when you consider that if demand for electricity keeps growing at just 3% per annum, then this will mean additional generation capacity equivalent to a Clyde power station every 18 months from around 1999. Major power stations based on hydroelectricity in this country have taken about 15-20 years to construct, therefore ample opportunities exist for gas-fired plants with a shorter lead time to bridge the gap. Currently there are a number of proposals for combined cycle plants in the wings.

## Demand for Oil

At present, New Zealand's domestic consumption of liquid petroleum products is around 37 million barrels pa of which some 35% is actually sourced from indigenous fields. This

figure is different to the commonly held view of 55% self-sufficiency. The difference is represented by the export of indigenous petroleum. On the basis of increased economic activity along the levels mentioned earlier, demand for oil is expected to increase; the greatest increase in the transport fuels area.

## Economic and Political Environment

The growth factors assumed in the forecasts of demand are based on an expected upsurge in the New Zealand economy; levels of around 3-4% pa GDP growth and possibly higher have been bandied around. However disbelieving you might be about New Zealand's past economic performance, the current signs are such that one is compelled to take note of what the economic pundits are telling us; namely that New Zealand's economy has been reshaped so that it is now regarded as being "strong". Furthermore, this strength will permit enhanced economic performances for a considerable period of time given good political and economic management.

Reflecting on the economic recovery programme this country has embarked on over the last few years, it forms a sequence common to much of the industrialised world excluding Germany/Japan who are endeavouring, or about to do the same. From a macro economic perspective, policy changes pursued by the New Zealand Government which have facilitated this recovery sequence have been:

- a reduction in the Government deficit
- monetary policy focussed on reducing inflation
- deregulation policies promoting economic efficiency throughout the economy, in both the goods and labour markets.

Within the last decade New Zealand's economy and business environment has been transformed from one of the most controlled to one of the most deregulated. Since the mid 1980s, successive governments have taken steps to free up

the economy, to reduce government involvement and to promote sustainable growth and efficiency by means of competition and market forces. Thus, the Employment Contracts, the Reserve Bank, the Crown Mineral, the Resource Management, and the Health and Safety in Employment Acts, and taxation policies and deregulation have completely altered the way in which business is done in New Zealand. The burning question on everyone's lips is whether the current political and economic environment will be conducive to sustaining the recovery or whether this will end up as just another short boom/bust cycle. Only time and good political and economic management will tell, but it is fair to say that at present the signs are very encouraging.

Recently New Zealand has attracted considerable interest, resulting in significant foreign investment directly in various local industries, and indirectly via the stock exchange. The hope is that further foreign investment in petroleum exploration and development will result. A strong economy can afford to give greater value to our services, and it also provides the Government with a degree of flexibility to meet the extraordinary demands of important industries such as ours.

While all this sounds good and positive, one has to remember that the Government is currently confronted with a number of significant social challenges; namely high unemployment, rationalisation of health and education, and the demands of an aging population. Furthermore, New Zealand (as a signatory to the Framework Convention on Climate Changes) has undertaken a number of commitments which have implications for the petroleum industry. The significance of these policies for our industry are yet unknown.

## **Regulatory Environment**

At the last conference in Christchurch, the industry was confronted with extensive new legislation in the form of the Crown Mineral and the Resource Management Acts. Naturally, considerable time was devoted during the conference to the concerns the industry had at that time. Since then, these Acts have been put into place and I am pleased to observe that our industry has taken a very mature attitude in both working with these Acts, but also making them work for the industry. It is useful to reflect on a number of developments.

### **CMA/RMA**

The industry has taken a positive view of the Acts and has quickly come to terms with these complex and far-reaching pieces of legislation in order to avoid unnecessary delays to daily operations. This has meant establishing and nurturing close relationships with central and local officials, encouraging them to adopt more commercial and less bureaucratic approaches. This has been largely successful to the extent that industry initiatives on Noise and Model Rules have been adopted by District Councils. Recently PEANZ and Federated Farmers signed a jointly developed Land Access Code which sets out guidelines and model terms and conditions for all aspects of entry onto farm land for exploration seismic surveys, drilling and pipeline developments. Furthermore, the petroleum industry is playing a significant role in the development of a Hydrocarbons Guideline for the Taranaki Regional Council. Despite our positive attitude, the major concern is the potential for abuse of the legislation to the detriment of the industry's activities.

### **Petroleum tax regime**

After considerable lobbying by PEANZ we now have a tax regime nearly back to what it used to be. New Zealand has a regime which is comparable to that of our neighbouring countries who are competing for the international exploration dollar. The question of how competitive it is, is another debate altogether, but at the end of the day the investment decision lies with the industry.

### **Royalties regime**

The Government's readiness to review the royalties regime is acknowledged, and it is pleasing the Government intends to withdraw from direct involvement in petroleum exploration and development, nevertheless we are concerned at the time being taken by the Government in deciding the final shape of the regime. This is the single most important issue facing investment decisions at present and a quick resolution is required to stimulate exploration activity. We are also concerned by the fact that no new licence permits will be offered until the decision process is complete. Given the thrust of this conference it goes without saying that the timing of this news is most unfortunate.

### **Deregulation of the gas industry**

The gas industry has grown up on the back of abundant and cheap supplies of gas from both Kapuni and Maui. It is interesting to record that an Energy Resources Levy of \$0.45/GJ is charged on Kapuni and Maui supplies, but not for new gas finds. Deregulation of the natural gas industry and removal of price controls have been important developments. Future gas prices to producers are expected to be based on the value of the gas for use in electricity generation, retail gas and petrochemical application. Clearly the cost of alternative fuels will also form an important element. A recent assessment (by A.D. Little) for ECNZ, NGC and Methanex concludes that new gas produced into the supply shortfall could average about US\$1.90/Mcf (NZ\$3.60/GJ). This compares with the current Maui producer price of about \$1.45/GJ and Kapuni gas at less than half that price.

### **Gas transmission**

The deregulation of the gas transmission market is one aspect of the Government's Energy Sector reform programme which PEANZ has been actively concerned about for some time. The concern is the possibility of an anticompetitive situation emerging. It is hoped that the implementation of a "light-handed" information regime will in practice lead to a more responsive and transparent transmission market.

It would be fair to say that this country has moved away from a "Fortress New Zealand" regulatory system to an environment where competition and market forces are encouraged. This has resulted in considerable changes to the legislative and business environment and in the course of its enactment the petroleum industry has taken a very positive approach.

## **Technological Challenges**

Finally, a few words on perhaps the most significant element of the Post Maui Challenge; that is the physical act of finding hydrocarbons. New Zealand is regarded as being only moderately explored for hydrocarbons. There is a feeling within the industry that discoveries large enough to replace Maui are possible, but success will require the development of new play concepts. The precise nature of these new concepts are beyond the brief of this paper, but whatever

these concepts, the petroleum industry requires explorers who are prepared to aggressively pursue high risk plays and basins which could yield large reservoirs and fields.

The focus of industry activity is on the shallow onshore Taranaki Basin objectives, for which commendable success has been achieved recently, resulting in welcome additions to the country's petroleum reserves as well as adding to our knowledge and experience. At present the industry is not motivated to explore for the potentially larger types of play presumably due to their higher risk nature. Therefore, the challenge is to reduce the exploration risk associated with such high risk plays through the sustained efforts of high calibre explorers integrating state-of-the-art technologies. This does not diminish current efforts directed towards the shallower geological concepts. On the contrary, I endorse the industry's efforts in the field to date and wish the respective Joint Ventures continued success. At the same time, I am particularly encouraged by the quality of thought and effort being directed toward these and new geological concepts as reflected in the number of interesting papers in this publication. I believe that our exploration efforts should be directed to all frontiers, and at the same time we should learn from past exploration and development efforts. In this context, I should mention the availability in New Zealand of a comprehensive open-file data base under the guardianship of the Institute of Geological and Nuclear Sciences Ltd.

The Government also has a role to play in assisting the industry to attract players prepared to commit the resources and expertise necessary to meet the challenge of replenishing the country's petroleum reserves. Continued good economic stewardship and a sensible approach to obligations under the Framework Convention are important fundamentals, as is the provision of a stable and attractive business environment to encourage further exploration activity. It goes without saying that the petroleum resource owned by the Government has no value until it is discovered. This fact underlines the

concepts of a partnership, in that we need each other for the optimum and economic development of the resource.

Developers also play a significant role in the post Maui challenge. Their challenge lies in enhancing the recovery of existing reservoirs and discoveries through application of high calibre expertise and professional skills integrating state-of-the-art technologies. I have no doubt that producing joint ventures are vigorously pursuing such strategies. Of course, the prospect of continued low oil prices has meant having to find new solutions that combine cost-effectiveness over the lifetime of projects with improved safety and environmental performance.

## Conclusion

There are considerable market opportunities for petroleum in this country, both in oil and gas. The demand for petroleum is as significant as it is real, based on a strong and growing economy. Together with the changes to the fiscal and regulatory environment, the reduction of Government involvement and the encouragement of competition, New Zealand presents itself as a challenging and positive environment for the petroleum explorer and developer. New Zealand is part of the most rapidly developing region of the world; the Asia/Pacific Region.

The exploration dollar is an international one, and to attract investment to New Zealand requires (apart from the hydrocarbon prospectivity of the country) a fiscal and regulatory regime that is internationally comparable. To this extent, PEANZ has been in the forefront working with the Government to create such an environment. We have some successes but more work needs to be done, particularly in the royalties regime.

For our part as explorers, the most significant element of the post-Maui challenge remains getting on with the job of finding petroleum. Herein lies the real challenge for New Zealand.

## Author

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