

# ENERGY POLICY AND PLANNING

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## Introduction

For the purposes of this Keynote Address I propose to discuss energy policy and planning; a subject which is as relevant to the oil industry as it is to the electricity industry.

There is no doubt in my mind that the end of cheap gas, together with uncertainty over future oil prices, and the environmental restraints likely to be placed on further hydro, geothermal and mining development are significant factors that will exert a big influence upon New Zealand's energy future. There is also the growing awareness that there are constraints on atmospheric pollution. It is therefore now timely to take stock of energy planning. Many of these issues involve either strategic issues of national significance or have an impact on the New Zealand economy which extends far beyond the energy industries. This I see as providing a basic justification for a national energy policy within which the organisations of the energy sector conduct their various businesses.

There should be a means for monitoring and surveillance of the energy sector, a forum for issues to be raised, and a process for generating generally acceptable advice on energy questions. It is my contention that the proposed Energy Monitoring Authority will be an asset to the community in this respect.

## Energy Efficiency

Let me put forward some views on the case for energy efficiency in the electricity industry which I believe are of general interest.

The development of an integrated hydrothermal power system using all our resources, together with the interisland transmission link and a widespread distribution system, have combined to produce an electricity industry which has contributed to New Zealand's economic and social development and which is significant by world standards. While the industry has been studied from the point of view of reorganisation and redistribution of assets, I believe that there has not been a clear enough effort to produce a sound overall strategy.

To be more specific, in recent times volume growth in the electricity market has continued at over 2 % nationally, during a period when the economy has not grown at all in output terms. Electricity growth in the past, in volume terms, would have been rather less than 1 %, during a period of sustained low, or nil growth in the economy. It seems that this additional growth serves no useful purpose, and represents a continuation of our present wasteful ways with energy. This reduced efficiency is at a cost personally, commercially and for the economy as a whole. With a relatively modest GDP growth target of some 2-3 % per annum, electricity growth rates could be expected to move up to 3-4 % nationally, unless we can offset some of this by increased efficiency.

A continuation of this trend through concentration on supply side matters only, without giving at least equal attention to the demand side, is going to bring the electricity industry hard up against the growth limits I referred to earlier. This will also lead to an acceleration of new generating stations with greater resource, environmental and financial costs than before. If present patterns of consumption persist through the next decade, New Zealand could set new records for energy intensiveness per unit of GDP. This will exert a considerable and continuing cost on both our international competitiveness and the internal economy. At the consumer level, if we waste energy such energy will be available to power the value-added processing of our natural resources, forestry, agriculture, manufacturing and mining for example.

I conclude that the future direction of the electricity industry must lie in increased efficiencies of electricity use in both domestic and industrial uses. If this is done, there will be a steady decline in kilowatt hours used per dollar of GDP in the future.

From a broader perspective, recent studies on the future of the electricity industry have been made more difficult by the lack of a national energy policy within which the energy industries can operate. Many major initiatives are proceeding independently of each other without any apparent overview or connection.

The energy industries are highly inter-related through the requirements of electricity generation and the overall effect of energy use on the environment, therefore energy efficiency considerations will affect all of us in the future and must become a central theme of energy policy.

## Energy Monitoring

The present National Government, in its policy prior to the 1990 election, placed emphasis on the establishment of an Energy Resources Monitoring and Conservation Authority. This body was seen as having a responsibility for monitoring the security of energy supply, energy resource development, the activities of major suppliers in the energy market as well as providing input to energy research and the encouragement of efficient energy use. Since taking office the administration has referred to the need for such an independent energy body and has been giving consideration to its precise form and functions. Overall, such a body is seen as providing a sound guide for the formation of national energy policy.

From an historical perspective, energy policy in New Zealand has varied considerably since the 1960s when the National Development Conference (itself born from a perceived general need for indicative planning) included a fuel and power committee. This brought the separate industries together as an energy sector, for what was probably the first time.

This committee looked at the major energy questions of the day, including: how to meet an electricity demand

apparently growing at 6-7 % per annum (and showing every sign of continuing to do so); the development of the Maui field; the need for an oil refinery; and how the coal industry might adapt to the increased demand for coal from thermal power stations and from New Zealand Steel.

Perhaps the most long lasting contribution of this body was to draw together and officially publish comprehensive energy statistics for New Zealand, and provide improved definitions for New Zealand's energy accounting.

This work led to the formation of a Ministry of Energy in the mid-1970s, bringing an energy policy and planning function together with State involvement in both electricity supply and coal mining. There followed a phase in the late 1970s and early 1980s where the Government of the time was heavily involved in planning and production and where the State was the dominant owner of various energy sources. The Government regulated the sector to a high degree and sought not only to provide for natural growth but to stimulate energy use and resource processing as an area of comparative advantage.

The Government had long seen itself as the dominant force in the case of electricity, with the State being responsible for virtually all aspects of the industry apart from the day to day operations of electrical supply authorities. The expansion of the Government's role in natural gas and the promotion of energy-intensive processes saw an even greater political involvement.

More importantly, the planning during this period was overwhelmingly supply-driven. Energy policy was not oriented towards identifying policy goals and setting mechanisms in place to achieve these, but was more concerned in planning for ways in which to use surplus energy to advantage and facilitate new industrial demand which would sustain further development.

There was considerable surplus energy available at the start of the 1980s, not only gas from Maui, but also electricity-generating capacity which had been put in place in anticipation of much higher economic growth than proved to be the case in the previous decade.

From 1984 onwards, the philosophy switched completely with the then Labour Government seeing no merit in an energy policy. Following the corporatisation of the state energy entities and moves to privatise the larger holdings, the Ministry of Energy became part of the Ministry of Commerce.

In doing so, it explicitly accepted an unmodified market judgment on a range of issues, including:

- the adequate level of security of supply for a given resource;
- the value of providing coordinated transition between supply sources; and
- the degree to which efficiency of energy use should be coordinated.

Light-handed regulation was, and continues to be, seen as providing a check on discriminatory practices.

Against this recent background, the present National Government has proposed an Energy Resource Authority, with a better defined role, to assist it in meeting a number of national energy objectives.

## **Rationale for the Authority**

The Government's pre-election statement on electricity policy set out the responsibilities of the Authority. These are:

- to consider the security of supply of energy resources;
- to promote the efficient use of resources;
- to act as a check on energy supply monopolies;
- to monitor changes in the energy industry; and
- to give direction to where research and development is needed in the energy sector.

These and associated issues can be grouped into three distinct themes:

- (i) examining the security of supply of resources and the security of energy infrastructure;
- (ii) examining issues relating to the efficient use of energy and sustainability; and
- (iii) monitoring the activities of the major energy suppliers.

Before detailing the specific objectives which would flow from these, it is important to review the rationale for Government intervention and that for a new authority.

Taking the first theme of security of supply, there is already recognition of energy as an essential industry for the smooth functioning of the economy. A number of statutes give Government special powers. For example:

- to direct the use of petroleum output;
- the special conditions that would apply for the withdrawal of labour in the electricity-generation industry.

However, these are effectively emergency powers to help recovery from difficulties; there is little pro-active machinery.

Security of supply covers a number of overlapping concepts. These include:

- dependability of the resource delivery network on a day-to-day basis. This covers equipment reliability, storage capacities, degree of exposure to component failure, and exposure to sabotage;
- exposure to macrolevel disruption. This includes the degree of dependence on a particular energy source and on one or a few sources of supply; and
- availability in the future. That is, how long will known reserves last and how sure are we that appropriate replacements will be available?

The case for a government body concerning itself with these questions rests on the fact that when the unexpected happens in an essential industry, it can be very costly to the nation. Households and firms affected may not have sufficient incentives individually to coordinate a pro-active response but, when taken together, the cost of pro-active work may be a small insurance premium to pay, and the government is well-placed to facilitate this. The impact of diminished oil supplies through an embargo is an obvious security of supply issue.

The second theme of energy efficiency and sustainability overlaps with security of supply issues. Energy efficiency is a means of extending the life of known resources. Sustainability raises a wider question about whether a resource should continue to be used at the current rate.

The case for the authority concerning itself with energy efficiency is again one of market failure. While there are many economic options for improving efficiency which would benefit the nation as well as the consumer, they are not always sufficiently attractive to individuals and may require third party coordination to reduce barriers to entry.

Sustainability of our energy supplies is ultimately an ethical issue. While the authority would not set any policy in respect of sustainability, it is of increasing importance. Analysis of the degree to which parts of the energy sector conformed, or failed to conform with sustainability criteria, would be of value.

As to the third theme of monitoring the activities of the major suppliers, it is clear that the energy industry has many dominant suppliers and high barriers to entry. Restraints are already in place through the general provisions of the Commerce Act and the government has foreshadowed its intention to introduce light-handed regulation requiring considerable information disclosure. An Energy Monitoring Authority could assist the effectiveness of these measures.

Detecting and substantiating claims of monopoly or dominant-supplier abuse often requires extensive analysis of the information made available. This can be daunting to many consumers and the Commerce Commission has only limited resources and the absence of a success record to date. Thus the establishment of a function within the authority which would provide reputable analysis of the activities of the major suppliers would not only act as a significant discipline in itself, but would also provide the regulatory authorities with information that would assist them to regulate the activities of suppliers, where necessary or possible.

Looking at these three themes together, they indicate that the Authority would also have an overview function. The Authority would monitor international developments, changes in the economy, environmental developments, and changes in patterns of ownership. In essence, the authority would perform a strategic planning role, by anticipating developments and exploring response options.

## Role of the Authority

Given these broad themes, what then would be the specific role of the Authority? The following is a very limited summary of what may be prescribed.

Monitoring the security of supply of energy resources will provide analysis of:

- infrastructure reliability;
- diversity of sources of supply;
- known stocks/reserves and degree of national self-sufficiency; and
- likely future availability and depletion rates.

Examining issues relating to energy efficiency and sustainability will involve analysis of:

- efficiency of extraction and production of resources;
- efficiency of consumption;
- means of encouraging greater use of energy-efficient devices or equipment; and
- the sustainability of current demand patterns and alternative sustainable options.

Monitoring the activities of the major energy suppliers could encompass analysis of:

- reasons for changes in market shares;
- progress of fledgling competitors; and
- ownership changes.

Reviewing developments in other sectors which may impact on the energy sector will involve analysis of:

- international developments;
- changes in the economy;
- environmental developments; and
- changes in patterns of ownership.

While the gathering of a comprehensive set of energy statistics is a prerequisite for this work, it need not be carried out by the Authority. However, the Authority may be an appropriate place to vest the power to require certain information to be made available. It may also be appropriate to include a forecasting function. The tasks outlined above

would already involve a considerable amount of forecasting to be undertaken, and it may be preferable to formalise this role. A study commissioned by the Ministry of Commerce to investigate the advantages and disadvantages of different approaches to energy forecasting and modelling has recently been completed.

Research into energy-related production or processes should not be undertaken through the Authority because the Government has clearly determined that all such projects be assessed for funding through the Foundation for Research, Science and Technology. However, the Authority's analytical work could certainly be drawn on to provide guidance on research priorities.

Neither should the Authority be a policy-setting or even policy-forming body. It would be advantageous for it to explore policy options. However, the Energy and Resources Division of the Ministry of Commerce must retain the role of policy advisor to the government. Were the Authority to attempt to give policy advice as well, then more problems than advantages would be created by establishing a new duplicate Authority outside the Energy and Resources Division. That is not to say, however, that the Authority would not be able to give informal advice when sought, as issues wind their way through the many phases of government decision making.

One final caveat which I must add explicitly, is that the Authority should be in no way involved with consideration of individual projects or the planning of developments or their implementation. I believe that history shows that in general this must be the complete responsibility of those responsible for execution of affairs in the commercial entities making up the energy sector which are governed by the risks associated with capital development.

## Organisation and Structure

A high degree of independence from Government and industry is necessary for the Authority. This is a feature of overseas models and arguably an imperative for effective operation.

The objectives envisaged for the Authority could be met through a number of structures. At one end of the spectrum is the option of a unit within the Energy and Resources Division. This could achieve independence through a convention of separation but such separation could be artificial.

At the other extreme, complete independence from the Government in the form of an industry group also has major problems. While it offers the advantage of an organisation readily able to gather industry information and the specialist skills to analyse this, it may be a weak critic in monitoring the activities of its larger members. This will be accentuated by the fact that the smaller members often have delicate customer relationships with the larger ones and they could well defer on all but the most important points. And finally, because of the number of members and the varied objectives, advice will tend to be that with which all are happy: that is, the lowest common denominator material.

According to the Australian experience, control by Government ultimately limits the quality of the work and too great a reliance on private-sector studies risks a lack of objective analysis.

The charter given to the Authority's governing body needs to describe the high level of autonomy that will prevail

and it would also seem advisable to specify that the appointment of staff is strictly at the discretion of the manager of the Authority. Thus Government funding, outside expertise and a substantial degree of autonomy is the ideal.

## **Interaction with Other Government Agencies, Industry and the Public**

While the Authority would be directly accountable to the Minister of Energy, the degree of independence desirable precludes access as of right to official information. Such information would need to be applied for under the Official Information Act as with any outside body. It also follows that while it would be natural for the Minister of Energy and other relevant ministers to be given advance copies of research work, there would be no formal clearance procedures for publication. All reports would, in principle, be available to the Government, local government, energy suppliers and the public. If a special report is requested by the Government, it should be structured so that the raw analysis is readily able to be separated for release even if a commentary section is subject to the Official Information Act.

Strong linkages to the Ministry of Commerce, the Prime Minister's Department and the Treasury will be necessary but these may well be best set up progressively and informally as the new institution finds its place.

In constituting the Authority the Government will have a wide choice of industry expertise and market knowledge from both the private sector and state-owned entities with energy responsibilities.

## **Conclusion**

The energy industries and the energy sector as a whole are too important to our economic and social well-being to be left to chance or to ad hoc development.

The Energy Resources, Monitoring and Conservation Authority would lead to an organisation of the energy sector where the Minister and his Ministry have policy responsibility, the Ministry carries out regulatory functions, while the proposed Authority gathers information and, in collaboration with the producers, the market and consumers, provides authoritative material for the development of policy. It would not adversely affect the commercialisation of the energy sector. It would assist the participants in the industry in their deliberations and divisions. May I commend the proposal to you.

In this way New Zealand would have the advantage of the commercial operation of the energy sector within a framework of consideration, and the resulting policies that best provide for the conduct of the energy sector in the future.

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