

# Hon Pete Hodgson

**Minister of Energy, Minister of Transport, Minister of Research, Science and Technology, Minister for Crown Research Institutes, Convenor of the Ministerial Group on Climate Change**



Thursday, 25 November 2004

## Speech Notes

### **Opening address, Energy Federation of New Zealand conference**

*Opening address, Energy Federation of New Zealand, Conference 2004, 09:00 – 09:35, Thursday, 25 November 2004, Hotel Intercontinental, Wellington.*

Good morning. I'm delighted to be here. The Federation has established itself as a forward thinking group and I appreciate the leadership role you are taking. I confidently predict that role will increase and become more important in the years ahead.

New Zealand is one of many nations pursuing growth through sustainable development; development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs.

In January 2003, the government's Sustainable Development Programme of Action identified energy as one of four areas for action.

Since then many government agencies have been working to define what sustainable energy means for New Zealand. One major outcome of this work was October's publication of the Sustainable Energy discussion document.

It is not a detailed plan, strategy or policy prescription. Rather, its purpose is to provide a framework upon which these things can be formulated. It is not a blueprint for change but a step towards one. And it forms the basis of a six month consultation exercise.

I hope many of you have read the document and are involved in that process. Given its publication date, your conference is very well timed. I am very keen to hear where your thinking is.

The first question to address, of course, is: what is sustainable energy? We have identified three key characteristics the New Zealand energy system will need to deliver on the economic, social and environmental goals of sustainability: the energy system needs to be reliable and resilient; environmentally responsible; and fairly and efficiently priced.

No doubt terms such as these will be familiar to you and they are elaborated on in the document so I won't spend time detailing them now, but needless to say, achieving all of these outcomes presents an enormous challenge.

In some cases trade-offs will be inevitable. Reliability has generally been the prevailing consideration, although not at any price. Historically, environmental objectives have often been compromised first.

Two key challenges loom large as we look to a sustainable energy future; climate change and the coming peak in global oil production.

Climate change is a reality. Greenhouse gas emissions resulting from human activity, such as burning fossil fuels and modern agricultural methods, are contributing to global warming. The only doubt remains around how quickly and to what extent its effects will be felt. Climate change is probably the largest global environmental issue there is. It is also one of the more important economic issues.

The Kyoto Protocol has now been ratified by the Russian government and will come into force in February 2005. Internationally, this further reinforces the perspective that climate change will be one of the most pressing issues the world faces over the next century. Very few sceptics remain.

This government has designed a comprehensive policy response. Foundation policies cover: agricultural emissions, transport, energy efficiency, waste and forestry. These are supported by a number of additional policies including Projects to Reduce Emissions, Negotiated Greenhouse Agreements, policies for small business, individuals and continuing research.

An emissions charge is planned from 2007. This will directly expose the New Zealand economy to the price of carbon. The price will be pegged to the international price of carbon, around \$15 at the moment, but capped at \$25.

All revenue raised will be recycled back into the economy, through, for example, the tax system. The charge will introduce a price of carbon into our economy and is a major step towards emissions trading in the future. Many of you, from your involvement with the Projects to Reduce Emissions programme, are already aware of the new global currency that the Kyoto Protocol creates.

The greater challenge for the international community is to expand the scale and scope of emissions reductions beyond the first Kyoto commitment period which runs from 2008 to 2012.

Many people think that if we really are to get serious about this it will mean cuts of 50 to 60 per cent within developed nations. More will also need to be done to manage emissions in developing countries. Clearly part of the solution will be disruptive technologies yet to be invented or commercialised, but which form parts of the conference's agenda.

Now onto the forthcoming peak in global oil production, or peak oil. There is a wide range of projections around when this will occur. Analysis by the United States Department of Energy's Energy Information Administration, for example, suggests oil production could peak as early as 2021 with high production growth and a conservative estimate of recoverable reserves, or as late as 2067 with low production growth and a high reserve estimate. A mean estimate suggests peak oil production occurring in 2037.

Nor do we know how the price curve will behave between now and then. Will it remain relatively flat then spike or will it rise more steadily? Will a moderate spike in the meantime cause widespread uptake of a transitional technology such as hybrid motor vehicles?

In any case, both of these issues render our current energy habits unsustainable, particularly within transport. Both compel us to think about the decline of the fossil fuel era and what comes next.

The good news is that we are not powerless in the face of these challenges. Humankind has changed its energy system radically in the past, and can do so again.

The place to begin is not with supply but with demand, and I note one of the themes of this conference is energy needs. Needs can be influenced; in many cases more easily and cheaply than simply increasing supply.

New Zealand has a bad track record in energy efficiency. Yesterday's supply of big hydro sites and cheap Maui gas made it cheaper to provide more power than to invest in efficiency. Those days are gone. Our economy has begun to catch up with much of the rest of the world in efficiency terms. This, in turn, will increase our competitiveness too.

The government has set out to exploit these opportunities across business and with domestic consumption through the National Energy Efficiency and Conservation Strategy. A highly efficient economy is something of a holy grail for this reason. Business and households seek two things. They want low energy bills and they want security of supply.

At first glance, these are opposites. You can have one or the other. Energy efficiency allows progress on both. That's why the Electricity Commission, which has electricity security of supply as one of its core functions, is able to deliver that security by investments in both the supply side and demand side.

I'll quickly mention the transport sector which consumes around 40 per cent of our energy needs. It does so inefficiently. Vehicle fuel efficiency has increased, but total transport energy use continues to climb.

Here the culprit is the system as a whole. It lacks direction and it lacks investment. Or at least it used to. The New Zealand Transport Strategy, nearly two years old, gives the direction. To cut to the chase, its vision is to have a safe, sustainable, integrated, affordable and responsive land transport system by 2010.

Quite an ask, especially in the time frame and especially with tension between that long list of adjectives.

But we are off to a flying start. Since that time transport law has been rewritten, the state transport sector has been reengineered, funding has been increased markedly and will increase markedly again, we have brought back the rail track and have subsidiary strategies for walking and cycling, railways, transport research and so on developed or being developed.

It is not an exaggeration to say that we are forging a new paradigm. And to give you a glimpse of the future, a fortnight ago Fonterra and Toll struck a deal which will see 45,000 truck movements a year move to rail. That deal was dependent upon the government's commitment to invest \$200 million over five years in the rail track. That is a serious efficiency gain and there is more coming.

So if the twin challenges this century are climate change and the end of the era of cheap oil, we must change, we can change and the place to begin is demand not supply.

But I would now like to shift to the supply side and look at it through the lens of innovation.

We have strengths in innovation that can contribute directly or indirectly to sustainable energy. We have an established expertise in hydroelectric and geothermal energy technologies. We have a strong and growing innovative capacity in biotechnology, which could apply to biofuel production or the extraction of energy from biomass and waste. And we have a small but active information and communications technology sector which has the potential to contribute innovative solutions to energy delivery and demand management, for network industries such as electricity and gas, for transport, or for building and plant management.

Private sector research investment in all fields is relatively low by international standards, but has begun to increase. As predominantly large players in the energy industry, I would consider that your members have a leadership role to play in addressing this underinvestment.

The government certainly has a role too, and there is a common view that reduced central planning of the energy system has produced a need for stronger strategic leadership in energy research. And probably more funding too. I've been talking with the Minister of Science lately, accusing him of inadequate attention to the area of energy research. I'm pleased to say that so far he has been very responsive.

There will be no silver bullet in New Zealand's energy future. The same applies to the rest of the world, and a recent story underscores why silver bullet hunting is a distraction.

I was at an OECD roundtable meeting in Paris recently and over two days we talked about cars. In particular we came to discuss a large and expensive research project, funded substantially by automakers. The project sought to find a solution to the problem of climate change, given the contribution that cars make to that problem. If you will excuse the cynicism, the underlying concern of automakers included the end of cheap oil but they are not exactly in a position to acknowledge publicly that concern and I won't dwell on it.

Instead let me dwell on the fact that the project sought a solution, singular. In other words the project was designed as a silver bullet hunt and the one quarry was hydrogen and fuel cells.

The project's main finding, after an exhausting analytical process and after a global consultation exercise, was that our future will comprise many incremental gains across many technologies involving many fuels and many different transport modes.

It was very comprehensive research, and a tribute to the investigators and the industry that they could find their original thesis so solidly disproven.

Silver bullets are important, so long as we don't seek to rely on their coming to fruition. Nuclear fusion, cheap photovoltaics, cheap fuel cells, cheap hydrogen, carbon sequestration.

In the meantime we can both lead and follow on incremental innovation. We lead with Whispertech out of Christchurch, whose innovative variant on Stirling engine technology is about to enter the domestic combined heat and power industry in Europe. It has a bright future, though New Zealand energy prices are too low for it to compete here. We lead with an emerging superconductivity industry out of Wellington, with emerging wind generator technology and so on. In the future our biotechnology strengths are likely to find expression in sustainable energy.

On pretty much everything else we follow. And so the emphasis must be on rapid uptake. That means paying attention to regulatory barriers, market barriers and social barriers. But usually, so long as the technology is genuinely new and useful, New Zealanders will adapt it early.

There was a bit of a spat earlier this week within the industry about whether we needed LNG imports or not and about whether renewables were reliable or not. I want to add my comments.

The shortages of 2001 and 2003 were not caused by having too many renewables. They were caused by having such a high proportion of our renewables in a small part of the country – specifically the Waitaki and Clutha catchments. If our hydro were more spread, and if we had a lot more wind and geothermal there would have been no shortage.

Geothermal is predictable and although wind suffers from very calm weeks, there is no such thing as a very calm season.

Conversely, non-renewables can run out too. Maui caught us short and caused a scramble and a coal stockpile we thought existed in March 2003, didn't. Moreover, every source of non-renewable energy will stop one day self evidently.

So the link between fuel types and reliability cannot be drawn. What can be concluded is that eggs should be in many baskets.

By that reckoning investigating LNG imports is prudent. Wind energy and other renewables have a very bright future in New Zealand but we will always need some thermal and we will always have some direct uses for gas or coal. Because gas fields run out, new gas fields will need to be found. Even if gas use in New Zealand halved, we still need to find new fields. We probably will. Soon. Drilling is increasing apace. But if I'm wrong and we find absolutely no new gas despite the new government incentives, then there will be a market for gas and we will import it, either as LNG or compressed, CNG.

My concluding remarks are reserved for a boring, important topic. Information. Our energy data and modelling are still not up to scratch. When we try to measure annual improvements in our energy efficiency, there is a lot of noise around the data. When MED recently reviewed its Energy Outlook it found room for improvement in assumptions and in modelling. When we come to report progress on the Kyoto Protocol, and collect our cheque, we will need information that withstands international rigour. So the quality of official information needs to rise. That will more accurately inform people such as those of you gathered. In the meantime I hope you have a very good conference indeed.