

ACHIEVING A SUSTAINABLE ENERGY FUTURE

New Zealand has a number of hurdles to overcome to secure its energy future including our isolation from other countries, the vulnerability of our transmission networks and a high dependency on imported oil.

On the other hand, we already have a large percentage of renewable energy from hydro-electric generation and substantial potential sources of wind and solar energy. We also have very substantial reserves of coal but just how we are going to be able to use those reserves in a carbon-constrained world remains problematical, and some of the suggestions being made internationally about carbon sequestration seem to me to be rather fanciful.

Recent events have highlighted the vulnerability of our hydro-electric system to climatic variation and if suggested changes in climate over the next century come to pass, then that vulnerability may be significantly increased.

In my view, our two key areas of future energy vulnerability are in electricity generation and in transportation.

In **electricity generation**, if New Zealand is to meet its Kyoto Protocol climate change obligations, I believe that the way forward must be a heavy emphasis on the need for energy conservation and efficiency in energy use, and on the increasing use of a variety of renewable energy sources including our rather limited further hydro potential, a high potential for wind energy use and in the longer term, solar electricity generation and growing crops for electricity generation from biomass.

Demand side management and distributed generation will also have an important role to play in securing our long term electricity future and in reducing transmission losses. Right now, we should also be embarking on a major campaign to encourage most householders to install a solar water heater.

Direct reticulation of natural gas should also be encouraged to reduce electricity use. But with the imminent demise of the Maui field to be likely replaced by a number of much smaller fields, the future role of gas in electricity generation remains in doubt unless we can find substantial new gas fields and in my view, whether it will ever be economic to import liquefied natural gas remains in doubt.

In **transportation**, I believe that there should be an immediate very strong emphasis on encouraging the use of smaller, lighter and more fuel efficient cars, and also a much greater use of rail transport. We should also be encouraging the importation of hybrid-electric motor vehicles with the objective of halving vehicle fuel consumption within the next 10 – 15 years, to reduce both dependency on imported fuels and emissions to the environment.

To reduce our vulnerability in importing oil, we should be strongly promoting alternative fuels programmes for motor vehicles. Growing rape seed to produce biodiesel is an immediate possibility which is environmentally neutral on greenhouse gas emissions.

Other crops can be grown to produce ethanol, or we can look in the longer term at using coal to produce methanol in substantial quantities as a vehicle fuel once the use of natural gas for

this purpose is no longer viable because of declining gas supplies (and the Motunui plant is likely to be mothballed next year).

In summary, there are a whole range of possibilities to help secure a sustainable energy future for New Zealand and we need to start navigating our way through these possibilities starting right now. All that is required is some leadership.

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