Conclusions from ICCC report

The report of the Interim Climate Change Committee (ICCC) deserves careful study. It strongly recommends against any attempt to achieve 100% CO2 free electricity generation in a normal hydrological year. It concludes that it is effectively impossible to provide a reliable and economic supply under this scenario.

The key problem is dry hydrological years. About once every 20 years, low rainfall reduces hydropower generation by about 15% which amounts to 10% of annual energy. The ICCC report explains that in all years that might be drier than normal extra gas will need to be burned to avert the risk of a shortage. In a severe dry year, extra gas generation of about 3000 GWh will be needed – about 8% of annual demand. The report does not say where the gas will come from or who will pay the annual cost of storing it. If gas is unavailable the only alternative is coal.

It concludes that maintaining supply in dry years is the major hurdle when contemplating CO2 free generation and points out that biomass, batteries, hydrogen and overbuilding of wind and solar power renewables are excessively expensive for dry year reserve.

Meeting peak demand is also a major problem. An analysis of the report indicates that, under its scenarios, peak demand can only be met if the wind is blowing. Peak demands often occur when the wind is not blowing so it may be necessary to shed 1000 - 2000 MW of peak demand for several hours during calm days in the wintertime. This would damage the economy and put lives at risk.

The report points out that the cost of CO2 under the Emissions Trading Scheme will need to increase substantially to reduce fossil fuel generation. It does not mention that an increase in the cost of CO2 will provide windfall profits to the hydro power generators because, for every dollar of tax paid by fossil fuel generators, consumers are likely to pay $5 to $10 in extra electricity charges.

It concludes that it is better to electrify transport than it is to eliminate fossil fuel generation during a normal year. It does not mention the problem of CO2 emitted during battery manufacture or the cost to the economy and consumers of scrapping internal combustion cars before their life has ended, purchasing more expensive electric cars, supplying charging stations, reinforcing the distribution system and the like.

The report makes it clear that the Resource Management Act will make it extremely difficult to increase generation capacity to match the increased demand from electrification. Consenting new generation is getting more and more difficult and time-consuming. It also points out that although many consented windfarms have RMA approvals the process may have to start all over again if the size or location of the turbines has changed.

The committee's terms of reference specified "renewable energy" rather than "CO2 free energy" so it did not contemplate nuclear power even though it could substantially reduce emissions and provide a safe, cheaper and more reliable supply.

My own conclusion is that the best "bang for the buck" is achieved by replacing coal fired generation with gas and planning for nuclear power. I also conclude that a crash program to introduce electric cars would be very expensive because it would be necessary to subsidise the cars, the charging points and the distribution system. The cost of the subsidies will fall heaviest on the poor.

If the country really needs to provide a reliable and economic supply while minimising emissions of CO2, natural gas is essential, nuclear would be beneficial and the Resource Management Act must be overhauled. Even if all this happens, the ICCC report makes it clear that there is still a risk of high prices and shortages.