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Submission on **Review of New Zealand's Oil Security** October 2012

The discussion paper on oil security summarises the examination of oil security in terms of three commissioned reports and asks responders to answer a number of questions in terms of the discussion. We are not qualified to give informed answers to all 48 of those questions. We do however have strong views on two salient points and will concentrate our submission on these.

Our concern is that the report is almost totally concerned with short term and infrequent perturbations in the existing "oil market" and takes no cognisance of the possibly greater and more frequent disruptions that that could result from the situation commonly referred to as "peak-oil". Nor does it take any cognisance of the growing concern with climate change which is largely a consequence of combustion of fossil fuels, including oil. We note that expert views on the likely pace of Climate Change are changing rapidly, for example with 1-2 metres of sea level rise beginning to look likely by 2100.

In these regards our answer to Question 2 "*Do you agree that the international oil security problem definition is appropriate?*" is an emphatic NO

Similarly our answer to Question 3 "*Do you agree with the selection criteria used for the international oil security analysis?*" is also an emphatic NO.

The discussion paper is concerned only with two aspects of oil security for New Zealand namely: -

- International supply disruption related to availability of crude to the NZRC refinery; and
- Domestic supply disruption related to distribution from the NZRC refinery.

The review of international supply is chiefly concerned with our current obligations as a member of IEA to maintaining accessibility to 3 month's supply of crude oil. On domestic supply disruption the review is concerned essentially with ways of dealing with consequences of short-term disruptions. However, a relatively long-term 18 month disruption scenario is also considered. Within the terms of reference that the study has set itself, the measures discussed appear to be adequate.

In discussing oil security we should first examine the uses of oil in New Zealand. The major use is for transport and of that the majority is road transport. Our concern should then be initially the protection of our transport system from the uncertainties of foreign oil supply in terms of both availability and price. It is our view that New Zealand, being a minor customer in terms of world oil trade will always be subject to the vagaries of the international market. This in turn is controlled by the relationship of supply to demand. There has been much debate on the matter of supply that goes generally under the name of "Peak Oil". This is generally based on predictions of the point in time at which oil production begins to decline. It is clear that "conventional" oil supply is at a peak (if it has not already gone into decline). The associated rising price has encouraged moves into more expensive sources that have allowed continued production of fossil fuels at levels around 85-90 million barrels of oil equivalent per day. Technologies employed to meet the demands are; accessing remote fields, enhanced oil recovery, thermal processing of oil shale and tar sands, fracking for natural gas and ultimately liquefaction of coal.

However the continued rising price of and rising demand for, oil will inevitably lead to unreliability of supply to minor consumers like New Zealand. We believe that this development will take place in the medium term future. To insulate ourselves from this, we need to improve our independence from imports. In the very short term this is tackled by the measures envisaged in the discussion paper. In the longer term we should move to enable the local refining of our indigenous crude oil. At the moment this could reduce our dependence on imports by around 100PJ/yr to about 140PJ/yr.

However, indigenous crude oil production varies widely and is on a general downward path. We should therefore in the longer run look to replace liquid fuels in a more proactive way. Of comparable, if not greater, concern than oil shortage is the prospect of climate change resulting from the emission of greenhouse gases from the combustion of fossil fuels.

Like Peak Oil, Climate Change is a concept that is hotly debated despite the fact that the majority of experts are certain that the phenomenon is real and that continued reliance on fossil fuels can only make things worse; even in the view of some, to the point of abrupt change. It is not our purpose here to argue the details, but merely to

assert that the magnitude and time scale of these impending changes is such that waiting to see the outcome is not wise.

There are thus two reasons for seeking indigenous alternatives to the use of fossil fuels for transport. A solution that simultaneously deals with both is a transfer of our transport systems to indigenous renewable energy sources.

The main options in this respect are: -

- Demand reduction;
- Substitution from indigenous sources such as biofuels; and
- Replacement by electrical energy based transport.

New Zealand has always been in a good position with regard to electricity generation from our hydro resource and more recently with our increases in the use of geothermal generation and wind generation. The change to a largely electrical based transport system, even if begun immediately would take upwards of 40 years. The immediate requirement is the development of a plan for an orderly transition from our present dependence on imported transport fuel to indigenous electrically based transport; both road and rail. This would require initial production of fuels suitable for current vehicles reducing our need for imports and gradually falling off as electricity based transport increased.

We note two areas for demand reduction that we see as particularly important: -

- Rail and coastal shipping each handle about 15% of the heavy freight task, with an energy requirement some five times lower than line-haul trucks; and
- Promoting alternatives to car use.

The questions that need to be answered in detail are: -

- The types of biofuels and land availability for biofuel production; and
- The rate of transition to electrical transport on road and rail.

We conclude that these matters cannot be dealt with in an ad hoc way. We submit that there is an urgent need to establish a body like the former NZERDC and/or the LFTB to plan the necessary transition to reduced reliance on crude oil.

Submitted by members of the Sustainable Energy Forum Nov 2012: -

Steve Goldthorpe, Frank Pool, Arthur Williamson and Kerry Wood