

STATEMENT OF BRYAN LEYLAND

LIST OF POINTS INTENDED TO BE ESTABLISHED IN STATEMENT

EXECUTIVE SUMMARY

I am a Principal of Leyland Consultants Ltd (“Leyland Consultants” (now named LCL Ltd)). Leyland Consultants was engaged by Halcrow Water Power Consultants Pty Ltd (“Halcrow”) for the mechanical and electrical design of headworks items and other items not included in the M&E subcontract. It was also engaged by Transfield Philippines Inc (“TPI”) to assist in the tender assessment for the mechanical and electrical (“M&E”) subcontractors and subsequent assistance in supervision of that subcontract.

I, Bryan Leyland, of 17 Bangor Street, Pt Chevalier, Auckland, New Zealand make oath and say as follows:

A. INTRODUCTION

Qualifications and experience

I am an independent consulting engineer.

From 1998 to July 2002, I was a principal at Sinclair Knight Merz Limited in Auckland. Prior to that between 1986 and 1988, I was the Managing Director of Leyland Consultants, a mechanical and consulting firm that specialised in electric power and hydropower engineering.

From 1974 to 1986, I was senior partner of Leyland Watson & Noble, a mechanical and electrical consulting firm that specialised in electric power and hydropower engineering. I have a Master of Science (Power System Design) from the University of Aston in Birmingham, United Kingdom.

I am a Fellow of the:

Institute of Electrical Engineers, United Kingdom;

Institute of Mechanical Engineers, United Kingdom; and

Institute of Professional Engineers, New Zealand.

In 2001, I was awarded the “Communicator of the Year” award by the Institute of Professional Engineers, New Zealand.

I have approximately 48 years of experience in the electricity industry. I initially spent five years training with the Auckland Electric Power Board in New Zealand, followed by nine years overseas when I was resident electrical engineer on power projects in Mauritius, Cyprus, West Africa and Malaysia.

During this time, I have gained very wide experience in the power industry including the design, commissioning and operation of hydro power stations. In 2003, I was the member of an international panel of experts that were engaged to solve serious problems with surging at a 2000MW hydropower station in Iran.

I have authored more than 40 papers on electric power systems, hydroelectric power development, rural electrification, co-generation, power system protection, and the safety of large dams. I have been an invited speaker and session chairman at several international conferences.

I have written many newspaper articles and presented papers at electricity conferences regarding supply and demand and the New Zealand electricity market.

As a result, I has a very good understanding of electricity supply and demand in New Zealand and the risks facing the New Zealand economy if economic growth is limited by electricity shortages.

I have recently completed a study that established that the actual New Zealand demand is at least 6% above the figures produced by the Ministry of Economic Development and, over the last four years, demand growth, at 2.34% pa, has been significantly higher than that indicated by the current statistics. The study also showed that, in order to meet expected demand growth with a safe margin and also compensate for the retirement of ageing thermal power stations, generating capacity needs to be added at an average rate of 320 MW over the next twenty years. This is more than twice the 130-150 MW postulated by the MED. I enclose a copy of a diagram from this report that shows historical and projected electricity growth in New Zealand and the very large disparity between the projections produced by the ministry of economic development postulating a growth rate off 1.1% and those revealed by this study.

It is common knowledge that New Zealand is facing a high risk of electricity shortages. This is a direct result of a failure to make sure that adequate generating capacity would be available when it was needed. Because it takes many years to plan and build new power stations, the current high risk of shortages is likely to be with us for between five and fifteen years - and maybe longer. If the government took effective action right now, we would still be at risk of shortages for the next five to ten years.

The supply to the upper South Island is at risk from the national shortage of generating capacity and also because of transmission constraints between the Waitaki and Christchurch and between Christchurch and Nelson. These constraints mean that there is a high risk of blackouts during peak load periods and that there could be periods of extremely high prices when the transmission system is nearing its limit.

This situation will be with us for many years. The first stage will be to string conductors on the second circuit on an existing 220kV double circuit transmission line between Christchurch and Nelson. It could take up to three years to get approvals under the Resource Management Act and another six months to actually carry out the work. Once this is done, the supply between Christchurch and Nelson will be reasonably secure. This will only be a partial solution to the problem because the supply between the power stations in the Waitaki area and Christchurch is also at risk from overloading of the transmission lines. Transpower plans a major upgrade to this transmission system by building a new 400 kV transmission line between Waitaki and Christchurch. The design and approvals process could easily take four years or more. Construction would take another two or three years. The conclusion is, that for ten years at least, any power station north of Christchurch will be performing a vital role in enhancing the security of supply and preventing the price spikes that occur when the transmission system becomes

overloaded. The station will also reduce the transmission losses into the upper South island and this will be reflected in lower prices to the consumers.

The project is in line with the government's objective to provide as much the generation as possible from renewable resources. Recent speeches by the Minister of Energy indicate that the development of small hydro power schemes is expected to play a large part in increasing our use of renewable resources. The Gowan river hydro scheme is therefore in line with the government's policies for meeting its Kyoto obligations.

(The proposed hydro power station is in the right place and at the right time. The national shortage of generating capacity means that, wherever it would be, it would be useful. The particular problems of the upper South Island mean that it is ideally placed. It will still be very well placed after the transmission problem is solved - which may take five to ten years - because the upper South Island has a rapidly increasing load and is a long way from the main source of power in the Waitaki area. The station will make a valuable reduction in transmission losses in the upper South Island region.)