1956

(Fitzgerald, 2000)

Table 1: Dimensions of Lakes Manapouri and Te A

Dimension	Manapouri	
Area	142 sq km	352 sq km
Shoreline length	170 km	517 km
Catchment	1,388 sq km	2,095 sq km
Maximum depth	444 m	417 m
Long axis	28 km	60 km
Natural mean height above sea level	177.8 m	202.2 m
Natural variation in levels	4.8 m	3.5 m

Source: Peat, 1994: 4-5

The Manapouri Power Scheme

Various opportunities for utilising the "head" (178 metre height difference) between Lake Manapouri and Doubtful Sound for hydroelectricity production were recognised by the Public Works Department engineer, P.S. Hay, in 1904. (Martin, 1998). However it was over 50 years before a project design was developed which could overcome the challenges of the difficult terrain and climate. Several unrealised ideas for development were floated in the intervening years: one in the 1920's proposed establishing a hydropower plant to generate energy for the manufacture of fertiliser from atmospheric nitrogen, and went as far as acquiring water rights under the name of New Zealand Sounds Hydro-electric Concessions Ltd. (Martin, 1998). Others in the 1940's proposed commercial power production, primarily for aluminium smelting. In the early 1950's the Ministry of Works (MOW) started investigating the feasibility of a power scheme, and their preliminary ideas for the Manapouri hydroelectric development which would generate electricity for an industrial development were aired publicly to the Southland Progress League in 1956 (Peat, 1994). The MOW's concept involved putting a control structure on the outlet to Lake Manapouri, building an underground power station at West Arm through which the outflow of the lake would be diverted, and digging a tail race tunnel which would discharge the water from the power station into Deep Cove in Doubtful Sound (Martin, 1998).

In the same year (1956) Consolidated Zinc Pty. Ltd. of Australia, a subsidiary of the multinational mining corporation RTZ Corporation, expressed interest to government in using Manapouri hydro power for smelting of alumina produced at its Gladstone refinery using bauxite mined at Weipa in Northern Queensland (Moody, 1991). In January 1960, the government of the day agreed to give Consolidated Zinc, through its assignee Comalco Industries Pty. Ltd., an exclusive 99 year right to develop the power resources of Lakes Te Anau and Manapouri and the Waiau and Mararoa Rivers with the power station developed along the lines suggested earlier by the MOW, including the raising of Lake Manapouri.

When Comalco indicated it could not raise the necessary project finance in 1963, government undertook to carry out and pay for the construction of the power project while guaranteeing power supply to the smelter. In return the company agreed to sell its engineering feasibility studies and designs, and to surrender its water rights to the Crown. This allowed government to enlarge the scheme's proposed generating capacity to supply electricity to the national grid, while retaining Comalco as a guaranteed customer for most of Manapouri's power.

The government's decision to build the power station was based on the belief that the electricity produced would be cheap enough "to support a metallurgical industry" and that New Zealand could miss the opportunity of having such a large-scale enterprise established here (Shand, 1967: 4). It agreed to give Comalco guaranteed 500 MW of electricity supply for 99 years to the company's proposed Tiwai Point aluminium smelter at Bluff, while taking 200 megawatts for the nation's use.

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