

APPENDIX D

ANNUAL REPORT OF THE CHIEF ELECTRICAL ENGINEER

The CHIEF ELECTRICAL ENGINEER to the Hon. the MINISTER OF WORKS

SIR,—

I beg to report on the position of the development of electric power in the Dominion for the past year, as follows:—

NORTH ISLAND ELECTRIC-POWER SYSTEM

1. *Capital Outlay.*—Extensions to the system being retarded by the lack of man-power due to the war, the increase in capital outlay was small. Details will appear in paper B.-1 [Pt. IV] when audited.

2. *Financial Results.*—The usual buoyancy in revenue was maintained, and from progress figures produced the result of operations for the year was satisfactory. The completion of the Waikaremoana Lower Development Station and the purchase of King's Wharf Station brought more capital into operation and consequently increased the amount payable to Depreciation Reserve for the year.

3. *System Operation.*—On account of the non-delivery, due to the war, of further generating plant it was necessary to run all stations on substantial overloads at intervals to cope with the increased peak loading on the system. The maximum half-hourly load on the system was 257,700 kW. and occurred at 17.30 hours on 4th June, 1942. This represents an increase of 2.09 per cent. on that of last year. The units sold were 1,255,100,000 as compared with 1,185,600,000 for the previous year, an increase of 5.86 per cent.

All main stations were operated continuously in parallel, and the standby and smaller stations were called upon as required. Approximately 42,345 tons of coal were burned at King's Wharf Steam Station, and approximately 21,262 tons of coal and 7,794 tons of oil were used at Evans Bay Station.

Greater use was made of the control gates at Lake Taupo, which contributed largely to the 9.35 per cent more units being generated at Arapuni and Horahora Stations.

4. *Construction.*—Arapuni: No. 5 penstock lining was completed, and the foundations of both Nos. 5 and 6 units were concreted.

Karapiro: Some progress was made with the diversion tunnel, but progress was retarded by the diversion of labour to the more urgent defence jobs.

King's Wharf: This station was purchased from the Auckland Electric-power Board as at 1st April, 1942, the Board operating it for and on behalf of the Department until 31st March, 1943.

Waikaremoana, Main: The new outdoor station, making provision for the paralleling of the Lower station, was proceeded with and No. 9 bay completed.

Waikaremoana, Lower: The installation of one machine was completed, and, after test, put on commercial load on 1st March, 1943. The erection of the second machine is in hand.

Waikaremoana, Upper: Contracts were let for the supply and delivery of 2/19,000 kVA. generators and turbines complete with transformers, switchgear, &c.

Substations: New substations were completed at Mount Roskill, Ohakune, and Upper Hutt and put into service. The transformer capacity at several substations was increased by the installation of larger transformers to meet the growing demand. Supply to the Ohakune Borough Council was commenced during the year. Four new cottages were erected at Hangatiki.

A contract was let for the erection of the Central Park Sub-station building, but before a commencement could be made the contractor was requisitioned for urgent defence works and the contract was cancelled. A further contract has now been let, and work is progressing slowly.

Transmission-lines: Work on the 110 kV. line between Arapuni and Ongarue is progressing slowly with a limited number of men. Some lines were deviated to reduce hazards to aerodromes, &c. A reconnaissance survey was made round the west side of Lake Taupo to determine the engineering difficulties likely to be encountered upon the construction of a possible 220 kV. line through that locality. A commencement was made on the erection of the Khandallah-Central Park 110 kV. line.

5. *Operation and Maintenance.*—The usual high standard of reliability and continuity of supply was maintained during the year. The fact that supply was able to be resumed within a few hours in the region affected by the earthquakes reflects credit on those responsible for the organization in that area.

SOUTH ISLAND ELECTRIC-POWER SYSTEM

1. *Capital Outlay.*—Extensions to the system being retarded by the lack of man-power due to the war, the increase in capital outlay was small. Details will appear in paper B.-1 [Pt. IV] when audited.

2. *Financial Results.*—The usual buoyancy in revenue was maintained, and from progress figures received the result of operations for the year was satisfactory.