

SOUTH ISLAND ELECTRIC-POWER SYSTEM.

INTRODUCTORY.

The past year ending 31st March, 1929, was the twenty-fourth year of operation of the Lake Coleridge undertaking and the fourth complete year of operation of the Waitaki Scheme. It also represented the first year of operation since taking over the Arnold River Scheme.

The first two stations mentioned have been in parallel throughout the period, with the third station as part of the system after the completion of the West Coast lines early in March last. Actually before the West Coast lines were completed the Dobson Diesel station and the Arnold River Scheme had been running jointly to supply the West Coast load.

With the completion of the transmission-line from Half-way Bush Substation to Gore on 20th December, 1938, the system has been able to combine with Monowai to supply additional power to Southland.

1. Capital Outlay.

The capital outlay at 31st March was £6,654,048, of which assets to the value of £266,778 were not in operation.

In Table II will be found an analysis of the capital outlay.

2. Financial Results.

The total revenue for the year was £561,451, and working-expenses totalled £187,835, making a gross profit of £373,616, which equals a return of 5.98 per cent. on the average capital outlay in operation (£6,247,478).

The interest-charge for the year was £231,060, which, together with depreciation (£82,617) and the cost of raising loans (£1,404) was met from revenue, leaving an amount of £58,535, of which £54,961 is available for arrears in Sinking Fund Account.

The accumulated depreciation reserve and sinking funds at the 31st March, 1939, amounted to £988,640, and the General Reserve Fund £87,199.

Table I gives full particulars of the financial results and also statistical returns of operations for the year.

The detailed operating-costs given in Table III show that the total cost per unit generated for the year was 0.1381d., compared with 0.1109d. for the previous year, an increase of 24.53 per cent. The reason for this comparatively large increase was due in part to an increased expenditure of approximately £6,000 at Lake Coleridge to cover switchgear and tunnel repairs and the Dobson Diesel working-expenses of £26,300 for the 7,794,010 units generated.

In Table V are given the gross financial results of the distribution of power from the combined stations, and of the local supply authorities and other consumers connected to the Government supply system.

3. General.

The total units generated and purchased (including West Coast and Southland) were 326,326,230, representing an increase of 18.97 per cent. on those of last year. Of these units, 281,708,949 were sold, while 3,904,827 were otherwise accounted for. The balance of 40,712,454 units represents transmission and distribution losses and amounted to 12.48 per cent. of the units generated.

The maximum system load increased from 59,380 kW. to 69,610 kW., an increase of 17.23 per cent. The average load factor (not including West Coast and Southland) was 51.5 per cent.

A. CHRISTCHURCH DISTRICT.

4. Construction, Operation, and Maintenance.

(1) CONSTRUCTION.

(a) *Power-stations.*

Lake Coleridge Power-station.—The installation of the 66 kV. switchgear, including two 66 kV. O.C.B.'s (ex Timaru and Ashburton) which were required in connection with the West Coast supply, was completed and the gear livened up in March last.

On the 11th June of last year considerable leakage was noted at No. 1 tunnel adit, and as the flow steadily increased for the first few days a constant watch was set and was continued well into the spring. In September a well-sinking plant was engaged to put down 2½ in. bores with the intention of tapping the leakage, but, although many bores were attempted, only three reached full depth. A decision to commence grouting was reached, and work commenced late in December. The tunnel was shut down for three weeks, during which time 3 chains, commencing from the outlet end, were grouted, with successful results.

The erection of six staff cottages, seven garages, and a social hall was commenced in July last, but somewhat slow progress has been made. To date, three of the cottages and the social hall have been completed.

Waitaki Power-station.—The steelwork for the extension of the outdoor station was received at the station and sorted.

Six main transformers and accessories for the extensions were also received.

The erection of three new staff houses was commenced, and these are now well under way.

Arnold Power-station.—The 33 kV. outdoor structure was replaced by a 66 kV. structure and a 3.3/66 kV. bank of transformers installed.

Repairs to the dam were undertaken by the General Branch, which work has now been satisfactorily completed. Repairs were also effected to the tail-race, tunnel, surge chamber, and penstocks.