

APPENDIX D.

ANNUAL REPORT OF THE CHIEF ELECTRICAL ENGINEER.

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

SIR,—

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

GOVERNMENT SCHEMES IN OPERATION.

LAKE COLERIDGE ELECTRIC-POWER SUPPLY.

The year ending 31st March, 1927, completes the twelfth year of operation of the Lake Coleridge scheme, and the results of the year's working have been very satisfactory. The attached tables (A, C, and E) show the analysis of results obtained for the year's operation, and connected load details are scheduled in Table D.

FINANCIAL RESULTS.

The capital outlay at the end of the year was £1,538,569, as against £1,366,950 for the preceding year, an increase of £171,619. The total revenue for the year was £150,240, and after payment of all charges, including interest and depreciation, an excess of £26,250 was shown. This amount of £26,250 has been placed to the credit of Sinking Fund Account, bringing the sinking fund to a total amount of £35,157. To this, however, should be added the interest earned by investments on this account—viz., £286—making a total to sinking fund credit of £35,443. Table A shows particulars of financial results and load records.

The total cost per unit generated was 0.3798d., being an increase of 0.0427d., due mainly to increased capital charges. Operating-costs have increased by £3,693, mainly due to increased staff, generating-costs, and maintenance of Harper River diversion works. Particulars of operating-costs are given in Table C.

CONNECTED LOAD.

The total connected load at the end of the year was 112,424 kw., being an increase of approximately 24 per cent. on that of the previous year. Details of connected load are given under Table D.

POWER-HOUSE LOAD AND OPERATION.

The maximum demand on the power-house for the year was 16,880 kw., representing an increase of 17 per cent. over the previous year's maximum demand. Units output from the power-house totalled 78,342,797, as against 68,860,614 for the previous year, being an increase of 13.7 per cent. The annual load-factor was 53.4 per cent. or 1.4 per cent. lower than that of the previous year.

There was a heavy overload on the plant prior to July, 1926, when the first 7,500 kw. generator was brought into service, and the Tramway Board was called upon to supply their own load with the 1,500 kw. steam standby plant when required. Subsequent to the completion of the first 7,500 kw. generating-unit at the power-house (July, 1926) there has been no call made on the Tramway Board for standby supply.

During the period 31st March to 30th June, 1927, the maximum demand made on the power-house reached 21,020 kw. The installation of the second 7,500 kw. unit was completed in December, 1926, thus bringing the total installed capacity of plant at the power-house to 27,000 kw.

TRANSMISSION-LINES.

The new transmission-line from Hororata to Timaru was completed on the 21st August, 1926, and power was supplied to Ashburton and Timaru over this line on the 29th idem. Steel towers with piled foundations are used for the Rakaia, Ashburton, Rangitata, Opihi, and Temuka River crossings, and carry two circuits, thus avoiding troubles which have occurred in the past by washing-out of poles during floods.

The Timaru-Oamaru line was not completed until November, 1926, and supply was given to the Waitaki Power Board from the Department's substation at Weston, on the 24th December, 1926.

The total length of new line erected from Hororata to Oamaru is 140 miles, and the type of construction is such that by the addition of extra suspension insulator units the voltage of this line can be raised to 110,000 volts.

With the object of better control and sectionalizing of the main lines from Lake Coleridge to Addington it was decided to bring the north line from Lake Coleridge into Hororata substation and thence to Addington. This involved the construction of five and a quarter miles of new line between