

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 SUPPLY.

The year ending 31st March, 1925, marks the tenth year of operation of the plant, and the most successful since its inception, there being a very satisfactory credit balance shown. Tables C, D, and E show the analysed results of operation of the scheme, and records of the connected load are shown in Table F.

Financial Results.

The capital outlay at the close of the year was £1,008,491, as against £892,801 for the year previous, an increase of £115,690. Details of capital expenditure are shown under Table D. The total revenue for the year was £92,163, and after payment of all charges, including interest and depreciation, but not sinking fund, an excess of £5,434 was shown. The accumulated deficiency on the Profit and Loss Account has been reduced from £23,172 to £17,738. Under Table C will be found particulars of financial results and load records.

The power-house maximum output was 13,180 kw., an increase of 2,380 kw., or 21·9 per cent., in excess of the previous year's maximum, and representing an overload of approximately 10 per cent. on the normal capacity of the plant—viz., 12,000 kw. Units output for the power-house totalled 59,528,216, as against 50,614,955 for the preceding year, an increase of 17·6 per cent. The annual load-factor was 51·8 per cent., slightly lower than that for last year.

The total costs per unit generated are 0·349d., being a reduction of 0·033d., due to the fact that the plant has been operating up to its full capacity. Operating-costs have increased by £2,493, mainly accountable by the increased staff and maintenance of transmission-lines. Particulars of operating-costs will be found under Table E.

Connected Load.

The total connected load at the end of the year was 74,231 kw., being an increase of 18·8 per cent. on the previous year. Details of connected load will be found under Table F.

Operation.

The repairs to No. 6 unit were successfully carried out, and the set was recommissioned in April. Despite the overload experienced during the year, the plant has operated successfully, and no trouble has been experienced. Opportunity was taken during the summer load of overhauling the sets in anticipation of next winter's load, the condition of the machines being good. During the year two siphon pipes were installed and put into commission at the intake; the results obtained have been very satisfactory, as an appreciable gain in head was accomplished.

Transmission-lines.

No extensions were made to the transmission-lines during the year, but arrangements were made for the erection of a second transmission-line to Timaru. This line will run from Hororata to Timaru and thence to Oamaru, and will be suitable for operation at 110,000 volts at a later date. Suspension insulators will be used throughout, the object being not only to provide an alternative supply to Ashburton and Timaru, but also to provide a trunk line to connect the several stations in the south and north.

Interruption, Christchurch Line.

During the year there were seven interruptions to supply of over one minute, the total duration of these being 4 hours 32 minutes. The longest period of interruption occurred on Tuesday, 27th May, at 4.27 p.m. The weather at the time was very bad, with strong north-easterly wind and driving misty rain. Both lines failed simultaneously, due to insulator breakdowns and flashovers, in one case resulting in the wire being burned through. The Tramway Board's standby plant was called upon, and supply was restored after an interruption of 4 hours 12 minutes. The insulator failures were definitely traced to one particular make which, though good electrically, developed mechanical faults after erection. Steps were immediately taken to remove as many of these insulators as was possible, and temporarily to make available the third transmission-line (pending the permanent connection). A repetition of the above is not likely to occur. The total number of insulators replaced during interruptions was twenty.