

The maximum demand on the power-house rose during the year from 1,372 kilowatts to 4,366 kilowatts, and was thus still within the capacity of the original three generating units (4,500 k.w.), leaving the fourth unit of 1,500 kilowatts recently installed as a stand-by in the meantime and to cover extensions to the business during the current year.

A number of new consumers have been connected up during the year, amongst them being the Christchurch Tramway Board's system, which is now independent of the coal-supply; three large freezing-works, at Islington, Belfast, and Kaiapoi; and two large flour-mills, at Addington and Kaiapoi. In addition the demand within the city has grown from 1,020 kilowatts to 1,850 kilowatts, including 200 kilowatts for water-supply pumping and 60 kilowatts for sewerage pumps, both of which important services are now operated by Lake Coleridge power. Provisional agreements have been entered for the supply of power for the production of caustic soda and hydrochloric acid by electro-chemical means, and the production of steel castings by electro-thermal means, both industries being the direct results of a cheap supply of hydro-electric power.

The supply again proved fairly reliable. The total number of interruptions to supply from all causes during the year was fifteen, totalling in all sixty minutes' interruption. But of these the majority were only momentary, only three exceeded one minute's duration, and only one exceeded ten minutes' duration. The latter stop was due to causes which have now been entirely overcome. The continuity and reliability of hydro-electric supply for practical purposes has thus been thoroughly established.

Arrangements have been made with the Christchurch Tramway Board for the use of the whole of their steam plant, amounting to 2,000 kilowatts, for standby purposes. This provision will enable the Department to dispense with a spare unit at the power-house and to utilize the whole of the plant for revenue-earning purposes. It also enables the Department to maintain a local supply up to 1,000 kilowatts in the event of a breakdown of the transmission-lines. The rental to be paid compares favourably with the capital charges on an additional unit of generating plant, and is much less than would be the cost to the Department of providing and maintaining a stand-by plant of its own in Christchurch. Incidentally a saving is effected in the capital expenditure, inasmuch as use is made of an existing power plant. A similar arrangement is under consideration for the use of some spare plant belonging to the Christchurch City Council, and which they are putting in order for standby purposes. These two provisions will result in considerable economy, and will be of great service in view of the threatened shortage of plant.

The financial results are satisfactory. It was not anticipated that the plant, which is designed for an ultimate capacity of 12,000 kilowatts, would prove self-supporting until the output reached at least one-half of this—viz., 6,000 kilowatts. With an output rising during the year from 1,372 to 4,366 kilowatts, the revenue obtained amounted to £20,754, the working-expenses to £12,889, leaving a balance of £7,865 to the credit of the net revenue account. The capital charges amounted to £13,743 in interest and £6,078 in depreciation, so that there was a loss of £5,878 on interest account, and a total loss, including depreciation, of £11,956, compared with a loss of £12,263 on interest account and a total loss, including depreciation, of £17,649 as the result of the previous year's working.

The rapid growth of the business indicates that by the end of the current year, which is the third year of operation, the plant will be earning sufficient to meet both interest charges and working-expenses, and will yield a surplus for depreciation and reserve.

The works have been well maintained during the year, and the plant is in good order.

The staff is working efficiently and rendering very good service. Two of the power-house engineers resigned during the year. Two other members of the staff joined the Expeditionary Forces; three more were selected by ballot, but of these two were rejected. With few exceptions, the present staff are members of the Second Division, and in view of the forthcoming application of the ballot to the Second Division it has been deemed advisable to train men who are not eligible for service, and who have the necessary qualifications, for duties at the power-house and sub-station, and advertisements have already been issued. This will entail a considerable addition to the annual expenditure, but the circumstances demand it, and the expenditure must be faced.

A summary of data relating to the year's operation is appended hereto, together with the result of last year's operation, for comparison:—

	Year ended 31st March,	
	1916.	1917.
Completed years of operation .. .. .	1	2
Capital outlay .. .. .	£320,230	£366,984
Revenue—		
Wholesale consumers .. .. .	£7,723	£19,021
Retail consumers .. .. .	£537	£983
Other sources .. .. .	£258	£750
Total .. .. .	£8,518	£20,754
Working-expenses .. .. .	£9,383	£12,889
Interest at 4 per cent. .. .. .	£11,398	£13,743
Depreciation at 2 per cent. .. .. .	£5,386	£6,078
Total annual cost .. .. .	£26,167	£32,710
Maximum load in power-station (kilowatts) .. .. .	1,372	4,366
Average weekly load factor (per cent.) .. .. .	44.3	52.9
Energy issued from power-house (kilowatt-hours) .. .. .	4,860,260	14,774,960
Energy sold (kilowatt-hours) .. .. .	3,994,767	11,664,961