

(d) 11,000-v. Lines and Substations.

A total of forty-one 35 ft. poles have been found defective on these lines, and have been replaced during the year. Service generally has been good.

(e) Power purchased and generated by Stand-by Plants, System Operation, and General.

Power purchased (£9,271) during the year totalled 8,226,397 units, or 5·7 per cent. of the total system output of 143,093,777 units. The greater part of the power purchased, 7,444,500 units, was obtained from McLaren's Falls.

MANGAHAO-WAIKAREMOANA ELECTRIC-POWER SUPPLY.

I. FINANCIAL RESULTS.

At the close of the year 1930-31 the capital outlay amounted to £3,498,840. The net revenue for the year was £283,017, and working-expenses £59,476. After paying interest, totalling £196,206, a net surplus of £27,335 was shown. Depreciation charges amount to £63,850, which leaves a deficiency on the year's working of £36,515.

The financial results and load records are analysed in Table V, whilst Tables VI and VII give an analysis of the capital outlay and working-expenses. The gross financial results of the system are given in Table VIII.

The earthquake on the 3rd February, 1931, was responsible for a direct loss of revenue of £3,576, and, in addition, it was necessary to purchase power from Wellington City Council and other supply authorities, costing in all £4,441. The total effect of the earthquake on the revenue was, therefore, a loss of £8,017.

The general depression throughout the country also reduced the revenue during the year by about £8,000.

II. OPERATION AND MAINTENANCE.

Mangahao Power-house and Headworks.—The various items under this head operated very satisfactorily during the year.

The generators and turbines have operated well, practically the only trouble met with being chipped, cracked, and spongy buckets on the turbines.

At no time during the year was a unit under repair when in demand.

Tail-race: Very little maintenance has been necessary during the year, the channel now appearing to have become stable.

Waikaremoana Power-house and Headworks.—All apparatus has functioned satisfactorily except for the burning-out of four coils of No. 2 generator, which caused this unit to be shut down for fourteen days for repairs.

All damage caused by the earthquake has been repaired.

Substations.

Khandallah.—From this substation power is supplied to Wellington City Council, Hutt Valley Electric-power Board, New Zealand Railways Department, and Wellington Meat Export Co., Ltd. During the year there were seven total interruptions, totalling 12½ minutes, to service at this station, none being prearranged.

Bunnythorpe.—From this substation power is supplied to the Manawatu-Oroua Power Board. Interruptions to supply during the year numbered ten, of a total duration of 1 hour 2 minutes, apart from four prearranged shutdowns.

Due to fire last year destroying all control-gear, &c., this substation has been merely a switching-station during the year. The metering has been done by the Manawatu-Oroua Power Board's instruments in their substation.

All H.T. switch-gear has operated well, as also have the transformers.

Marton.—This station, as well as Wanganui, supplies power to the Wanganui-Rangitikei Power Board, the two being normally paralleled on the 11 kv. side.

The only fault which developed during the year was the burning-out of a coil on the auto-reclosing gear of the 11 kv. feeder-switch.

Wanganui.—All apparatus operated satisfactorily during the year. Interruptions to service totalled nineteen, of a duration of 1 hour 24½ minutes.

Masterton.—This station supplied power during the year to the Wairarapa Power Board. All apparatus functioned well during the year. Interruptions to service (other than those prearranged) numbered twenty-two, of a total duration of 4 hours 45 minutes.

Mangamairi.—This substation supplied power throughout the year to the Tararua Power Board, and all apparatus functioned satisfactorily, except for the failure of a H.T. bushing on the 110 kv. O.C.B., which caused an interruption to service for 17 minutes.

Woodville.—As listed under construction, this switching-station has been extended during the year.

All apparatus has operated well throughout the year, except for the failure of a rotating insulator (hollow type) of an air-break switch.

Dannevirke.—At this substation, which feeds the Dannevirke Power Board, all apparatus functioned satisfactorily throughout the year, no interruptions being caused by faults in the equipment.