

Masterton Substation.—An auto-transformer has been installed to reduce the L.T. voltage to normal when Waikaremoana is supplying power to the system.

Dannevirke Substation.—The 1,500 kv.a. synchronous condenser and its control equipment have been erected and put into service.

A spare 1,000 kv.a. transformer has been purchased for this station, and after drying out has been put into service. The original 1,500 kv.a. transformer has been removed to Marton Substation, and will be replaced by the one ordered for that station when same comes to hand.

The new O.C.B. has been received on site, and erection will be put in hand at an early date.

Waipukurau Substation.—The 110-volt battery and charging-set for this station have been erected, a battery-house being erected separate from the main substation building.

The new O.C.B. has come to hand, and will be erected as soon as staff for this work is available.

Napier Substation.—New switch-gear has been purchased for this station, and is now in course of erection. The O.C.B. for the Mangahao transmission-line is ready for service, while erection of the two O.C.B. air-break switches and steelwork for the Waikaremoana lines is nearing completion. For the latter lines two oxide-film lightning-arresters have been erected.

Erection of the 4,500 kv.a. synchronous condenser has been completed, and this machine is operating satisfactorily when required.

A battery-room has been erected and a 110-volt battery and charging-set installed.

A well has been sunk in the station-grounds and a pumping plant installed to give a permanent water-supply.

Wanganui-Stratford Transmission-line.—A survey party is at present engaged on the location of this line, and approximately seventeen miles have been pegged.

Stratford - New Plymouth Line (50 kv.).—The survey of this line has been completed, and construction will be put in hand as soon as poles come to hand from Australia. Delivery of these poles has been held up owing to the timber strike in that country.

This line, which will ultimately be an extension of the Wanganui-Stratford line, and part of the Main North Island transmission system, will be leased to and operated by the New Plymouth Borough Council for power-supply from the Tarihi Station until such time as the Department is able to give supply from the Mangahao-Waikaremoana system.

LOAD.

The rainfall during November, December, and January was insufficient to meet the demands on the station, and it became necessary to call on auxiliary plants for relief.

At the end of January, 1929, the Waikaremoana Station commenced supplying power to the Mangahao system with one 20,000 kv.a. generator. During the early stages of operation at that station many minor troubles were encountered, which made it inadvisable to dispense with the services of the auxiliary plants immediately. These troubles have now been overcome, and with the approaching completion of erection of the second unit at Waikaremoana it is anticipated that ample power will be available to meet all demands for some time to come.

The maximum load on the station for the year was 20,960 kw., and the maximum number of units generated per week 2,505,380. Both these figures occurred early in the year, before the Waikaremoana Station was in operation, and indicate that the Mangahao Station was overloaded both on plant capacity and on units generated. In the latter case the overload was 55 per cent. The maximum load on the combined Mangahao-Waikaremoana system is now in the neighbourhood of 36,000 kw.

Since Waikaremoana Station has come into operation Mangahao has fulfilled its duties as a peak-load station, Waikaremoana being operated on as near a 100-per-cent. load-factor as possible, and Mangahao supplying the extra power required at times of peak load. The high load-factors obtaining up to the beginning of the year will therefore not be reached again except under emergency conditions. This condition of operation will enable the most use to be made of the available water in the Mangahao dams.

The results of operation are given in Table IX, and the connected load in Table XII. The connected load is now 211,303 kw., against 170,068 kw. for the previous year, an increase of 24 per cent.

WAIKATO ELECTRIC-POWER SUPPLY.

CAPITAL OUTLAY.

The total capital outlay at the end of the year on assets provided under the Horahora scheme, together with assets provided under the Arapuni scheme and operated to supply power from Horahora and auxiliary plants, was £1,128,036, not including stocks of £14,310. This is an increase during the year of £154,863.

As is shown in Table XXII herewith, the principal items making up the increase are the Diesel plant at Penrose, and the 50,000-volt transmission-line from Ngongotaha to Opotiki, together with increases in the items "Interest during construction" and "Cost of raising loans," which increases represent the proportion of these costs chargeable against the Arapuni assets in operation.

The increases in these items have been incurred over a period of some years, and are now for the first time included in the assets on which interest has to be charged against operating revenue.

FINANCIAL RESULTS OF OPERATION AND FUTURE PROSPECTS.

The year ended with a loss, after allowing for all working-costs, interest, and depreciation, of £15,291, as compared with a profit last year of £6,176. Annual revenue increased from £125,312 to £135,511; working-costs increased from £46,568 to £76,231; gross profit decreased from £78,744 to £59,280; capital charges increased from £72,568 to £74,571. No payment to sinking fund is being made this year.