

An arrangement was entered into during the year with the Auckland Electric-power Board to give them 2,000 h.p. from Horahora in advance of the power-supply from Arapuni, which cannot be given until 1928, and the construction of the necessary transmission-line for this purpose is in hand, together with the necessary extension at Horahora, consisting of two units each of 2,000 kw., to supply this and the normal extensions to the demand in the Waikato.

The arrangement with the Grand Junction Company to utilize their steam plant at Waihi as standby has proved very useful on several occasions during the year, and enabled the supply at Waihi to be maintained during the annual shut-down for the overhaul of the transmission-line.

WAIKAREMOANA ELECTRIC-POWER SUPPLY.

The main plant for Waikaremoana is designed for 40,000 h.p., capable of extension to 60,000 h.p. at the one site, and up to 130,000 h.p. in three power-stations. But the most urgent necessity was for about 500 kw. to supply the Wairoa Borough and freezing-works. This was provided by installing in a temporary power-house the two ultimate exciters for the main power plant, each consisting of a 500 h.p. pelton wheel coupled to a 500 K.V.A. synchronous motor used as a generator in the meanwhile, and a 350 kw. direct-current generator. This plant was put into service in December, 1922, and is giving satisfaction, thus rendering the industries of Wairoa independent of the fuel-supply.

MANGAHAO ELECTRIC-POWER PLANT.

The construction of this work is making substantial progress. On No. 1 tunnel, a length of 81 chains, excavation has been completed, and concrete lining carried for a quarter of the length. No. 2 tunnel is 1 mile 28 chains in length, and excavation is complete here also, while approximately 27 chains of lining has been done. The excavation and lining of the By-pass tunnel is completed. The Mangahao and Arapeti dams are under construction, and good progress has been made in spite of considerable difficulty and damage owing to numerous floods. The surge-chamber excavation has been completed, and concrete lining is in hand. Pipe-line excavation is completed, and the majority of the pipe-supports placed in position. The power-house construction is now well in hand, and although it has been delayed by shortage of carpenters it is hoped to have the building sufficiently advanced to enable the erection of the machinery to be commenced about November. The surveys of the transmission-lines to Wellington, Marton, Dannevirke, and Masterton are completed, and the survey parties are now working from Dannevirke towards Napier, and erection is making substantial progress.

In view of the early completion of this plant, it has been necessary to negotiate the supply contracts with the Wellington City and the seven Power Boards which have been formed to undertake the distribution of the power. This scheme is being installed to its full capacity of 24,000 K.V.A. at once, and it is necessary to obtain the greatest possible output from the start in order to ensure financial success.

The greatest demand—probably 12,000 K.V.A.—will come from Wellington City, and the balance of the power is being reserved for the Power Boards. But in order to ensure its utilization and its distribution over the widest possible area guarantees are being asked from each Board, dependent upon the reservation of power capacity required for the district concerned.

It is recognized that it will take some years to build up a load in each district to the amount required to be reserved, and the full guarantee is therefore not required until the fifth year, proportionately smaller amounts being required to be guaranteed for the earlier years. Under these conditions only two of the Boards have accepted their full allocation, three have accepted guarantees based on reduced allocations, and two others are not yet prepared to accept any guaranteed allocation. Out of the 24,000 K.V.A. power-house capacity there are still 5,250 K.V.A. available for allocation. This power will, of course, be given to the first district within reach of the mains that is in a position to give a guarantee to take the power actually available, and with this object in view arrangements are being made to extend the mains to Napier and Wanganui in order to reach a wider market.