

WAIKAREMOANA POWER PLANT.

A small plant has been installed by the Department at Waikaremoana for the supply to Wairoa Borough Council, and in anticipation of our requiring power for construction purposes on the main scheme of development. This plant has been leased to the Wairoa Power Board, and has been operated by them during the year. The results have been very satisfactory in supplying the needs of the Wairoa district and in building up a load in that district in anticipation of a larger development. The plant has a capacity of 700 kw., and the maximum load reached during the year was 555 kw.

The financial results, considering the plant simply as an operating-station, are not very satisfactory, but, as the plant is really an advance portion of the larger scheme of development at Waikaremoana, the capital investment is considerably greater than would have been necessary if the scheme had been put in purely for its present purpose of supplying power to the Wairoa Power Board. The capital outlay is £77,148. Capital charges (interest and depreciation) amounted to £5,574, and the revenue to £2,100, giving a loss of £3,474 for the year.

GOVERNMENT SCHEMES UNDER CONSTRUCTION.

MANGAHAO ELECTRIC-POWER SUPPLY.

Construction work on the tunnels, dams, pipe-lines, and power-house building have been carried well on to completion during the year, as more particularly described in the report of the Engineer-in-Chief. Close attention has been paid to the excavation of foundations of the dams, and modifications made to designs as occasion arose to meet the particular conditions disclosed during construction. Some delay was experienced in the completion of the power-house building, so that we were unable to commence the erection of the power-house plant until February of this year, and then work was carried on under difficulties owing to the restricted space available due to the necessity of completing building operations at the same time. Nevertheless satisfactory progress has been made with the erection of all sections of the plant, and it is anticipated that two of the main units of the plant (12,000 K.V.A.) will be ready for operation by the end of October, 1924.

A large amount of work has been done on the erection of the transmission-lines radiating from Shannon to Wellington, Wanganui, and Napier. About 200 miles of transmission pole-line, and 160 miles of telephone-line, were erected during the year. Some delay was experienced in the delivery of the steel towers for the rough cross-country sections between Paekakariki and Wellington, between Ashhurst and Woodville, and in the Ruamahunga Gorge. The Paekakariki-Wellington section has now been completed, and the others are in hand. About 30 miles of tracks have been formed to give access to various sections of the lines, and over six hundred gates erected to facilitate patrol on the cross-country sections.

A contract has been let for the erection of the main substation building at Khandallah to supply Wellington, but progress has not been satisfactory, and the installation of plant at this point has been held up somewhat accordingly. The building is now almost complete, and the erection of the plant is well in hand. It is anticipated that we shall be able to supply power from this substation early in December, 1924.

Contracts have been let for other substation buildings at Bunnythorpe, Masterton, Mangamaire, Dannevirke, and Waipukurau. The plant for these substations is now coming to hand, and erection will commence shortly. It is anticipated that power will be available at Bunnythorpe in January, 1925, and at the other substations at successive intervals of about one month thereafter. Surveys for extensions from Marton to Wanganui, and from Waipukurau to Napier, are in hand, and most of the material for these lines and substations has been ordered.

Most of the Power Boards which are to take power from Mangahao are well forward with their reticulation work, and will be in a position to provide a substantial load as soon as power is available at their respective substations. Practically the whole of the available power from Mangahao has now been definitely allocated, and guarantees of revenue have been received from the Wellington City Corporation and the various Power Boards. The guaranteed revenue is equivalent to the full output of the power-station in five years, but there are indications that the load that will be developed will necessitate the provision of additional power even before that date.

ARAPUNI ELECTRIC-POWER PLANT.

In anticipation of a contract being let for this work, considerable progress has been made on access roads and bridges, and on preparation of a village-site. These works are more particularly described in the report of the Engineer-in-Chief. During the year plans and specifications were prepared and tenders invited for the construction of the first instalment of the main plant, to consist of three units each of 15,000 k.w. capacity. In response to the invitation of tenders, several British firms sent out expert engineers to investigate the proposals on the ground and to submit tenders. Three complete tenders were received for Section 1 (dam and headworks), and four complete, and several partial tenders for Section 2 (power-house building and plant). Owing to the complexity of the work, particularly Section 2, the tenders received were very bulky documents, and a large amount of work was involved in analysing and comparing the different proposals. The successful tenderer in each case was Sir W. G. Armstrong, Whitworth, and Co. (Limited), at a total price for the two sections of £1,170,891. In view of discussion and criticism of this scheme which has taken place from time to time, it is satisfying to know that the various experts who investigated it in connection with these tenders were unanimous as to the natural advantages of the site. It is also satisfying to know that they could suggest no improvements on the Department's design of the scheme, and that the tender finally accepted was so close (within less than 1 per cent.) to the Department's estimate of the cost of the work.