

HYDRO-ELECTRIC DEVELOPMENT.

In the Public Works Statement of last year there was presented a table showing an approximate programme of development for the following six years. This provided for an expenditure of £964,000 for the year ended 31st March, 1924, and of about £1,000,000 per year for the following five years on extensions of existing schemes and on new developments. During the year a substantial advance was made on various portions of this programme. The total expenditure on extensions and new works amounted to £865,072, increasing the total capital invested by the Department on hydro-electric development from £2,170,100 to £3,035,172. This extra capital has been expended on the following main divisions:—

	£
Lake Coleridge	44,768
Horahora	79,795
Mangahao	682,310
Arapuni	57,707
Waikaremoana	497

As the Otago Electric-power Board had made arrangements to deal direct with the Dunedin City Corporation for a supply of power from the Waipori Station to supply their immediate needs, and as the Department is arranging to supply the Waitaki Power Board from the Coleridge system, the urgency for the proposed expenditure on transmission-lines in Otago has been reduced, and the proposed expenditure on this item has to some extent been put back.

MANGAHAO POWER SCHEME.

An expenditure of £682,310 has been made in connection with this scheme, and very substantial progress has resulted. The excavation and lining of the tunnels are nearly finished, the Tokomaru Dam has been almost completed, and, after many difficulties, the main dam on the Mangahao has been completed right across the stream and brought up to a height sufficient to allow water to flow through the tunnels. The power-house building, except for minor finishing details, is complete, and the erection of the machinery is well advanced. The main transmission-lines from Mangahao to Wellington, Hawke's Bay, Wanganui, and Wairarapa are well in hand, and substations are being built at Khandallah (for Wellington), Bunnythorpe, Mangamaire, Dannevirke, and Masterton. Others will be put in hand at an early date.

It is now confidently estimated that power will be available at the power-station by the end of October, at Khandallah by the middle of December, 1924, at Bunnythorpe by the end of January, 1925, and at the other substations at short intervals thereafter.

Practically the whole of the power that can be made available from Mangahao has now been allocated to the various Power Boards which can be supplied from the substations under construction. These Boards have entered into guarantees to the Department to pay for the whole of the output of Mangahao Power-station (24,000 K.V.A.) within five years, and the indications are that the whole of the power available will be taken up in less time than that. Before this station becomes overloaded a start will have been made with the main Waikaremoana generating-station, which is the next link in the Department's general scheme of development for the North Island. At present the Mangahao scheme is carrying the capital cost of an excessive proportion of the main transmission system, making the capital cost appear excessively high in proportion to the installed plant capacity. As the scheme becomes fully loaded and connected up with Waikaremoana on the north, part of the capital cost of the transmission system and of some of the substations will have to be adjusted to the Waikaremoana system.

LAKE COLERIDGE POWER SCHEME.

An expenditure of £44,768 has been made on extensions to this scheme during the year. The plant has been built up to a capacity of 16,000 horse-power, which is the full capacity of the present tunnel and headworks. The original transformers, which were replaced by larger units, have been transferred to Timaru and to the Addington Substation.