

Canterbury, but we cannot allow our general policy of supplying power in what is considered to be the best interests of the country generally to be upset or modified by purely local considerations.

The Department's proposals for a general power-supply to Canterbury, Otago, and Southland provide for a main interconnected transmission system extending from Lake Monowai in Southland up through Otago and Canterbury to Christchurch, and linking up later with power sources farther north, probably on the Clarence River.

The nucleus of this scheme exists at present in the Government power-station at Lake Coleridge, with its transmission system to Christchurch, and to Timaru; in the Dunedin City Corporation's power-station at Waipori, with its lines to Dunedin and Mosgiel; and in the Southland Power Board's station at Lake Monowai, with its lines to Invercargill and Gore.

While the load at points between the main load centres at Invercargill, Dunedin, and Christchurch is comparatively small as at present, it is more economical to supply it by means of transmission-lines from existing stations than by building new power-stations, probably with further transmission-lines. In this connection £150,000 (£30 per kw.) would be a low capital cost for a hydro-electric generating-station of about 5,000 kw. capacity without allowing anything for transmission-lines that might be necessary to bring the power to the load-centre. For the same £150,000 capital cost a duplicate transmission-line of more than 5,000 kw. capacity could be taken 100 miles, and the cost of operation would be considerably less than the cost of operating the separate generating-station. Thus, so long as the existing stations have power available, and the intermediate load-centres are comparatively small, transmission from existing stations will remain the more economical method of supply until the existing sources reach the limit of economic development.

When the interconnected transmission system from Monowai to North Canterbury becomes loaded beyond the capacity of Lake Coleridge, Waipori, and Monowai, it will be necessary to develop further sources of power and to make them feed into the general system. Which scheme it will be most advantageous to develop next, depends partly on the relative cost of development of different sources, and partly on the magnitude of the growth of load, and prospective load, in different sections of the system. Beyond the duplication of Coleridge, and extensions at Waipori, further available power sources have not all been compared by the Department, but it is known that additional power can be developed in several places, including Lake Tekapo, the Waimakariri River, the Clarence River, the Teviot River, and the Waitaki River, while still further development is possible at Lake Coleridge, but until these schemes can be compared in detail no indication can be given as to which should be developed first.

In general, it might appear, on account of load in South Canterbury and North Otago being of medium dimensions at present, and at considerable distance from the existing sources of power, a development on the Waitaki or at Lake Tekapo should be the next to be undertaken. This would leave extra power available farther north for Christchurch from Coleridge, or farther south for Dunedin from Waipori. If, however, a much greater load than the capacity of Lake Coleridge were prospective in Christchurch, it would obviously be more economical, if the sources were, otherwise, of anything like equal value, to develop one of the sources farther north, such as Waimakariri. The time is opportune for investigation of the relative values of these different sources, and it is proposed to utilize some of the staff, released on completion of civil construction work at Mangahao in a few months' time for surveys in connection with this work.

#### POWER BOARDS.

The Power Board legislation was introduced in 1918 to set up new local authorities whose special business it would be to distribute and sell electric power to the consumers in their district. With the large programme of development which the Department has in front of it, it is felt that this portion of the electric-supply business could with advantage be handed over to bodies having direct interest in creating and increasing the load which it is essential the Government schemes must secure if they are to become profit-earning at an early date.