

The possibility of adding a generating-unit at Pukaki has been investigated, but the results show that the scheme would require the use of so much labour and material as to rule it out for the time being. The same effort put into the speeding-up of Roxburgh would be much more effective and very much more economical.

At *Roxburgh*, the site for the new 320,000 kW. station has finally been located at Tambllyn's Orchard and a start has been made on the actual construction. The investigations so far carried out have fully justified the decision to concentrate on the Clutha scheme rather than on the upper Waitaki project. The latter scheme still requires much more geological investigation and, for the same power output, the Waitaki project would need more than double the quantity of materials for the construction of the dam.

The initial installation of plant at Roxburgh is planned to be 160,000 kW., or half the final capacity, so that the remaining four machines can be added as the demand requires without involving any further major construction work. Without making provision for any special industries requiring large blocks of electric power, it is anticipated that the full capacity will be utilized by 1962, and this clearly illustrates the necessity for embarking upon such a large scheme at this stage. Carrying out the work in the normal way, it is estimated that, provided the requisite working force can be obtained, the project could be in operation by 1955, but the prospect of improving upon this date by suitable contracting procedure is receiving close attention by the Government.

At *Cobb*, satisfactory progress is being made in the construction of the dam and the extensions to the power-station. The new extension is planned to be almost twice the size of the present plant and, depending upon the arrival of the necessary generating equipment, is scheduled for operation in 1952. Endeavours have been made to expedite the delivery of this plant, and the supply of steel for the new penstock has been promised from Britain.

It is estimated that a further generating-station will be needed by 1956, and investigations in the Lake Rotoroa district are being pushed with the object of deciding upon a suitable scheme.

3. TRANSMISSION LINES

After the falling-off of supplies of steel from Australia, the Government took active measures to secure supplies for the fabrication of transmission-line towers, and the steel for the more urgent works is now assured. In addition, a contract for the supply of fabricated steel towers was placed in Britain. Under these circumstances, the prospects are much brighter for the proper expansion of the transmission system to cope with the increasing power demand.

Tower-erection is already in progress on the 220 kV. lines in the North Island and the first circuit is scheduled for completion in 1951 to coincide with the coming into operation of the generating equipment at Maraetai. Meanwhile, in the South Island, surveys of the 220 kV. and 110 kV. lines to transmit power from Roxburgh to Christchurch, Dunedin, and Gore are in progress, the general routes having been already decided.

Good progress is being made on the 66 kV. line linking the Nelson-Marlborough area with the main South Island power systems, and it is expected that the southern portion, taking supply to the Buller Electric-power Board, will be ready in 1952. The late delivery of materials has been the cause of some delay.

As supplies of Australian hardwoods are becoming increasingly difficult to obtain, alternative types of material must be found for future work.

4. SUBSTATIONS

Three major substations in the North Island at Otahuhu, Bunnythorpe, and Haywards are being built in connection with the transmission of power at 220 kV. Each of these stations is a major work in itself and good progress is being made. In the South