

Of the 229 vehicles, only 2 are less than five years old, 151 are from five to ten years, 65 are from ten to fifteen years; and 11 are more than fifteen years old.

One hundred and two new vehicles are on order. The position has deteriorated and will become untenable unless the new vehicles arrive early in the new year.

C. CONSTRUCTION

1. POWER-STATIONS

Arapuni.—No. 5 M.V. 24,000 kVA. generator was completed and was first put on commercial load on 10th October, 1946. This completes the ultimate development of the station with eight generating-units installed.

Karapiro.—Satisfactory progress was made on construction, and final arrangements were in hand at the end of the year for filling the lake and putting the first 30,000 kW. generator into service early in April. Work is proceeding on the erection of the second generating-unit.

Maraetai.—Road access was completed, and work is in hand on metalling and sealing. A temporary bridge, later to be submerged, was built over the Waikato River.

Work has proceeded on camps, service buildings, and the planning and erection of construction plant, including the installation of a sawmill to mill pines now growing on land that will later be submerged.

Substantial progress has been made in the Town of Mangakino which will provide housing for the workers on Maraetai, Whakamaru, and Waipapa.

Work is well under way driving a tunnel to divert the river while the dam is being built. A Bailey bridge has been erected to give access across the river.

A large quantity of generator and transformer equipment has arrived at Auckland for this station.

Whakamaru.—Investigations were continued throughout the year, test bores being drilled, shafts excavated, and surveys and geophysical tests made in order to determine the nature of the foundations for the dam and other structures.

Kaitawa (Waikaremoana Upper Development).—The tunnel was completed to the prescribed point and a shaft formed to the surface. The work of removing rock and rubble to allow the entry of lake waters is now in hand. Steel lining for one pressure tunnel is complete, and it is hoped that one penstock and one generating-set will be complete by the time the intake is ready.

Early in the year under review three 4 ft. diameter siphons were installed to draw water from Waikaremoana for the main and lower stations. By this temporary expedient Waikaremoana has been able to supply in advance nearly 200,000,000 units of power to the system.

The third main transformer was received, and all three have now been dried out and placed on pads outside. The installation of control panels, relays, &c., and switchgear is progressing steadily.

Tests were carried out on two main transformers and the spare, also on No. 7 stator winding. New relays for No. 7 unit were tested and the brake magnet for the overhead crane rewound.

Tuui (Waikaremoana Main Development).—Work in the main outdoor station has now been completed and all construction materials have been moved from the site.

The bulk of the alterations to the control-room have been completed.

Mangahao.—A set of line-protection relays was put into service. No. 5 machine was fitted with a set of new manganese-bronze turbine buckets, and a contract was placed for three further sets of similar buckets to complete the renewals for all five machines. A contract has been let for six 110 kV. oil circuit-breakers to replace those now having an inadequate rupturing-capacity.