Since the beginning of the present financial year the main transmission-line telephone circuits which entered the Addington Substation building at the southern end were deviated to the northern end, where a telephone-room had been provided in the construction of a two-bay extension to the substation building.

Arrangements are in train for the installation of an induction voltage regulator at the 33 kv. Substation at Stoddart's Corner.

Since the commencement of supply from Lake Coleridge Power-house serious breakdowns of the main telephone-lines have been experienced due to snowstorms. The inconvenience due to lack of inter-communication between stations was given prominence during the earthquake in the North Island, and, as a result, a set of wave lengths was decided upon for the electrical districts in both Islands, with the view of installing wireless stations. A test was carried out at and near the power-house at Lake Coleridge to determine the amount of interference experienced during reception, and the result of this preliminary test revealed that while satisfactory reception was impossible with the receiving-set used in or on the power-house building, reception was good at a distance of a quarter of a mile from the building.

To prevent outages and surges caused by branches of trees being too near the transmission-lines periodical inspection has been carried out. With the exception of two extensive plantations, the lines may be considered free from likely interference due to trees requiring attention.

The Springs–Ellesmere Power Board took over the Tai Tapu Dairy Co.'s reticulation on the 1st July, and the Tai Tapu, Lincoln, and the 3 kv. company's supplies from Stoddart's Corner Substation were transferred to the Power Board on Sunday, 12th July, 1931.

Weather and Rainfall.

The average rainfall over the lake area was 41·45 in. for the calendar year 1931, as compared with 25·18 in. for 1930.

At the power-house itself the rainfall for the calendar year 1931 was 34·91 in., while the fall for the previous year was only 22·05 in.

There was a heavy snowstorm on the 8th July, and the roads to the Harper, Acheron, and intake were impassable for several days. The snowstorm was followed by exceptional low temperatures. On the 12th July the amount of frost registered was 26·5 degrees, the lowest temperature recorded being 5·5° F.

WAITAKI RIVER SCHEME (ELECTRICAL SECTION).

The principal works which have been put in hand or completed during the year comprise the following :—

(a) Power-house Plant and Equipment.

(1) Erection of two 23,000 b.h.p. Francis turbines.
(2) Preparation for erection of two 16,666 kv.a. generators.
(3) Erection of 120-ton electric overhead-travelling crane.
(4) Completion of outdoor switching-station.
(5) Construction of transformer station and erection of associated switch gear.
(6) Erection of 7½-ton hand-operated stop log crane.
(7) Installation of auxiliary turbines 600 b.h.p.

(b) Transmission-lines and Substations.

(1) Completion of power-house–Glenavy main transmission-line.
(2) Power-house – Glenavy telephone-line.
(3) Construction of Timaru–Oamaru 110 kv. main transmission-line.
(4) Construction of Glenavy switching-station, including substation building.
(5) Extensions to Oamaru Substation, including installation of 110 kv. switch-gear and steelwork.

Lake Coleridge – Waitaki Interconnection.

Interconnection with Lake Coleridge supply was effected on the 28th June, 1931. The only maintenance work carried out during the year has been on the patrol of this power-house–Glenavy 110 kv. transmission-line (at present being operated at 66 kv.), and on the telephone-line which parallels it practically all the way from Waitaki to Glenavy.

Waitaki River Crossing.

The special crossing over the Waitaki River was completed and livened up in April, 1931.

Severe resonant vibration of the copper-weld conductors appeared on this crossing shortly after completion. These vibrations were most noticeable during periods of light transverse winds, particularly about sunrise and sunset, and during the night, and at times were sufficiently severe to vibrate the tower members to a very marked extent. Arrangements were then made for fitting of dampers on all six conductors, and periodical observations have been made for any further signs of vibrations, but no trouble has been experienced comparable with the severity of those which took place prior to the fitting of the dampers. Although vibration is still present to a slight extent, its destructive nature has been effectively checked. It is not possible to now detect the vibrations in the tower members.