

It is satisfactory to note that the largest item of increase is in the revenue from the four original Power Boards. New Power Boards other than Auckland—*i.e.*, Franklin, Waitomo, and Waitemata—also the Auckland Power Board, show large increases, while the revenue from mining companies shows a slight decrease (Table N).

The sum of the maximum loads of the four original Boards has increased from 4,532 kw. in 1925 to 5,521 kw. in 1926, and to 6,714 kw. in 1927.

EXTENSIONS DURING THE YEAR, AND FUTURE EXTENSIONS.

General: Additional Consumers and Connected Load.

During the year supply has been given at the following additional points:—

Consumer.	Point of Supply.	Date.
Waitemata Power Board	Takapuna	20th December, 1926.
”	Henderson	20th ” ”
Waitomo Power Board (from 50 kw. substation) ..	Hangatiki	24th February, 1927.

With the completion of the Penrose-Takapuna double circuit 50 kv. line, and of the 110 kv. pole line from Horahora to Hamilton, the system of lines supplied from Horahora consists of the following:—

Lines belonging to Public Works Department: 94 miles of 110 kv. line operated at 50 kv.; 193 miles of 50 kv. line, including 28 miles two-circuit line; 44 miles of 11 kv. line; also 16 miles of 50 kv. line belonging to Tauranga Borough Council.

Lines belonging to Power Boards and other local authorities (not including Auckland Power Board and Tourist Department, Rotorua): 801 miles of 11 kv. line; 488 miles of 3,300 v. line; 528 miles of 400 v. line.

The above are route-miles of lines, and are only approximate figures, owing to incomplete returns supplied by one of the local bodies (Tables K and L).

The connected load, not including Auckland, has increased from 41,448 kw. to 52,205 kw., or 26 per cent. (Table J).

The number of milking-machines supplied increased from 2,731 to 3,308, or 21·2 per cent. (Table M).

An alteration was made in the agreement for supply from Tauranga Borough whereby the amount of power they guarantee to supply was increased from 1,800 kw. to 2,200 kw. an hour for eight hours, and from 16,000 units daily to 20,000 units.

Towards the end of the year, the load increased considerably, and it became necessary to call on the Grand Junction steam plant to run from 1 p.m. to 9 p.m. on week-days, supplying a maximum of about 1,000 kw. Arrangements to purchase the Grand Junction plant were practically completed during the year.

The increase in maximum load has been as follows: Horahora Power-station, 11,400 kw. to 12,400 kw.; system, 11,860 kw. to 14,160 kw.

The diversity factor (exclusive of power supplied to Auckland and connected load in Auckland) is 4·1 this year, compared with 4·15 and 3·8 for the two previous years.

Extensions to Horahora.

During the year the new weir at Horahora was completed, with the three gates in it—Glenfield-Kennedy hand-operated Stoney sluice-gate, Boving automatic lifting-gate, and Ransome and Rapier automatic lowering-gate.

Additional switch-gear was installed at Horahora to connect to the Horahora-Hamilton-Penrose line, which supplies power to the Franklin, Auckland, and Waitemata Power Boards.

An additional transformer, 625 kv.a., 5000/11,000 v., was installed in parallel with the existing 938 kv.a. transformer to give increased supply to the Thames Valley Board, and was put in service on the 20th February, 1927.

The oil-store floor was concreted, and concrete stands made for oil-tanks.

Additional Transmission-lines.

The following lines were completed during the year: Horahora-Hamilton, 110 kv., put in service on the 18th July, 1926; Penrose-Takapuna, 50 kv., put in service on the 20th December, 1926 (one circuit only is in service). The first of these is a 110 kv. wood-pole line, and the second a double-circuit 50 kv. line, partly on narrow base two-circuit steel towers and partly on wood poles. The total number of towers is 300, including two special towers at the Greenhithe-Hobsonville crossing; and the number of poles 243.

Arapuni-Penrose Line (110 kv.).—Work has been in progress throughout the year on the Arapuni-Penrose double-circuit steel-tower 110 kv. line, with the following results: Special foundations, including concreted stubs, piled foundations, and floating foundations, 63 completed out of a total of 77; other stubs set, 424 out of 450; towers erected, 337 out of 527; towers wired, 41.

It is expected that this line will be completed in September, 1927. This line has been carried out as far as possible by co-operative contract. Under this system the average “man-hours” work for erecting a 70 ft. tower was reduced from 140 man-hours at the commencement to about 80 man-hours at present, while the best time on any one 70 ft. tower was 57 man-hours. A similar reduction