

The increase of £29,663 in working-costs is accounted for principally by the increase of £27,531 in the items "Operation and maintenance of auxiliary plants" (Diesel plant and Grand Junction plant) and "Power purchased in bulk."

The purchase of power from the Auckland Power Board, on account of the fire at Horahora, cost the Department about £4,750, and, while the total units generated by all plants increased by about 4,900,000, the condition of the river at Horahora caused a reduction in units generated there of about 9,400,000. The deficiency in supply from Horahora, as well as the increase in the total supply, had to be made up by increased output from the auxiliary plants, at much greater operating-cost.

While the loss this year has been greater than was anticipated, the delay in completion of Arapuni, combined with the growth of load, made inevitable either some loss or some restriction in the use and extension of electric supply. The purchase of the auxiliary plants was the only means of avoiding such restriction, and it has enabled both the Department and Power Boards to proceed with their extensions to new consumers. There is little doubt that the future advantages resulting from this course will more than compensate for the cost incurred.

The table given below is an analysis of the sources and amounts of revenue:—

Revenue from—	1926. £	1927. £	1928. £	1929. £
Large mining companies	16,476	16,150	16,091	15,767
Four original Power Boards (Cambridge, Central, Te Awamutu, and Thames Valley)	42,226	50,616	52,487	60,553
Additional Power Boards other than Auckland (Waitomo, Franklin, Waitemata, and Bay of Plenty) ..	504	6,173	18,198	28,303
Auckland Power Board	10,850	15,139	16,132	10,556
Hamilton Borough	6,205	6,888	7,452	7,821
Tourist Department, Rotorua	276	2,202	2,440	2,515
Other wholesale consumers	7,432	8,988	9,871	7,133
Miscellaneous	1,861	2,532	2,641	2,863
Total	85,380	108,748	125,312	135,511

This shows considerable increases from both the older and the newer Power Boards, and a drop in revenue from the Auckland Power Board, which Board has been buying any surplus power that has been available.

Future Prospects.

With the first unit at Arapuni coming into service in June, 1929, and the second in September, 1929, an ample supply of power is assured for the whole District. The first unit will enable the expensive auxiliary plants to be shut down, and, in addition, will supply a considerable part of the Auckland Power Board's load. The second unit will supply the remainder of the Auckland load. The revenue for the coming year will thus be much increased; but, as against this, almost the whole of the capital charges on expenditure incurred at Arapuni and on the transmission-lines and 110 kv. substations will be chargeable against revenue from the date the first unit starts. Thus it is to be expected that in the first year of partial operation there will be a considerable loss, which is estimated at £29,000, without provision for sinking fund. In the following year it is estimated that revenue will be sufficient to pay all charges, including sinking fund.

DESIGN WORK.

Designs and layout drawings were prepared by the electrical design office in connection with extensions at Penrose Substation; also drawings and specifications for substations at Waiotahi, Matamata, Huntly, Kerepehi, and Edgecumbe.

Consequent upon the advent of power from Arapuni, a complete recast of the layout at Hamilton No. 1 Substation was decided on, and complete drawings for a new building, including switch-rooms, battery-room, office accommodation, oil-filtering equipment, and blacksmith's shop were prepared and issued.

Specifications and design data were prepared in connection with the special towers required on the Hamilton-Huntly line.

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—Bay of Plenty Power Board; point of supply—Edgecumbe; date—30th June, 1928.

Supply was given on this date at 11,000 volts over the section of 50 kv. line Edgecumbe-Waiotahi, and thence over the Power Board lines to Opotiki.

The connected load, not including Auckland, has increased from 64,580 kw. to 77,121 kw.

The number of milking-machines supplied has increased from 3,559 to 4,398, electric ranges from 1,287 to 2,025, and electric water-heaters from 4,163 to 5,431.

The maximum load last year and this year has been as follows: Horahora—Last year, 12,400; this year, 10,300. System—Last year, 15,700; this year, 15,900.