	Year of Operation. 1916.	1919.
Maximum power required (kilowatts)	2,090	3,250
,, (horse-power)	2,801	4,360
Total annual cost—	£	£
Lake Coleridge	12,585	19,190
Gas plant	18,170	23,100
Steam plant	20,383	26,700
Oil plant	29,414	38,015
Cost per kw. per annum—		
Lake Coleridge	6·02	5·91
Gas plant	8·70	7·11
Steam plant	9·75	8·22
Oil plant	14·05	11·70
Cost per h.p. per annum—		
Lake Coleridge	4·47	4·40
Gas plant	6·48	5·30
Steam plant	7·27	6·12
Oil plant	10·48	8·72

Mr. Black concludes by stating, "It is plain from this investigation that the Government's terms for a bulk supply are so low that the Council could not possibly generate the same amount of energy under the same conditions of demand, in any type of fuel-using station, at a cost that would make the choice of source a matter of any hesitation."

The qualification made by Mr. Black as to conditions of demand should be borne in mind, as it suggests that under other conditions the relative positions may be altered.

It should also be noted that the Department's terms were only accepted after exhaustive inquiry and proof that there was a substantial advantage in accepting them. Mr. Black, in his report, raised the question of a stand-by plant, and insisted in its necessity in the case of long transmission-lines, though in the case of the Waipori plant most of the interruptions experienced have been due to failure of the wooden fluming at the headworks.

Every precaution has been taken by the Department against failure in the works now under construction. The pipe-line is in duplicate; there is ample margin of spare plant; the transmission-line is in duplicate, carried on separate poles, and erected for the most part along separate routes; the plant in the main substation, and also the cables between the substation and the Council's works, are in duplicate; and the water storage is sufficient to maintain a supply of 10,000 h.p. continuously for 200 days without any inflow whatsoever.

It has generally been recognized that a local stand-by plant is desirable in case of long transmission-lines: the difficulty has hitherto been that no previously existing form of fuel plant could be considered satisfactory for this purpose. A steam plant to be of any use as stand-by must be kept under steam, involving attendance, fuel-consumption, and as much repairs and depreciation as if in full operation, and the same applies, though to a less extent, to a gas-engine plant. We have now, however, the benefit of a new invention—viz., the oil-engine—which is admirably adapted as a stand-by plant: it consumes no fuel when not at work, and it can be started up in a few minutes. It is true that the cost of oil renders the comparison with steam or gas unfavourable for long continuous service, but this disability does not apply when the plant is used for stand-by purposes.

The principle of employing oil-engines as auxiliaries in conjunction with water-power plant as a cheap method of supplying intermittent demands in excess of the capacity of the water-power plant has been adopted by the Department; the plant so provided can be utilized for stand-by purposes.

Negotiations are now proceeding with the Christchurch Tramway Board on the same basis of price as the City Council, but the conditions are very different, because the Board is equipped with an up-to-date steam plant, capable of supplying their whole requirements for a long time to come, consequently the margin or balance of advantage in favour of the bulk supply from Lake Coleridge is less, because interest and sinking fund have to be paid on the existing investment in plant and buildings; nevertheless it is hoped that mutually satisfactory arrangements may be arrived at.

There is an insistent demand for power from local authorities and power-users outside the limits of Christchurch, which we hope to satisfy in the course of the first year of operation, after which the duty of supplying power to other districts in the Canterbury Province will be entered into.

A supply to the Government workshops at Addington is also under consideration, when it is hoped that it will be used not only for running the workshop tools but also for steel-making or steel-refining.

It has been evident during the progress of the works now in course of construction that successful results could only be obtained by placing the works in sole charge of an engineer who would devote his whole time to organizing the work with a view to economy and rapid completion of the same. Mr. Lawrence Birks, B.Sc., A.M.I.C.E., M.I.E.E., has now been appointed to this position. He will also carry out the duties pertaining to the local management of the undertaking as a business concern.

Electric Light and Power Licenses.

Licenses under the Public Works Act have been issued to the following local authorities and companies: Opotiki Borough Council, Hastings Borough Council, Napier Borough Council (amending regulations), Wellington Steam Ferry Company, Wairoa Borough Council, Mataura Borough Council (extensions), Acetone Illuminating and Welding Company, Thames Borough Council, Ngaruawahia Town Board, Hastings Borough Council (amending regulations), Silver