It appears, therefore, that the cost of the hydro-electric plant at Arapuni should not cost more than £20 per horse-power of plant if the scheme is to be economically successful; also that the expenditure on transmission-lines should for the same reason not exceed £20 per horse-power of plant. The aggregate expenditure should therefore not exceed £40 per horse-power of plant.

(39)

The Lake Coleridge plant has already cost £45 per horse-power of plant installed, or approximately double the estimated cost of £23, and it appears to be necessary to provide a stand-by steam plant in Christchurch.

(40)

The proposed Arapuni hydraulic works are admittedly more expensive than those at Lake Coleridge, and the transmission-lines required will be at least twice as long. It will also be necessary either to duplicate the transmission-lines or to provide a stand-by steam plant in Auckland.

(41)

In view of these considerations, can it be expected that the estimated cost of the Arapuni scheme—£40 per horse-power of plant installed—will be realized?

(42)

Is it not more probable that the estimates will be largely exceeded, perhaps doubled, as has been the case with the Lake Coleridge scheme?

(43)

Even if the estimate of £40 should be realized, it has been shown that current cannot be supplied in Auckland as cheap as the cost of generating by steam in the City Council electric station.

Some Interesting Comparisons.

The question now to be considered is, What effect will the Arapuni hydro-electric scheme, if carried out, have upon the business of the Auckland Gas Company (Limited).

This question has been already answered, as it has been shown that the City Council Electric Station is at present generating current cheaper than it can be supplied from Arapuni, except the hydro-electric current be supplied at a loss.

The capital expenditure of the Auckland City Council Electricity Department was £335,411 18s. at 31st March, 1917, and of this amount about one-third, or £109,927 5s., had been expended in machinery, transformers, &c. It is not clear that there could be any saving in future expenditure under this head. Even if steam-engines and boilers were not required, transformers would have to be provided, and it does not appear that engines and boilers can be dispensed with except the transmission-line be duplicated. Any such duplication would certainly add largely to the cost per horse-power of plant installed, and would have to be charged for in the price of current delivered to the Auckland power-station.

The following is an analysis of the costs per unit generated and sold by the City Council Electricity Department for the year ending March, 1917:—

	Price per Unit generated.		Price per Unit sold.	
	d.	d.	d.	d.
Generation of electricity—				
Coal	0·3389		0·4031	
Oil-waste, stores, and water	0·0132		0·0157	
Wages, generating-station	0·1050		0·1249	
		0·4571		0·5437
Repairs and maintenance—				
Buildings	0·0380		0·0452	
Engines and boilers	0·0429		0·0511	
Instruments and tools	0·0153		0·0182	
Dynamos, exciters, transformers	0·0042		0·0050	
Accumulators	0·00177		0·0021	
		0·10217		0·1216
Distribution of electricity—				
Wages, repairs, and maintenance of mains and meters		0·0749		0·0891
Public lamps		0·0185		0·0220
Management—				
Salaries and office charges		0·0721		0·0857
Special charges		0·0576		0·0684
Bad debts		0·0058		0·00688
Interest on loans		0·42384		0·5040
Depreciation		0·2618		0·31137
Sinking funds		0·06196		0·07368
Average cost		1·2958	(? *1·5357*)	1·82643