

	£
Cost of 40 locomotives at £2,000 each	80,000
Cost of 200 carriages (189 plus 11 spares and specials) at £900 each	180,000
Engine-sheds, repair-shops, with hydrants and ash-pits	20,000
Two turntables	1,200
Sidings and coal-wharves	6,800
Water-cranes and connections	2,000
Total	290,000

(b.) Capital expenditure in connection with electrification,—

Number of coaches at 29,000 train-miles per annum (half motors and half trailers)	168
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	£
84 motor-coaches at £2,000 each	168,000
Cost of 84 trailers (including wiring) at £1,000 each	84,000
Addition to existing sheds	10,000
Third rail and bonding running-rails (running-rails used as returns)	16,000
Low-tension cables	5,000
Total	283,000

This, of course, does not include the cost of substations, it being assumed that power is purchased from some outside source, as is done on the District Railway and North-eastern Railway.

As regards the rolling-stock, it is assumed in making these estimates that the trailers could be taken from the existing stock of carriages, and that one-half of the remaining carriages displaced could be used up elsewhere on the steam system and the remnant be written off at half their original cost. It is also estimated that one-third of the locomotives displaced could be used elsewhere, and the remaining two-thirds could be written off at half their original cost, while the engine-sheds, turntables, hydrants, &c., could be written off at half their original cost.

(c.) Capital expenditure to be credited to electrification,—

	Written off from Renewal Fund.	Transferred from Steam Lines.	Used for Electric Service.	To be wiped off.	Total.
	£	£	£	£	£
Locomotives	25,000	25,000	...	30,000	80,000
Carriages	23,000	47,500	75,500	34,000	180,000
Sheds	10,000	...	...	10,000	20,000
Turntables	600	...	...	600	1,200
Coal-sheds	1,000	...	...	1,000	2,000
Water-cranes	3,300	...	...	3,400	6,800
Total	62,900 (say 63,000)	72,500	75,000	79,000	290,000

The capital charges are probably the more difficult thing to estimate, as considerable numbers of estimates of operating-costs have been published, and we have the actual figures of electrical operation in England before us, although these have not been published. It is these capital charges which most electrical experts totally fail to properly appreciate, unless they have actual experience of the results obtained on electrified lines. In order, however, to prepare an accurate estimate of operating-costs for electric working it is necessary to carefully avoid making comparisons between two- and three-coach electric trains and nine- or ten-coach steam trains. Neglect of this renders a great many of the comparative figures between electric and steam working absolutely misleading. The more satisfactory way is either to specify the weight of the train or to give the figures per ton-mile. Assuming a train to weigh 200 tons, the figures given in our issue of the 19th January (page 8) will as a rule be found approximately correct for the conditions in the South of England.

	Steam Driving. d.	Electric Driving. d.
Fuel (coal at 10s.)	3.75	...
Driver's wages	2.25	0.8
Rolling-stock, maintenance, &c.	7.25	6.5
Superintendence	1.25	0.9
Permanent-way, electrical equipment, maintenance	...	2.0
Interest on additional capital, say	...	0.8
Total running-cost per 200-ton train...	14.5	11.0

This, it will be noticed, leaves 3½d. per 200-ton train-mile for power. The actual cost of this will, of course, depend on its source. If a thoroughly well-designed power-house be built by a railway company for its own needs, and gives 7,000 to 8,000 kilowatts output, it might be able to produce current at a price, including all costs and capital charges, of possibly 1d. or even ¾d.,