

NEW ZEALAND.

HYDRO-ELECTRIC DEVELOPMENT

YEAR ENDING 31st MARCH, 1940.

EXTRACT FROM THE PUBLIC WORKS STATEMENT.
BY THE HON. R. SEMPLE, MINISTER OF PUBLIC WORKS.

HYDRO-ELECTRIC DEVELOPMENT.

The operation of the Government hydro-electric installations continues to be most successful, and the financial results for the year under review were again very satisfactory.

Operating Results.

North Island System.—The plants at Arapuni, Waikaremoana, Mangahao, and Horahora have been fully operated throughout the year. Some assistance from various local plants—principally the King's Wharf Station, Auckland, and the Evans Bay Station, Wellington—was necessary during the autumn and winter months to meet the ever-increasing demand for power.

The result of the year's operation was as follows :—

Capital investment at end of year	£
Revenue	10,429,240
Operating-expenses	1,328,499
	368,015
Balance	£960,484

The balance has been used in paying £345,207 for interest, £15,477 to the Depreciation Reserve to bring it up to the statutory limit of 12½ per cent. of capital, and £418,552 to bring the Sinking Fund up to statutory requirements. The balance of £181,248 has been transferred to Reserve Fund.

The Reserve Accounts established in connection with this scheme show that £1,081,075 has been credited to Depreciation Reserve, £1,159,820 to Sinking Fund, and £181,248 to the Reserve Fund.

South Island System.—The plants at Lake Coleridge, Waitaki, Monowai, and Arnold River have also been operated successfully. Throughout the year it was found practicable and necessary to carry out extensive maintenance-works and to effect minor alterations to the two latter plants which, before being taken over by the Government, were constructed and controlled by local authorities.

The year's operations resulted as under:—

Capital investment at end of year	£
Revenue	6,936,918
Operating-expenses	613,612
	174,959
Balance	£438,653

The balance has been used in payment of £246,919 for interest, £124,931 to the Depreciation Reserve, and £66,802 to the Sinking Fund.

The various Reserve Accounts established in connection with this scheme show that £755,026 has been paid to the Depreciation Reserve, £417,604 to Sinking Fund, and £87,199 to Reserve Fund. There is still a deficiency of £252,671 as against the statutory requirements of Sinking Fund.

Summarized Position: Percentage earned on Operating Capital after paying Working-expenses.

	Average Operating-capital.	Gross Revenue.	Working-expenses.	Net Balance.	Percentage Net Balance to Operating-capital.
	£	£	£	£	Per Cent.
North Island system	9,305,621	1,328,499	368,015	960,484	10·3
South Island system	6,707,293	613,612	174,959	438,653	6·5
Totals	16,012,914	1,942,111	542,974	1,399,137	8·7

The general position to date is that the Electric Supply Account has been able to meet all operating and interest charges, has provided the statutory requirement of £1,836,101 for depreciation, and, in addition, has provided £1,583,094 towards the statutory sinking-fund requirement of £1,835,764. In addition, £268,447 has been paid to the Reserve Fund from profits from time to time. In other words, the electric-supply system as a whole has paid all operating and interest charges and provided £3,687,642 in reserves, of which £1,079,348 has already been utilized for the paying-off of loans which formed part of the original capital. There are, however, still to be met arrears of sinking funds amounting to £252,671.

Construction.

The demand for electric power still continues to increase, and some difficulty has been experienced in meeting all requirements during the months of peak loading. However, work on additions to existing plants and on new installations is proceeding as rapidly as possible under present conditions.

At the main Waikaremoana Station the third unit of 20,000 kW. has been completed and is now operating, whilst work on the tunnel and other features of the new development scheme below the main station has been actively prosecuted.

At Arapuni, tunnels for the two additional 21,000 kW. units have been driven, and it is expected that the installation of the machines will be commenced during the current year.

A contract has also recently been let for control works at the outlet to Lake Taupo for the purpose of regulating the amount of water that may be available for power-generation at Arapuni and any other power-plant that may be built on the Waikato River.

Work is also proceeding on the new power-station at the Rakaiia River, which will use water from the Rangitata Irrigation Race.

Of the new 15,000 kW. units at Waitaki, one is practically completed and the installation of the other is well forward.

Necessary works in connection with additional transmission-lines and substations to meet increasing demands for power have been continued throughout the year. On the Cobb River construction work on a hydro-electric scheme was started by a private company for the purpose of providing power for industrial and general requirements in the Nelson, Motueka, and Golden Bay districts. However, the Government considered it advisable to take over the company's enterprise and to complete the development itself. Negotiations have been finalized, and this scheme will therefore be completed by the Government, and it is anticipated that it will be ready for operation within the next eighteen months.

The present unsettled conditions have caused a certain amount of delay in the supply of plant and materials from abroad, and it is still uncertain as to when receipt of some of the important plant items may be expected. The same difficulty of uncertainty in respect of supplies of materials has in recent months retarded the extension of the reticulation work carried out by the various distributing authorities. At present all applications for extensions must be reviewed and approved by the Electricity Controller appointed by the Minister of Supply, and in order to conserve materials for essential work it has been found necessary to require local authorities to defer in the meantime certain extensions which would have absorbed comparatively large quantities of material for services that could be reasonably met by some other means.

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 ELECTRIC SUPPLY ACCOUNT.—STATEMENT OF ACCOUNTS AT THE 31ST MARCH, 1940—continued.
 GENERAL BALANCE-SHEET—continued.
 AT 31st MARCH, 1940, AS COMPARED WITH POSITION AT 31st MARCH, 1939—continued.

Liabilities.	1939-40.			1938-39.			Assets.			1939-40.			1938-39.			
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
Brought forward				14,562,024	3	9	14,340,659	11	0	Brought forward						
Sundry Creditors—										Balance in Electric Supply Account at the end of year—						
North Island scheme	123,739	19	2				100,632	17	2	Cash in Public Account	50,887	1	2	7,000	5	9
South Island scheme	46,844	4	9				36,102	10	8	Imprests outstanding				8,926	5	2
Surveys and general		2	10	0										15,926	10	11
				170,586	13	11	136,735	7	10	Suspense Account						
Depreciation Reserve—																
North Island scheme	1,081,075	9	4				1,042,932	14	2							
South Island Scheme	755,025	15	10				637,799	5	1							
				1,836,101	6	2	1,680,731	19	3							
Sinking Fund—																
Amount utilized for redemption of loans Available for further redemptions	1,079,347	18	3				496,364	8	4	Stocks—Surveys and General						
	498,076	19	11				595,513	18	8					130	0	0
				1,577,424	18	2	1,091,878	7	0							
Reserve Fund—																
North Island scheme	181,248	2	9							Sundry Debtors—Surveys and General						
South Island scheme	87,199	6	0				87,199	6	0					5	0	0
				268,447	8	9	87,199	6	0							
Sundry credit balances—																
North Island scheme	781	7	2				9	8	11							
South Island scheme	1,508	12	1				1,744	11	7							
				2,289	19	3	1,754	0	6	Interest paid in advance						
Total				£18,416,874	10	0	£17,338,958	11	7					18	9	10
Contingent Liability.										Total				£18,416,874	10	0
Arrears of appropriation to Sinking Fund	252,670	11	5													

NOTE.—No charge for cost of exchange on interest payments made in London is included.

I hereby certify that the General Balance-sheet has been duly compared with the relative books and documents submitted for audit, and correctly states the position as disclosed thereby, subject to the departmental note enclosed thereon.—CYRIL G. COLLINS, Controller and Auditor-General.

J. W. SCOTT, A.R.A.N.Z., Chief Accountant, Public Works Department.

TABLE No. 5—continued.
 NORTH ISLAND HYDRO-ELECTRIC-POWER SUPPLY.
 PROFIT AND LOSS ACCOUNT FOR YEAR ENDED 31ST MARCH, 1940.

		Gross Revenue Account.								
		£	s.	d.	£	s.	d.	£	s.	d.
To Generating-expenses (hydro-electric)—										
Arapuni .. .. .	.. .. .	31,372	4	7	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
Horehoro .. .. .	.. .. .	6,412	12	4	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
Mangabao .. .. .	.. .. .	12,339	16	6	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
Tua .. .. .	.. .. .	11,590	2	6	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
Generating-expenses (fuel)—										
Penrose .. .. .	.. .. .	307	1	6	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
Waiki Grand Junction .. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
Huntly .. .. .	.. .. .	35	10	9	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
Purchase of power in bulk										
Standby charges .. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
Transmission and communication system: Patrol and maintenance										
Substations: Operation and maintenance .. .. .	.. .. .	231,009	10	2	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
Distribution: Maintenance .. .. .	.. .. .	31,775	14	3	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
System operation, testing, &c. .. .. .	.. .. .	34,422	10	0	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
Management and general expenses .. .. .	.. .. .	2,048	16	4	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
Balance, to Net Revenue and Appropriation Account .. .. .	.. .. .	13,827	6	2	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
		54,930	17	3	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
		960,484	8	3	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
		£1,328,499	2	5	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
By Sales of electrical energy—										
Bulk for resale .. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
Other than for resale—	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
Traction .. .. .	.. .. .	5,108	15	0	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
Industrial .. .. .	.. .. .	43,919	7	2	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
Retail .. .. .	.. .. .	3,015	9	1	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
Rents—	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
Land and buildings .. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
Lines and plant .. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
Miscellaneous revenue .. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
		52,043	11	3	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
		1,316,649	4	5	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
		£1,328,499	2	5	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .

		Net Revenue and Appropriation Account.					
		£	s.	d.	£	s.	d.
To Interest (gross) for year ended 31st March, 1940		364,664	5	7	.. .. .	.. .. .	.. .. .
Less interest capitalized		19,456	19	3	.. .. .	.. .. .	.. .. .
Depreciation on completed works		345,207	6	4	.. .. .	.. .. .	.. .. .
Sinking Fund		15,476	15	10	.. .. .	.. .. .	.. .. .
Reserve Fund		418,562	3	4	.. .. .	.. .. .	.. .. .
By Balance from Gross Revenue Account		181,248	2	0	.. .. .	.. .. .	.. .. .
		£960,484	8	3	.. .. .	.. .. .	.. .. .
		£960,484	8	3	.. .. .	.. .. .	.. .. .

TABLE No. 5—continued.
NORTH ISLAND HYDRO-ELECTRIC-POWER SUPPLY—continued.

		£		s. d.		By Balance from previous year's statement		£		s. d.	
To Replacements, Renewals, &c.	..	..	..	..	..	..	..	..	..	..	..
Balance ..	..	..	..	..	..	..	..	..	..	..	..
				19,051	6 10	..	..	..	..	..	..
				1,081,075	9 4	..	..	..	..	..	..
				£1,100,126 16 2		..	..	..	..	..	..
				£1,100,126 16 2		..	..	..	..	..	..
				£1,100,126 16 2		..	..	..	..	..	..
				£1,100,126 16 2		..	..	..	..	..	..

Sinking Fund Account.

		£		s. d.		By Balance at close of previous year		£		s. d.	
To Balance ..	..	..	..	..	..	..	..	..	..	..	..
				1,159,820	3 11	..	..	..	..	..	..
				£1,159,820 3 11		..	..	..	..	..	..
				£1,159,820 3 11		..	..	..	..	..	..
				£1,159,820 3 11		..	..	..	..	..	..

Reserve Fund Account.

		£		s. d.		By Amount set aside as per Net Revenue and Appropriation Account		£		s. d.	
To Balance ..	..	..	..	..	..	..	..	..	..	..	..
				181,248	2 9	..	..	..	..	..	..
				£181,248 2 9		..	..	..	..	..	..
				£181,248 2 9		..	..	..	..	..	..
				£181,248 2 9		..	..	..	..	..	..

TABLE No. 5—*continued*.
 NORTH ISLAND HYDRO-ELECTRIC-POWER SUPPLY—*continued*.
 BALANCE-SHEET AT 31ST MARCH, 1940.

	£	s.	d.	£	s.	d.	Assets.	£	s.	d.	£	s.	d.		
<i>Liabilities.</i>															
Depreciation Reserve			Hydro-electric plants—	2,646	143	19	2				
Sinking Fund—			Arapuni	328	466	3	8				
Utilized for redemption of loans			Horahora	1,404	321	18	3				
Available for further redemptions			Mangahao	704	747	8	7				
Reserve Fund			Waikaremoana					5,087	679	9	8
Sundry creditors—							Fuel-plants—								
Public Works Department	..			32,717	15	11	Penrose	65,431		7	8				
Other Government Departments	..			2,382	12	1	Waiki Grand Junction	8,798		10	8				
Non-departmental			88,639	11	2	Huntly	11,412		1	11				
Sundry credit balances			Transmission-lines and communication system								
Head Office Account			Substations .. .. .	..						
			Distribution system .. .. .	..						
			Offices, stores, land, buildings, &c.	..							
			Cost of raising loans .. .. .	..						
			Interest during construction—	..							
			On assets in operation	963,962		2	3				
			On assets not in operation	19,546		18	5				
			Works under construction								
			Plant, motor-vehicles, and tools	..							
			Stocks of materials .. .. .	..						
			Sundry debtors—	..							
			Public Works Department	6,709		10	6				
			Other Government Departments	4,735		17	3				
			Non-departmental	297,963		8	6				
			Sinking Fund investments .. .. .	..						
Arrears of appropriation to Sinking Fund	..			£11,042	140	4		..							
Contingent Liability.	..			£11,042	140	4		..							
Sinking Fund	..			£11,042	140	4		..							
	..			£11,042	140	4		..							

TABLE No. 5—continued.
SOUTH ISLAND HYDRO-ELECTRIC-POWER SUPPLY.
PROFIT AND LOSS ACCOUNT FOR YEAR ENDED 31ST MARCH, 1940.
Gross Revenue Account.

	£	s.	d.	£	s.	d.	£	s.	d.
To Generating-expenses (hydro-electric)—									
Lake Coleridge	12,608	3	5	..	..	..
Lake Waitaki	8,437	8	6	..	..	..
Kaimata	1,215	14	10	..	..	..
Monowai	7,709	0	4	..	..	..
Generating-expenses (fuel) Dobson	..	..	..	30,030	7	1			
Purchase of power in bulk	..	..	..	12,816	15	8			
Standby charges	..	..	..	337	16	11			
Transmission and communication system: Patrol and maintenance	..	..	..	43,184	19	8			
Substations: Operation and maintenance	..	..	..	17,281	2	1			
Distribution: Maintenance	..	..	..	20,671	17	5			
System operation: Maintenance	..	..	..	19,473	12	10			
System operation, testing, &c.	..	..	..	7,826	12	1			
Management and general expenses	..	..	..	66,521	8	7			
Balance, to Net Revenue and Appropriation Account	..	..	..	438,652	12	8			
				£613,612	5	4			
By Sales of electrical energy—									
Bulk for resale	..	..	..	..	..	..
Other than for resale—									
Traction	21,089	4	11	..	..	..
Industrial	79,340	15	4	..	..	..
Retail	96,689	10	4	..	..	..
Rents—									
Land and buildings	..	..	..	3,641	11	4			
Lines and plant	..	..	..	785	6	0			
Miscellaneous revenue	..	..	..	..	..	..
				197,119	10	7			
				589,893	10	4			
				£613,612	5	4			

Net Revenue and Appropriation Account.

To Interest (gross) for year ended 31st March, 1940	£	s.	d.	£	s.	d.
..	252,569	17	10	..	..	..
Less interest capitalized	5,651	0	0	..	..	..
				246,918	17	10
Depreciation on completed works	..	..	..	124,931	6	1
Sinking Fund	..	..	..	66,802	8	9
Reserve Fund	..	..	..	..	..	..
				£438,652	12	8
				438,652	12	8

TABLE No. 5—continued.
SOUTH ISLAND HYDRO-ELECTRIC-POWER SUPPLY—continued.

			<i>Depreciation Reserve Account.</i>						
	£	s. d.		£	s. d.		£	s. d.	
To Replacements, Renewals, &c.	33,216	13 8	By Balance from previous year's statement	..	637,799	5 1
Balance	755,025	16 10	Interest at 4 per cent. per annum	..	25,511	19 4
				£788,242	10 6	Amount set aside as per Net Revenue and Appropriation Account	..	124,931	6 1
								£788,242	10 6
<i>Sinking Fund Account.</i>									
To Balance	417,604	14 3	By Balance at close of previous year	..	350,840	10 0
						Interest	..	Dr. 38	4 6
						Amount set aside as per Net Revenue and Appropriation Account	..	66,802	8 9
				£417,604	14 3			£417,604	14 3
<i>Reserve Fund Account.</i>									
To Balance	87,199	6 0	By Balance at close of previous year	..	87,199	6 0
				£87,199	6 0			£87,199	6 0

TABLE No. 5—continued.
SOUTH ISLAND HYDRO-ELECTRIC-POWER SUPPLY—continued.
BALANCE-SHEET AT 31ST MARCH, 1940.

	£	s.	d.	£	s.	d.	Assets.	£	s.	d.	£	s.	d.
<i>Liabilities.</i>													
Depreciation Reserve	755,025	16	10	Hydro-electric plants—	..	..	..	..	..	..
Sinking Fund—							Lake Coleridge .. .. .	..	..	..	861,473	14	11
Utilized for redemption of loans	340,255	5	1	Lake Waitaki .. .. .	..	..	..	1,775,897	3	3
Available for further redemptions	77,349	9	2	Kaimata .. .. .	..	..	..	143,307	12	11
Reserve Fund	Monowai .. .. .	..	..	..	202,263	2	1
Sundry creditors—							Fuel-plants—						
Public Works Department	13,887	8	4	Dobson .. .. .	..	..	..	133,640	5	0
Other Government Departments	10,096	0	11	Lyttelton .. .. .	..	..	..	2,805	7	7
Non-departmental	22,860	15	6	Transmission-lines and communication system	..	..	..	..	..	..
Sundry credit balances	Substations .. .. .	..	..	..	..	..	..
Head Office Account	Distribution system .. .. .	..	..	..	..	..	..
				46,844	4	9	Offices, stores, land, buildings, &c.	..	..	..	..	..	..
				1,508	12	1	Cost of raising loans .. .. .	..	..	..	..	..	..
				5,996,991	6	6	Interest during construction—	..	..	..	..	..	..
							On assets in operation .. .. .	..	..	..	476,533	11	11
							On assets not in operation .. .. .	..	..	..	4,762	0	0
							Works under construction .. .. .	..	..	..	..	..	..
							Plant, motor-vehicles, and tools	..	..	..	..	..	..
							Stocks of materials .. .. .	..	..	..	..	..	..
							Sundry debtors—	..	..	..	..	..	..
							Public Works Department .. .. .	..	..	..	6,786	9	11
							Other Government Departments .. .. .	..	..	..	2,591	7	4
							Non-departmental .. .. .	..	..	..	111,646	18	0
							Sinking Fund investments .. .. .	..	..	..	..	..	..
				£252,670	11	5					..	..	..
				£7,305,174	0	5					..	..	..
<i>Contingent Liability.</i>													
Arrears of appropriation to Sinking Fund										
											481,295	11	11
											209,057	6	9
											6,936,918	1	11
											114,891	16	2
											121,872	6	8
											121,034	15	3
											10,547	0	5
											£7,305,174	0	5

CHIEF ELECTRICAL ENGINEER'S REPORT.

For full text of the above report, refer to Public Works Statement 1940, Appendix D, pages 64 to 82 inclusive.

REGISTRATION OF ELECTRICAL WIREMEN.

The statistics for the year ended 31st March, 1940, are set out below (the figures in parenthesis are for the previous year):—

Number of meetings	17	(18)
Registrations—		
Inspectors	38	(51)
Wiremen—		
Full registration	123	(115)
Limited registration	85	(97)
Provisional licenses	64	(34)
Temporary permits	18	(15)
Examinations—		
Wiremen's—		
Candidates—		
Written part	527	(449)
Practical part	355	(311)
Passed—		
Written part	180	(110)
Practical part	183	(164)
Highest marks—		
Written part	91	(89)
Practical part	93	(91)
Servicemen's—		
Candidates—		
Written part	113	(108)
Practical part	99	(82)
Passed—		
Written part	38	(54)
Practical part	60	(52)
Highest marks—		
Written part	89	(84)
Practical part	95	(91)
Defective work reports	51	(17)
Endorsements made	2	(3)
Endorsements removed	3	(3)
Breach of Act reports	59	(102)
Prosecutions authorized	36	(59)

INTRODUCTORY REMARKS CONCERNING TABLES PREPARED BY THE CHIEF ELECTRICAL ENGINEER.

For reasons of economy in paper, the usual number of tables is not being published for the year ended 31st March, 1940, Tables VI, VII, VIII, XII, XV, and XVI being omitted.

This edition contains :—

- | | |
|-------|---|
| Table | I.—P.W.D. System : Capital Outlay and Results of Operation. |
| „ | II.—P.W.D. System : Analysis of Capital Outlay. |
| „ | III.—P.W.D. System : Working-costs. |
| „ | IV.—Gross Financial Results, North Island System. |
| „ | V.—Gross Financial Results, South Island System. |
| „ | IX.—Populations, Consumers, Route-miles, &c. |
| „ | X.—Results of Generation and Distribution. |
| „ | XI.—Financial Results of Operation. |
| „ | XIII.—Derived Averages from Tables IX, X, and XI. |
| „ | XIV.—Ranges, Water-heaters, and Milking-machines. |

The statistics and information usually compiled under the headings "Local Electrical Supply Systems," "Broken Wires and Poles," "Growth of Load," "Electrical Accidents," and "Electrical Fires" have been condensed and summarized as follows :—

A. CONDENSED STATISTICS, 1939-40.

		1940.	1939	Increase or Decrease
(a) Installed generating-capacity (main stations)	kW	299,416	279,926	+19,490*
(b) Installed generating-capacity (standby)	kW	100,539	99,516	+1,023†
(c) Total connected load	kW	2,152,201	1,904,967	+247,234
(d) Consumers	No.	426,354	407,316	+19,038
(e) Units sold <i>per capita</i>	No.	837	744	+93
(f) Units sold per consumer	No.	2,877	2,722	+155
(g) Route-miles of main and distribution line	RM.	27,358	25,982	+1,376
(h) Consumers per route-mile	No.	15.58	15.68	-0.1
(i) Sales per route-mile	Units	46,784	42,677	+4,107
(j) Miles of conductor in service	Miles	134,603	126,097	+8,506
(k) Broken poles reported	No.	393	406	-13
(l) Broken wires reported	No.	1,197	1,513	-316
(m) Electrical fires reported	No.	25	23	+2
(n) Electrical accidents reported	No.	48	49	-1
(o) Electric ranges installed	No.	(10 fatal) 92,323	(17 fatal) 78,702	+13,621
(p) Electric water-heaters installed	No.	106,948	91,711	+15,237
(q) Electric milking-machines installed	No.	27,183	24,851	+2,332

* Includes new units at Tuai, Kalkoura, and Picton, but not new 1,000 kW unit at Wairua Falls put into operation subsequent to March, 1940
† Includes reconditioned 1,000 kW. set at Wanganui.

B. Summarized Results of Operations for Year ended 31st March, 1940.

		Water	Steam	Gas.	Oil.	Total
1. Number of main stations	No.	34(a)	1(b)		6(c)	41
2. Installed capacity (main plant)	kW.	298,129	750		537	299,416
3. Number of standby plants	No.	15(d)	10(e)	3(f)	23(g)	51
4. Installed capacity (standby plant)	kW.	3,688	77,150	1,101	18,600	100,539
5. Number of consumers	No.	421,907	3,549		898	426,354
6. Connected load	kW.	2,138,876	11,891		1,434	2,152,201
7. Units generated	No.	1,571,501,630	56,424,042	218,871	5,972,663	1,633,937,115
8. Units sold to consumers	No.			1,279,907,347		
9. Percentage of non-productive units	%			21.60		
10. Total operative capital (including distributing systems and standby plant)	£			39,273,242		
11. Total capital per kilowatt installed (including distributing systems, &c.)	£			98.29		
12. Annual working-costs	£			1,758,800*		
13. Annual working-cost per unit under section 8	d.			0.330		
14. Annual capital costs (interest, sinking fund, and depreciation)	£			2,662,803		
15. Annual capital cost per unit under section 8	d.			0.499		
16. Annual capital costs as percentage of capital	%			6.78		
17. Total annual costs (section 12 plus section 14)	£			4,421,702		
18. Total annual cost per unit under section 8	d.			0.829		
19. Total annual revenue (from retail sale of electricity)	£			4,999,112		
20. Average revenue per unit (from sections 19 and 8)	d.			0.937		
21. Gross revenue (excluding rates and bulk sales)	£			5,125,794		
22. Net profit (section 21 less section 17)	£			704,092†		
23. Ratio of working-costs to gross revenue (section 12 and section 21)	%			34.31		

* After deducting cost of power purchased in bulk. Account not deducted in previous summaries.

† After appropriation of £485,355 to Public Works Department Sinking Fund

NOTES:—

MAIN STATIONS.

(a) Hydro-electric: Arapuni, Horahora, Mangahao, Kourarau, Waikaremoana, Coleridge, Waitaki, Monowai, Arnold River, Golden Bay, Marlborough, Otago Central, Taranaki, Teviot, Waimea (2), Wairere, Dunedin, Queenstown, Raetihi, Ross, Taihape, Taunanga (2), Westport (h), Kaponga, Murchison, Kerikeri, Kanieri (2), Reefton, Wairua Falls, Westland Power, Ltd (2) Total, 34.
(b) Steam: Nelson. Total, 1
(c) Oil: Picton, Kalkoura, Uawa, Kohukohu, Reefton, Rawene Total, 6.

STANDBY PLANT

(d) Hydro-electric: Akaroa, Havelock North, Fairlie, Hawera, Oamaru, New Plymouth, Ohakune, Patea, Picton, Raetihi, Rotorna, Taumarunui, Te Aroha, Thames, Whakatane Total, 15.
(e) Steam: Huntly, Auckland, Wanganui, Christchurch, Dunedin, Invercargill, Nelson, Wellington, Portland, Westland Power, Ltd. (since transferred to Knapoi Woollen Co.) Total, 10.
(f) Gas: Palmerston North, Taihape, Westport (h). Total, 3.
(g) Oil: Penrose, Dobson, Hastings, Blenheim, Opunake, Gisborne, Hawera, Kohukohu, Motueka, Murchison, Oamaru, Dunedin, Palmerston North, New Plymouth (since transferred to Waiouru), Napier, Ohakune, Patea, Thames, Kanieri, Reefton, Queenstown, Westland Power, Ltd., Rangiora. Total, 23.
(h) Westport Borough since linked up for bulk supply from Denniston on 19th December, 1940.

TABLE I.—SUMMARY OF FINANCIAL AND OPERATING STATISTICS FOR NORTH ISLAND AND SOUTH ISLAND ELECTRIC-POWER SYSTEMS FOR THE YEAR ENDING 31ST MARCH, 1940.

NOTE.—“North Island system” includes Arapuni-Horahora-Mangahao-Waikaremoana all interconnected. “South Island system” includes Lake Coleridge-Waitaki-Southland-Arnold River (Westland) all interconnected.

	1939-40 (Sixth Year).		1939-40 (Sixth Year).
(a) Financial.			
(1) Capital outlay—		(4) Capital charges—continued.	
Assets in operation—	£	Depreciation—	£
North Island system	9,632,112	North Island system	15,477
South Island system	6,727,860	South Island system	124,931
Total assets in operation	16,359,972	Total capital charges for year	732,534
Assets not in operation—		(5) Total costs for year	1,275,508
North Island system	797,128	(6) Net profit for year—	
South Island system	209,057	North Island system	599,800
Total assets not in operation	1,006,185	South Island system	66,802
Total capital outlay	17,366,157	Total profit for year	666,602
(2) Revenue for year—		(7) Accumulated Depreciation Reserve—	
North Island system	1,328,499	North Island system	1,081,075
South Island system	613,612	South Island system	755,026
Total revenue for year	1,942,111	Total Depreciation Reserve	1,836,101
(3) Costs—		(8) Accumulated Sinking Fund—	
Working-costs—		North Island system	1,159,820
North Island system	368,015*	South Island system	417,605
South Island system	174,959	Total Sinking Fund Reserve	1,577,425
Total working-costs for year	542,974	Arrears in Sinking Fund payments not yet appropriated—	
(4) Capital charges—		North Island system	Nil.
Interest—		South Island system	252,671
North Island system	345,207	(9) Reserve Fund—	
South Island system	246,910	North Island system	181,248
		South Island system	87,199
		Total Reserve Fund	268,447

* Includes £35,304 standby charges

(Continued on next page.)

TABLE I.—SUMMARY OF FINANCIAL AND OPERATING STATISTICS FOR NORTH ISLAND AND SOUTH ISLAND ELECTRIC-POWER SYSTEMS FOR THE YEAR ENDING 31ST MARCH, 1940—*continued.*

NOTE.—“North Island system” includes Arapuni–Horahora–Mangahao–Waikaremoana all interconnected. “South Island system” includes Lake Coleridge–Waitaki–Southland–Arnold River (Westland) all interconnected.

		1939-40 (Sixth Year).				1939-40 (Sixth Year).	
(b) Operating Results.							
Maximum load (kilowatts)—				Revenue—			
North Island system		218,300		Per kilowatt (system maximum)—		£	
South Island system		76,160		North Island system		6.09	
Average load (kilowatts)—				South Island system		8.00	
North Island system		124,853		Per unit generated—		d.	
South Island system		42,198		North Island system		0.292	
Average load factor—		Per Cent.		South Island system		0.398	
North Island system		57.19		Per unit distributed—			
South Island system		55.41		North Island system		0.323	
Units output—		Units		South Island system		0.482	
North Island system		1,093,708,158		Per unit sold—			
South Island system		369,658,515		North Island system		0.325	
Combined		1,463,366,673		South Island system		0.489	
Units distributed—				Working costs—			
Units sold—				Per kilowatt (system maximum)—		£	
North Island system		981,288,359		North Island system		1.69	
South Island system		311,234,319		South Island system		2.28	
Combined		1,292,522,678		Per unit generated—		d.	
Units unsold (station auxiliaries, &c.)—				North Island system		0.0808	
North Island system		6,211,193		South Island system		0.1136	
South Island system		4,050,664		Per unit distributed—			
Combined		10,261,857		North Island system		0.0894	
Total units distributed, North Island system		987,499,552		South Island system		0.1375	
Total units distributed, South Island system		315,284,983		Per unit sold—			
Line losses—				North Island system		0.0900	
Transmission—	Units.	Per Cent.		South Island system		0.1394	
North Island system	105,450,911	9.64		Capital charges—			
South Island system	43,844,488	11.86		Per kilowatt (system maximum)—		£	
Combined	149,295,399			North Island system		1.65	
Distribution—				South Island system		4.85	
North Island system	757,695	0.069		Per unit generated—		d.	
South Island system	10,529,044	2.85		North Island system		0.0791	
Combined	11,286,739			South Island system		0.2414	
Total line losses, North Island system		106,208,606		Per unit distributed—			
Total line losses, South Island system		54,373,532		North Island system		0.0877	
				South Island system		0.2923	
				Per unit sold—			
				North Island system		0.0882	
				South Island system		0.2963	
				Total costs—			
				Per kilowatt (system maximum)—		£	
				North Island system		3.34	
				South Island system		7.13	
				Per unit generated—		d.	
				North Island system		0.1599	
				South Island system		0.3550	
				Per unit distributed—			
				North Island system		0.1771	
				South Island system		0.4299	
				Per unit sold—			
				North Island system		0.1782	
				South Island system		0.4357	

* Retail distribution losses in Southland area 23.78 per cent.

TABLE II.—ANALYSIS OF CAPITAL OUTLAY AS AT 31ST MARCH, 1940.

North Island System		South Island System.		Combined Totals
Headworks and power-stations—		Headworks and power-stations—		
Land, fencing, and roading—		Land, fencing, and roading—		
Arapuni	£ 110,842	Coleridge	£ 24,385	
Horahora	3,208	Waitaki	48,441	
Mangahao	72,130	Southland	12,226	
Waikaremoana	67,303	Arnold River (Kaimata)	1,456	
Headworks—		Headworks—		330,991
Arapuni	1,284,955	Coleridge	551,736	
Horahora	151,527	Waitaki	1,073,524	
Mangahao	846,314	Southland	86,816	
Waikaremoana	145,468	Arnold River (Kaimata)	107,132	
Lower development	320,220			4,567,692
Generating-station, buildings, and village—		Generating-station, buildings, and village—		
Arapuni	431,238	Coleridge	100,732	
Horahora	61,353	Waitaki	470,482	
Mangahao	176,735	Southland	43,184	
Waikaremoana	180,629	Arnold River (Kaimata)	8,617	
Generating plant and machinery—		Generating plant and machinery—		1,472,970
Arapuni	702,073	Coleridge	184,621	
Horahora	96,201	Waitaki	306,289	
Mangahao	169,071	Southland	60,037	
Waikaremoana	270,425	Arnold River (Kaimata)	26,163	
Auxiliary stations (three)—Penrose, Huntly, Grand Junction	81,309	Auxiliary station (one)—Dobson (ex Lyttelton)	136,445	1,844,820
Transmission and distribution—		Transmission and distribution—		217,844
Primary distribution—		Primary distribution—		
11 kV. lines	53,502	11 kV. lines	535,987	
33 kV. lines		33 kV. lines	59,002	
50 kV. lines	434,341	50 kV. lines		
66 kV. lines		66 kV. lines	626,099	
110 kV. lines	1,516,598	110 kV. lines	351,675	
Secondary distribution		Secondary distribution	318,995	
Substations—		Substations—		3,896,289
11 kV. substations	12,853	11 kV. substations		
33 kV. substations		33 kV. substations	29,659	
50 kV. substations	303,366	50 kV. substations		
66 kV. substations		66 kV. substations	411,973	
110 kV. substations	952,052	110 kV. substations	256,277	
General—		General—		1,966,180
General offices, garages, stores, and other accommodation	64,829	General offices, garages, stores, and other accommodation	21,572	
Telephone services	81,978	Telephone services	70,219	
Explorations and preliminary surveys; engineering, office, and general expenses; charges and expenses of raising loans	825,031	Explorations and preliminary surveys; engineering, office, and general expenses; charges and expenses of raising loans	531,939	
Interest during construction	983,509	Interest during construction	481,295	
Grand totals	10,429,240		6,936,918	3,060,372
				17,366,158

TABLE III.—OPERATING OR WORKING COSTS FOR YEAR ENDED 31ST MARCH, 1940.

	North Island System.				South Island System.			
	Cost.	Cost per Unit.			Cost.	Cost per Unit.		
		Generated.	Distributed.	Sold.		Generated.	Distributed.	Sold.
(a) Hydro stations	£ 61,724	d. 0 0144	d.	d.	£ 30,030	d. 0 0196	d.	d.
(b) Fuel stations	343				12,817	1 9949		
(c) Auxiliary stations, power purchased, and standby provision	168,943	0 6107			338	2 7674		
(d) Transmission and communications	231,010	0 0507	0 0561	0 0565	43,185	0 0280	0 0339	0 0344
(e) Substations	31,776	0 0070	0 0077	0 0078	17,281	0 0112	0 0136	0 0138
(f) Distribution	34,422	0 0076	0 0084	0 0084	20,672	0 0134	0 0163	0 0165
(g) System operations	2,049	0 0004	0 0005	0 0005	19,474	0 0126	0 0153	0 0155
(h) Management and general expenses	13,827	0 0030	0 0034	0 0034	7,826	0 0051	0 0062	0 0062
	54,931	0 0121	0 0134	0 0134	66,521	0 0432	0 0523	0 0530
	368,015	0 0808	0 0894	0 0900	174,959	0 11359	0 13754	0 13939

North Island System.

Units generated—

Hydro	1,027,311,195
Fuel	
Purchased	66,396,963

Units distributed

Units sold

	1,093,708,158
	987,499,552
	981,288,359

South Island System.

	368,087,262
	1,541,940
	29,313
	369,658,515
	315,284,983
	301,234,119

TABLE V.—SOUTH ISLAND ELECTRIC-POWER SYSTEM.—GROSS FINANCIAL RESULTS OF DISTRIBUTION OF ENERGY FOR THE YEAR ENDED 31ST MARCH, 1940.

Distributing Authority.	Number of Consumers.	Revenue.												Expenditure.						Balance.		No.
		From Sale of Electrical Energy		Rates.	Trading Account.	Other Sources.	Total.	Paid for Electrical Energy.	Working-costs and Management.	Interest.	Depreciation.	Sinking Fund.	Principal Repayment.	Exchange.	Other Expenditure.	Total.	Profit.					
		Retail.	Bulk (for Resale).														Appropriated to Reserves.	Unappropriated.				
		£	£	£	£	£	£	£	£	£	£	£	£	£	£	£	£	£	£			
<i>Lowland. S. P. Supply.</i>	11,531	28,064	504	17,531	17,531	17,531	17,531	17,531	17,531	17,531	17,531	17,531	17,531	17,531	17,531	17,531	17,531	17,531	27,395			
Public Works Department	11,904	6,936,917	402,774	523	13,196	613,612	174,621	246,919	124,931	68,803	529	—	—	—	613,612	67	3,135	1				
Ashburton Power Board	4,741	383,467	..	1,163	1,188	64,875	21,232	10,688	16,724	8,468	..	..	..	61,973	..	..	2
Bank Peninsula Power Board	1,105	105,068	..	..	2,042	17,941	5,541	4,297	3,825	2,278	109	..	..	17,477	..	..	3
Bluff Borough Council	582	7,263	..	386	164	6,131	1,337	276	..	265	..	..	..	4,812	..	84	4		
Christchurch City Council	33,599	1,030,666	15,702	1,828	530	321,514	169,125	12,094	28,003	3,393	..	..	..	305,257	1,235	12,607	5		
Dunedin City Council	30,841	1,812,246	12,795	45	2,155	302,350	25,682	77,086	45,213	38,995	..	..	..	238,702	32,913	80,735	6		
Grey Power Board	4,746	209,510	..	397	704	72,844	12,993	8,844	2,356	10,763	712	..	..	67,220	3,086	2,538	7			
Hearshe County Council	1,012	21,320	..	..	62	12,271	7,228	398	1,443	265	..	..	..	12,271	..	..	8
Invercargill City Council	6,873	161,450	113	..	1,850	56,086	22,120	4,216	1,066	..	..	..	..	45,981	10,105	..	9	
Lyttelton Borough Council	1,030	15,293	..	202	200	8,931	3,829	196	236	153	..	..	..	6,614	2,317	..	10		
Matvern Power Board	770	78,186	..	254	198	11,089	3,829	3,167	168	1,165	..	..	..	10,941	..	..	11
North Canterbury Power Board	3,287	247,358	4,612	216	1,162	43,025	16,668	10,019	8,114	4,402	963	..	..	40,467	336	2,222	12			
Riccarton Borough Council	1,745	31,243	..	166	166	14,037	8,348	369	57	400	..	..	..	12,643	1,394	..	13		
South Canterbury Power Board	5,298	377,801	23,972	763	3,242	78,890	38,952	14,775	13,478	7,966	..	..	..	76,495	2,395	..	14		
Springs-Ellesmere Power Board	2,860	173,568	..	119	755	41,910	10,397	6,208	1,101	3,516	132	..	..	39,813	..	2,097	15			
Summer Borough Council	1,181	17,281	..	23	..	7,658	4,144	286	..	114	..	..	..	7,220	..	..	16
Waitaki Power Board	4,826	222,501	..	2,782	980	51,555	21,640	8,516	1,028	3,687	1,294	..	..	49,606	71	1,878	17			
Sub-total of A	116,490	11,829,068	459,968	3,839	9,122	1,724,719	399,330	447,870	209,842	152,633	6,664	3,161	10,009	1,610,804	57,569	55,734	3,227					

B. RECEIVING SECONDARY POWER-SUPPLY THROUGH A.

Distributing Authority.	Number of Consumers.	From Sale of Electrical Energy		Rates.	Trading Account.	Other Sources.	Total.	Paid for Electrical Energy.	Working-costs and Management.	Interest.	Depreciation.	Sinking Fund.	Principal Repayment.	Exchange.	Other Expenditure.	Total.	Profit.		No.	
		Retail.	Bulk (for Resale).														Appropriated to Reserves.	Unappropriated.		
		£	£	£	£	£	£	£	£	£	£	£	£	£	£	£	£	£		£
		Kaipoi Borough Council (12)	546	13,703	3,858	..	222	5	4,085	1,876	1,921	271	..	167	3,635		227	223	1
Osago Power Board (1) (6)	4,942	344,492	..	24	150	..	54,927	15,812	9,570	13,268	..	3,626	1,706	49,746	566	5,157	2	
Rangora Borough Council (12)	793	10,806	..	..	381	2	7,585	2,736	176	292	..	123	..	..	6,244	..	775	3
Timaru Borough Council (14)	5,243	117,762	..	..	334	75	53,139	23,972	13,014	1,970	..	3,302	..	..	42,276	5,128	5,736	4
Waimaru County Council (1) (5)	3,985	77,277	..	25	..	69	28,601	16,050	4,894	1,198	..	1,449	..	..	28,314	262	..	5
Totals	131,999	12,393,108	460,011	3,888	10,209	26,939	1,873,056	459,776	479,194	397,578	220,416	161,300	8,370	3,161	11,224	1,741,019	63,752	67,624	3,227	

* The numbers appearing after the names of the subsidiary B class supply authorities refer to the A class supply authority from which main supply is received. Gross profit, £128,149; rates collected, £3,888; net profit, £124,261; ratio of working-expenses to revenue = 50.13 per cent.; ratio of capital charges to capital outlay = 6.38 per cent.

TABLE IX.—STATISTICS OF POPULATION, CONSUMERS, SYSTEM VOLTAGES, ROUTE-MILES OF LINES, ETC., FOR THE YEAR ENDED 31ST MARCH, 1940.
 I.—Independent supply (own generating-plant); B.—Bulk supply from another authority.
 G.N.—Government supply, North Island system; G.S.—Government supply, South Island system.

Supply Authority.	Source of Supply.	Year when supply commenced.	Population included in Area of Supply.	Number of Consumers.	Ratio of Consumers to Population in Area of Supply.	Generation.			Transmission.	Voltage.			Secondary Distribution (and System of Supply).	Distribution Transformers.		Route-miles of Lines.	Consumers per Route-mile of Line.	Units Sold per Route-mile of Line.	Static Head.	Street Lighting System.	No.
						11,000	6,000	5,000		Number.	Total kV.A.	Miles.		Number.	kVh.						
PUBLIC WORKS DEPARTMENT.																					
1. North Island system	I.	1921	..	419	..	{ 11,000 6,000 5,000 }	110,000	50,000	{ 11,000 3,300 }	400/230 A.C.	58	5,743	1,468	668,453	..	Ararua = 176 Horahona = 27 Mangahao = 896 Waikaremoana = 070 Coleridge = 480 Wairaki = 70 Arnold River = 62.5 Monowai = 154	..	..	..	1
2. South Island system	I.	1915	51,070	11,994	..	{ 11,000 6,000 }	110,080	56,000	{ 11,000 3,300 }	400/230 A.C.	1,730	35,927	3,300	91,647	..	..	..	..	..	2
Totals, P.W.D.																					
..	..	..	51,070	12,413	..	..	..	..	..	..	1,797	41,670	4,864	265,732.0	..	..	..	..	..	..
ELECTRIC-POWER BOARDS.																					
1. Ashburton	G.S.	1923	10,180	4,741	34.72	..	..	..	{ 11,000 6,000 6,000 11,000 6,000 3,300 }	400/230 A.C.	946	11,200	986	12,306	..	..	..	..	Series and Parallel	1
2. Auckland	G.N.	1908	209,630	64,435	30.74	6,000 (s)	22,000	..	{ 6,000 (s) 3,360 (s) }	400/230 A.C. 400/230 D.C.	1,082	69,403	1,255	183,779	..	..	..	..	Series and Parallel	2
3. Beaks Peninsula	G.S.	1921	3,600	1,105	30.69	..	33,000	..	{ 6,000 3,300 }	400/230 A.C.	195	1,769	217	11,805	..	310	..	..	Parallel	3
4. Bay of Islands	G.N.	1939	16,980	876	4.62	..	..	..	{ 11,000 6,350-1 ph. 11,000 }	400/230 A.C. 400/230 A.C. 400/230 A.C.	141	1,885	174	1,340	..	..	..	..	Parallel	4
5. Bay of Plenty	G.N.	1923	13,220	2,124	16.07	..	..	..	{ 11,000 6,000 }	400/230 A.C.	393	5,510	311	44,897	..	..	..	..	Series and Parallel	5
6. Buller	G.N.	1921	6,030	1,745	28.04	..	..	..	{ 11,000 3,300 11,000 6,000 3,300 11,000 6,000 }	400/230 A.C.	156	2,388	202	32,351	..	..	..	..	Series and Parallel	6
7. Cambridge	G.N.	1921	6,030	1,745	28.04	..	..	..	{ 11,000 3,300 11,000 6,000 3,300 11,000 6,000 }	400/230 A.C.	156	2,388	202	32,351	..	..	..	..	Series and Parallel	7
8. Central Hawke's Bay	G.N.	1925	10,580	2,118	20.02	..	..	..	{ 11,000 3,300 6,000 3,300 11,000 6,000 3,300 11,000 6,000 }	400/230 A.C.	352	4,065	365	18,641	..	..	..	..	Parallel	8
9. Central Waikato	G.N.	1921	20,670	7,001	29.00	..	..	..	{ 11,000 3,300 11,000 6,000 3,300 11,000 6,000 }	400/230 A.C.	456	10,817	872	32,471	..	..	..	..	Parallel	9
10. Dannevirke	G.N.	1925	12,320	3,207	26.03	..	..	..	{ 11,000 6,000 }	400/230 A.C.	206	3,220	357	20,117	..	..	..	..	Series and Parallel	10
11. Franklin	G.N.	1925	21,390	5,295	24.43	..	..	..	{ 11,000 6,000 400 500 D.C. (s) 3,300 A.C. (s) }	400/230 A.C.	491	9,069	754	30,036	..	..	..	..	Series and Parallel	11
12. Golden Bay	G.S.	1929	1,600	514	32.13	..	..	..	{ 11,000 6,000 }	400/230 A.C.	66	800	78	14,895	..	..	..	..	Parallel	12
13. Grey	G.S.	1929	17,280	4,740	27.47	..	..	..	{ 11,000 6,000 }	400/230 A.C.	158	9,305	969	72,636	..	..	..	..	Series and Parallel	13
14. Hawke's Bay	G.N.	1927	32,410	8,756	27.02	..	..	..	{ 11,000 6,000 3,300 11,000 6,000 }	400/230 A.C. 400/230 D.C.	328	11,000	475	87,413	..	..	..	..	Series and Parallel	14
15. Horowhenua	G.N.	1924	16,190	5,855	32.10	..	..	..	{ 11,000 6,000 }	400/230 A.C.	212	8,110	373	44,498	..	..	..	..	Series and Parallel	15
16. Hutt Valley	G.N.	1925	54,570	15,421	28.26	..	..	..	{ 11,000 6,000 }	400/230 A.C.	229	18,892	322	150,381	..	..	..	..	Series and Parallel	16
17. King-country	G.S.	..	..	..	..	..	..	..	{ 6,000 11,000 3,300 11,000 6,000 }	400/230 A.C.	..	..	..	..	..	..	..	..	Series and Parallel	17
18. Lake Wakatipu	G.S.	1925	5,200	770	14.81	..	..	..	{ 6,000 3,300 11,000 6,000 }	400/230 A.C.	205	1,412	100	5,450	..	..	..	..	Parallel	18
19. Malvern	G.N.	1924	23,640	5,811	24.56	..	..	..	{ 6,000 3,300 11,000 6,000 }	400/230 A.C.	514	11,343	679	62,292	..	..	..	..	Series and Parallel	19
20. Manawatu-Oroua	G.N.	1924	15,020	3,288	21.80	..	..	..	{ 6,000 3,300 11,000 6,000 }	400/230 A.C.	220	4,208	202	16,681	..	..	..	..	Series and Parallel	20
21. Marlborough	I.	1927	27,410	3,747	13.67	..	..	..	{ 11,000 6,000 3,300 11,000 6,000 }	400/230 A.C.	564	8,328	627	18,046	..	..	..	..	Series and Parallel	21
22. North Auckland	G.N.	1936	14,300	3,287	22.99	..	..	..	{ 11,000 6,000 3,300 }	400/230 A.C.	579	5,199	766	11,070	..	..	..	..	Parallel	22
23. North Canterbury	G.S.	1928	14,300	3,287	22.99	..	..	..	{ 11,000 6,000 3,300 }	400/230 A.C.	579	5,199	766	11,070	..	..	..	..	Parallel	23

(For notes see page 24.)

TABLE IX.—STATISTICS OF POPULATION, CONSUMERS, SYSTEM VOLTAGES, ROUTE-MILES OF LINES, ETC., FOR THE YEAR ENDED 31st MARCH, 1940—continued.

Supply Authority.	Source of Supply.	Year when Supply commenced.	Population included in Area of Supply.	Number of Consumers.	Ratio of Consumers to Population in Area of Supply.	Voltage.			Secondary Distribution (and System of Supply).	Distribution Transformers.		Consumers per mile of Line.	Units Sold per mile of Line.	Static Head.	Street Lighting System.	No.
						Generation.	Transmission.	Primary Distribution.		Number.	Total kVA.						Route-miles of Lines.
ELECTRIC-POWER ROADS—contd.																
24. Opuake	G.N.	1923	Number. 5,800	1,287	% 21.84	6,000 (£)	..	0,000	400/230 A.C.	121	1,304	173	19,152	7.4	Series and Parallel	24
25. Otago Central	I.	1925	4,100	1,370	33.41	6,600	33,000	11,000	400/230 A.C.	215	3,015	251	21,001	9.87	Series and Parallel	25
26. Otago	B. & G.S.	1920	18,070	4,942	27.35	..	33,000	11,000	400/230 A.C.	176	3,877	654	9,956	..	Series and Parallel	26
27. Poverty Bay	G.N.	1912	25,450	6,138	24.12	6,000 (£) 40 D.C. (£)	..	11,000	400/230 A.C. 440/230 D.C.	404	10,414	434	40,386	..	Series and Parallel	27
28. Reefion	G.S.	1925	25,040	6,298	25.16	400 (£)	..	11,000	400/230 A.C.	736	6,037	374	25,172	66	Series and Parallel	28
29. South Canterbury	I. & G.N.	1929	15,490	3,974	25.66	5,500 (£)	..	11,000	400/230 A.C.	286	6,266	344	39,408	57	Series and Parallel	29
30. South Taranaki	G.S.	1922	12,800	2,860	22.34	..	..	11,000	400/230 A.C.	463	3,876	356	26,833	..	Series and Parallel	30
31. Springs-Blesmere	I. & G.N.	1927	12,200	3,024	24.79	6,000	33,000	11,000	400/230 A.C.	374	8,346	401	37,896	360	Series and Parallel	31
32. Taranaki	G.N.	1925	9,360	2,149	22.96	..	..	11,000	400/230 A.C.	362	3,582	360	19,152	..	Series and Parallel	32
33. Taranaki	B.	1926	11,000	2,474	22.40	6,000 (£)	..	11,000	400/230 A.C.	393	5,337	570	18,183	..	Series and Parallel	33
34. Tauranga	G.N.	1921	11,980	2,618	21.85	..	..	11,000	400/230 A.C.	281	5,444	350	34,150	..	Series and Parallel	34
35. Te Awamutu	I.	1924	1,500	458	30.53	3,300	..	11,000	400/230 A.C.	165	1,150	69	32,855	380	Series and Parallel	35
36. Teviot	G.N.	1921	42,460	10,176	23.97	..	..	11,000	400/230 A.C.	600	15,697	1,033	43,168	..	Series and Parallel	36
37. Thames Valley	I. & B.	1933	13,800	2,080	21.50	400	..	11,000	400/230 A.C.	165	4,150	181	20,225	960/16/10	Series and Parallel	37
38. Waimea	G.N.	1923	23,100	6,056	26.22	3,300 (£)	..	11,000	400/230 A.C.	398	11,482	611	28,974	429/230	Series and Parallel	38
39. Waitapu	I.	1925	3,500	568	16.23	500	..	11,000	400/230 A.C.	228	1,795	186	11,363	65	Series and Parallel	39
40. Waitere	G.N.	1923	7,850	546	6.96	400	..	11,000	400/230 A.C.	103	2,814	125	53,253	..	Series and Parallel	40
41. Waitoa	G.S.	1926	17,100	4,826	28.22	3,300 (£)	..	11,000	400/230 A.C.	532	4,471	547	24,206	250	Series and Parallel	41
42. Waitiki	G.N.	1926	51,510	15,448	29.90	..	..	11,000	400/230 A.C.	549	16,780	1,071	33,796	..	Series and Parallel	42
43. Waikanae	G.N.	1926	7,320	1,840	25.14	..	..	11,000	400/230 A.C.	194	3,684	179	41,437	..	Series and Parallel	43
44. Waikato	G.N.	1924	45,740	11,870	25.95	3,300 (£)	..	11,000	400/230 A.C.	1,082	12,708	900	34,120	..	Series and Parallel	44
45. Waingaiti-Rangitikei	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Series and Parallel	45
46. Westland	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Series and Parallel	46
Totals, Power Boards			910,330	235,654	25.63	..	..	..	..	15,229	532,110	19,353	43,268.10	..	..	..

(For notes see page 24.)

TABLE IX.—STATISTICS OF POPULATION, CONSUMERS, SYSTEM VOLTAGES, ROUTE-MILES OF LINES, ETC., FOR THE YEAR ENDED 31ST MARCH, 1940—continued.
 G.N.=Government supply, North Island system. G.S.=Government supply, South Island system. I.=Independent supply (own generating plant). B.=Bulk supply from another authority.

Supply Authority.	Source of Supply.	Year when Supply commenced.	Population included in Area of Supply.	Number of Consumers.	Ratio of Consumers to Population in Area of Supply.	Voltage.			Transmission.	Primary Distribution.	Secondary Distribution (and System of Supply).	Distribution Transformers.		Route-miles of Lines.	Consumers per mile of Line.	Units Sold per Route-mile of Line.	Static Head.	Street Lighting System.	No.
						Generation.	Generation.	Generation.				Number.	Total KVA.						
OTHER LOCAL AUTHORITIES.																			
1. City Councils.																			
1. Christchurch	G.S.	1903	104,250	33,539	32.24	400 D.C. (s)	35,000	11,000	400/230 A.C.	400/230 A.C.	318	48,807	372	90.3	265,873	Ft.	Series	2	
2. Dunedin	I. & G.S.	1907	83,590	30,841	36.90	6,000 (s) 3,300 (s) 500 D.C. (s) 3,300 (s) 3,300 (s) 600 D.C. (s) 3,300 (s)	35,000	6,000 3,300	400/230 A.C.	400/230 A.C.	842	36,002	616	50.1	138,234	700	Series	3	
3. Invercargill	G.S.	1914	22,100	6,873	31.10	3,300 (s) 400 (s)	..	11,000	400/230 A.C.	400/230 A.C. (Trams)	72	4,387	83	82.8	98,412	..	Series and Parallel	4	
4. Nelson	I. & B.	1923	11,500	3,540	30.86	3,300 (s)	..	11,000	400/230 A.C.	400/230 A.C.	17	2,000	60	50.2	40,705	..	Series	5	
5. Palmerston North	B.	1924	23,000	6,788	29.76	3,300 (s)	..	11,000	400/230 A.C.	400/230 A.C.	50	4,750	88	77.1	228,102	..	Parallel	6	
6. Wellington	G.N.	1907	123,500	40,429	32.74	11,000 (s)	..	11,000	400/230 A.C.	400/230 A.C.	150	60,145	322	125.6	346,172	..	Parallel	6	
Totals, City Councils																			
7. Borough Councils.																			
1. Bluff	..	..	308,510	122,079	33.13	..	..	..	..	..	1,449	105,091	1,541	70.22	233,530	..	..	..
2. Hamilton	G.S.	1903	2,030	582	27.98	..	..	3,300	400/230 A.C.	400/230 A.C.	17	650	11	52.0	49,761	..	Series and Parallel	1
3. Invercargill	G.N.	1913	17,280	5,406	31.91	..	..	11,000	400/230 A.C.	400/230 A.C.	40	4,200	64	85.8	171,383	..	Parallel	2
4. Napier	B.	1905	1,280	450	35.16	..	..	3,300	400/230 A.C.	400/230 A.C.	4	275	9	50.0	31,794	..	Parallel	3
5. Lyttelton	G.S.	1917	3,110	1,030	33.12	..	..	11,000	400/230 A.C.	400/230 A.C.	4	265	14	30.0	39,751	..	Parallel	4
6. Napier	B.	1913	16,050	4,364	30.93	3,300 (s)	..	11,000	400/230 A.C.	400/230 A.C.	34	5,525	11	93.6	127,950	..	Series	5	
7. New Plymouth	G.N.	1906	24,900	7,280	29.24	6,000 (s)	..	11,000	400/230 A.C.	400/230 A.C. (Trams)	269	11,435	371	10.6	67,477	..	Parallel	6	
8. Otago	I. & B.	1914	1,000	555	20.21	2,400 (s)	..	6,000	400/230 A.C.	400/230 A.C.	18	281	19	20.2	30,619	120/240	Series and Parallel	7	
9. Patea	I. & B.	1901	2,170	483	22.26	3,300 (s)	..	6,000	400/230 A.C.	400/230 A.C.	20	697	18	26.8	81,177	42	Parallel	8	
10. Picton	I.	1917	1,410	435	30.85	400 (s)	..	3,300	400/230 D.C.	400/230 D.C.	..	..	11	30.5	19,849	78	Parallel	9
11. Queenstown	I.	1924	930	200	31.18	3,300 (s)	..	3,300	400/230 A.C.	400/230 A.C.	8	80	8	36.3	25,349	270	Parallel	10	
12. Raetihi	I.	1917	2,990	493	16.49	6,000 (s)	..	6,000	400/230 A.C.	400/230 A.C.	18	451	28	17.0	36,770	510	Parallel	11	
13. Rangiora	B.	1910	2,260	703	35.09	6,000 (s)	..	3,300	400/230 A.C.	400/230 A.C.	7	422	14	56.6	86,786	380	Parallel	12	
14. Riccarton	G.S.	1916	5,770	1,745	30.24	3,300 (s)	..	3,300	400/230 A.C.	400/230 A.C.	9	1,400	18	97.0	223,728	..	Series	13	
15. Ross	G.N.	1901	10,730	3,102	29.47	6,000 (s)	..	3,300	400/230 A.C.	400/230 A.C.	181	3,207	122	25.0	43,136	..	Series and Parallel	14	
16. Rotorua (Tourist Dept.)	..	..	..	..	..	..	..	..	..	..	18	1,665	22	56.5	163,136	14	Parallel	15
17. Stratford	B.	1898	3,950	1,242	31.68	6,000 (s)	..	6,000	400/230 D.C.	400/230 D.C.	18	1,725	22	56.5	163,136	..	Parallel	16	
18. Sumner	G.S.	1918	3,290	1,181	36.90	3,300 (s)	..	3,300	400/230 A.C.	400/230 A.C.	8	..	10	118.1	190,063	..	Parallel	17	
19. Taihape	I. & B.	1913	2,210	673	30.45	400/230	..	3,300	400/230 A.C.	400/230 A.C.	..	..	11	61.2	79,656	..	Parallel	18
20. Taumarunui	G.N.	1924	4,380	1,174	26.80	3,300 (s)	..	6,000	400/230 A.C.	400/230 A.C.	18	855	29	40.5	68,073	30	Parallel	19	
21. Tauranga	I. & G.N.	1915	3,910	1,494	38.21	3,300	50,000	3,300	400/230 A.C.	400/230 A.C.	14	1,300	64	23.3	260,354	25	Parallel	20	
22. Te Aroha	B.	1906	2,470	817	33.08	3,300 (s)	33,000	3,300	400/230 A.C.	400/230 A.C.	13	940	22	37.1	95,164	110/80	Parallel	21	
23. Te Puke	B.	1921	1,030	388	37.67	..	..	3,300	400/230 A.C.	400/230 A.C.	4	363	12	32.3	78,883	600	Series and Parallel	22
24. Thames	B.	1914	4,280	1,258	29.30	3,300 (s)	..	3,300	400/230 A.C.	400/230 A.C.	22	1,345	25	50.3	90,049	..	Parallel	23	
25. Tlmaru	B.	1903	17,900	5,243	29.29	400 (s)	..	11,000	400/230 A.C.	400/230 A.C.	25	4,505	71	73.0	143,447	130	Series	24	

(For notes see page 24.)

TABLE IX.—STATISTICS OF POPULATION, CONSUMERS, SYSTEM VOLTAGES, ROUTE-MILES OF LINES, ETC., FOR THE YEAR ENDED 31st MARCH, 1940—continued.
 G.N. = Government supply, North Island system. G.S. = Government supply, South Island system. I. = Independent supply (own generating plant). B. = Bulk supply from another authority.

Supply Authority.	Sources of Supply.	Year when Supply commenced.	Population included in Area of Supply.	Number of Consumers.	Ratio of Consumers to Population in Area of Supply.	Voltage.			Secondary Distribution (and System of Supply).	Distribution Transformers.	Route-miles of Lines.	Consumers per Route-mile of Line.	Units Sold per Route-mile of Line.	Static Head.	Street Lighting System.	No.
						Generation.	Transmission.	Primary Distribution.								
OTHER LOCAL AUTHORITIES—continued.																
<i>Borough Councils—continued.</i>																
26. Waikato	B.	1913	Number. 2,020	823	% 31.41	..	..	400/230 A.C.	13	880	15	kWh. 188,332	Fl.	Parallel	26
27. Waikato	B.	1907	2,060	656	31.84	..	..	400/230 A.C.	7	400	12	79,774	..	Parallel	27
28. Westport	I.	1925	4,290	1,360	31.91	{ 3,300 400 }	..	400/230 A.C.	15	487	21	47,708	430	Parallel	28	
29. Whakatane	B.	1922	1,960	678	34.59	{ 3,300 11,000 }	22,000	400/230 A.C.	10	1,225	41	50,224	258	Parallel	29	
30. Whangarei	B.	1915	7,610	2,583	33.94	..	..	400/230 A.C.	32	2,785	44	92,414	..	Series and Parallel	30
Totals, Borough Councils	..	..	156,400	47,883	30.62	..	..	..	883	47,234	1,160	111,064 ¹⁰	..	..	..
<i>Town Boards.</i>																
1. Kaponga	I. & B.	1916	1,700	423	24.88	3,300	..	400/230 A.C.	36	491	54	20,551	57	Parallel	1	
2. Mangaweka	B.	1913	390	151	38.72	..	..	400/230 A.C.	7	91	11	24,586	..	Parallel	2
3. Manuatu	B.	1929	780	184	23.59	..	..	400/230 A.C.	2	25	5	9,425	..	Parallel	3
Totals, Town Boards	..	..	2,870	758	26.41	..	..	..	45	607	70	29,390 ¹⁰	..	..	..
<i>County Councils.</i>																
1. Heathcote	G.S.	1914	3,460	1,012	29.76	..	..	400/230 A.C.	10	1,175	21	137,854	..	Series and Parallel	1
2. Kaitiaki	I.	1922	700	229	32.71	{ 3,300 400 }	..	400/230 A.C.	6	83	7	12,240	..	Series	2	
3. Murchison	I.	1922	800	200	25.00	{ 3,300 400 (s) 230 }	..	400/230 A.C.	12	142	10	15,140	105	Parallel	3	
4. Urua	I.	1925	500	110	22.00	..	..	230 D.C.	..	..	4	6,344	..	Parallel	4
5. Waimea	B. & G.S.	1917	14,700	3,955	27.11	{ 6,600 3,300 }	..	400/230 A.C.	78	4,547	140	59,790	..	Series and Parallel	5	
Totals, County Councils	..	..	20,100	5,536	27.54	..	..	..	106	5,947	197	61,701 ¹⁰	..	..	..
Totals, other Local Authorities	..	..	547,880	176,256	32.17	..	..	..	2,433	218,870	2,968	169,241 ¹⁰	..	..	..
COMPANIES.																
1. Alderton Utility Co., Ltd.	I.	1930	620	92	14.84	400	..	230 A.C.	20	215	14	27,194	..	Parallel	1	
2. Kaniere Electric, Ltd.	I.	1921	2,850	876	30.74	2,400	..	400/230 A.C.	6	1,580	29	161,788	123	Series	2	
3. L. Keys, Kohukohu	I.	1933	370	67	18.11	400	..	230 A.C.	..	..	2	7,468	250/100	Parallel	3
4. Reefton Electric Light and Power Co., Ltd.	I.	1887	1,600	381	23.81	230	..	230 D.C.	..	..	7	22,000	30	Parallel	4
5. Kawerau Motors, Ltd.	I.	1925	350	57	16.57	230	22,000	230 D.C.	..	406	1	23,301	..	Parallel	5	
6. Wilson's (N.Z.) Portland Cement, Ltd.	I.	1910	500	195	39.00	5,500	..	400/230 A.C.	24	..	46	272,045	130	..	6	
7. Westland Power, Ltd.	I.	1928	4,100	363	8.85	{ 6,600 400 }	..	400/230 A.C.	32	2,570	74	13,490	260/105	Parallel	7	
Totals, Companies	..	..	10,390	2,031	19.55	..	..	..	82	4,771	173	108,172 ¹⁰	..	..	..
Totals, all Supply Authorities	..	..	1,528,730	429,354	27.80	..	..	..	10,541	697,430	27,358	40,784 ¹⁰	..	..	..

NOTES.—(s) = Standby generating capacity. ¹⁰Includes Ararua, Horahora, Manahau, and Waikaremoana Power Stations inter-connected.
 connected. ¹¹Not yet actively functioning. ¹²Board constituted 15th May, 1940. Not yet actively functioning. ¹³License delegated to Westland Power, Ltd.
¹⁴No return received for year ending 31st March, 1940. This return is for year ending 31st March, 1939. ¹⁵Commenced supply December, 1939. ¹⁶No return received.
 by route-miles of line. ¹⁷Total units sold retail to ultimate consumers divided by total route-miles of line. ¹⁸For units sold per head of population and per consumer, see Table X. ¹⁹Total units sold retail and bulk, divided.

Total Population of Dominion at 31st March, 1940 : 1,640,901.
Ratio of Total Population in Areas of Supply (excluding outer areas of Electric-power Boards) to total Population of Dominion : 93.16 per cent.

TABLE X.—RESULTS OF GENERATION AND DISTRIBUTION FOR YEAR ENDED 31st MARCH, 1940—continued.

NOTE.—In the columns detailing the capacity of generating-plant the following symbols are used to denote the type of prime mover: * Water; † Steam; ‡ Oil; § Gas.

Supply Authority.	Capacity of Generating-plant.			Generated.				Purchased.			Total generated and purchased.		Sold.		Non-productive.		Percentage Non-productive.		Annual Load Factor.	Units sold (Average).			Average Maximum Demand Per Retail Consumer.		
	Main Plant.		Standby Plant.	Water.	Steam.	Oil.	Gas.	In Bulk for Resale.	Retail to Consumers.	kWh.	kWh.	kWh.	kWh.	kWh.	kWh.	kWh.	kWh.	kWh.		kWh.	kWh.	kWh.		kWh.	kWh.
	kW.	kVA.																							
LOCAL AUTHORITIES—<i>cont.</i>																									
Reefton Councils.	148†	185	80†	100																					
Kaitiaki	148†	185	80†	100																					
Murchison	30†	30†																							
Uawa	30†	30†																							
Waimea†	30†	30†																							
Totals, County Councils	258	285	80	100																					
Totals, other Local Authorities	22,401	27,507	34,949	42,001																					
COMPANIES.																									
Adleton Utility Co., Ltd.	88*	110	150†	167																					
Kanieri Electric, Ltd.	1,500*	1,806	121	15																					
L. Keys, Kohukohu*	50*	38	60†																						
Reefton Electric Light and Power Co., Ltd.	99*	D.C.																							
Ravene Motors, Ltd.†	80†	D.C.																							
Wilson's (N.Z.) Portland Cement, Ltd.	191	D.C.																							
Westland Power, Ltd.	2,000*	2,500	3,190†	3,750																					
Totals, Companies	870*	1,008	625†	780																					
Totals, all Supply Authorities	4,090	5,400	4,237	4,992																					
Totals, all Supply Authorities	303,166	256,793	100,539	114,891																					
Totals units generated																									

TABLE A.—SUMMARY OF TOTALS RELEVANT TO TABLE X.

Supply Authority.	Units generated.	Population included in area of supply.	Number of Consumers.	Capital invested in Transmission and Distribution System†.
Public Works Department	1,390,940,397	51,070	12,413	5(N.Z.) 7,108,354
Electric-power Boards	64,864,058	919,390	235,054	12,583,182
Other Local Authorities—City Councils	112,009,083	308,510	102,070	3,444,238
Town Boards	36,645,081	166,400	47,883	982,003
County Councils	602,070	2,870	7,558	24,384
Totals, other Local Authorities	403,104	50,100	5,530	113,227
Companies	150,080,008	547,230	170,250	4,502,918
Totals for all Supply Authorities	21,451,392	10,300	2,031	94,743
Totals for all Supply Authorities	1,033,937,115	1,628,730	426,354	24,349,197

NOTES TO TABLE X.

Units sold per head of population 837
 Units sold per consumer 3,002

Based on Total Units Sold to Ultimate Consumers (1,279,007,347).
 Based on Total Units Sold to Ultimate Consumers less Units supplied for Large Industrial and Tractor Loads (1,100,538,915).
 759
 2,722

Includes Lake Coleridge, Waitaki, Monowai, and Arnold River. † Not actively functioning. † License delegated to Westland Power, Ltd. † No returns received. † Commenced supplying power in March, 1933. † Christchurch Tramway Board's standby steam station available for general supply when required. † Includes 5,000 units generated under agreement for Public Works Department. † Generated under agreement for Public Works Department. † Includes 6,000 units generated under agreement for Public Works Department. † Made up as follows: From Auckland Power Board, 7,854,204 units; Taranaki Power Board, 7,532 units; Palmerston North City Council, 5,660 units; New Plymouth Borough Council, 11,343,110 units; Invercargill City Council, 2,148,796 units; Opunake Power Board, 1,285,656 units; Wellingborough City Council, 2,582 units; Wairoa Power Board, 2,148,796 units; Invercargill City Council, 11,343,110 units. † From Works Department under power-supply contract. † Includes units sold in transmission and distribution. † From transmission and distribution system, including 770 kW allocation of miscellaneous capital expenditure on units generated and purchased. † Percentage of total units generated. † Tauranga Electric-power Board pays on units measured at consumers' meters. † Excludes units sold for gold-dredging (7,718,653). † Percentage of total gold-dredging (3,427,004). † Excludes units sold for gold-dredging (7,718,653). † Excludes units sold for gold-dredging (1,066,090). † Excludes units sold for cement-manufacture (7,388,184) and units sold to Whangarei Borough Council (1,062,280). † Includes 2,331,010 units generated by Hume (Cobb River) Electric-power Co., Ltd. † Excludes units sold for ultimate consumers (1,279,007,347) divided by total capital invested in transmission and distribution system (24,349,197) for 31st March, 1939. † Includes 276,740 units generated at Omakaka iron and steel plant. † Generated by Golden Bay Cement Co., Ltd.

TABLE XI.—FINANCIAL RESULTS OF OPERATION FOR THE YEAR ENDED 31ST MARCH, 1940—continued.

Supply Authority.	Capital Outlay on Electric Supply System.		Loan Liability.		Revenue.			Working Expenses.				Capital Charges.				Total Annual Costs.		Net Results.		Amount collected by rates to make up deficiencies.	
	£	s	£	s	Sale of Electricity.		Profits from Trading Accounts	Other Sources (not including Rates)	Total.	Cost of Power.		Transmission and Distribution.	Management and General.	Total.	Depreciation.	Other Capital Charges.	Total.	Per Cent. of Capital Outlay.	Profit.		Loss.
					Retail.	Bulk for Resale.				Generated.	Purchased.											Interest.	Sinking Fund.	Per Cent. of Revenue.
County Councils.																					
Cathcart	21,320	18,353	12,200	..	1,881	7,228	2,805	342	10,405	85.28	308	205	1,800	1,143	..	1,800	8.47	12,271	..	..	..
Aberdeen	15,158	11,468	2,658	..	310	..	138	265	2,284	80.08	345	..	862	236	..	862	5.03	2,146	..	..	..
Aberdeen	13,565	11,900	2,400	..	310	..	138	265	2,284	80.08	345	..	862	236	..	862	5.03	2,146	..	..	..
Aberdeen	6,275	7,340	1,340	..	688	..	8	40	734	53.52	20	..	553	..	..	553	8.81	2,176	..	..	..
Aberdeen	77,277	25,700	28,464	..	..	..	1,877	3,026	20,963	73.32	1,108	1,449	7,361	4,714	..	7,361	9.53	1,287	..	..	..
Totals, County Councils	133,505	67,142	47,083	..	2,877	23,278	5,594	4,040	35,780	75.07	2,464	1,714	11,405	6,093	1,134	11,405	8.54	47,104	..	..	..
Totals, other Local Authorities	6,082,537	3,248,008	1,737,811	129,480	9,011	148,705	305,021	140,842	1,244,118	65.42	141,805	77,428	346,273	107,030	20,010	346,273	5.18	1,590,801	312,142	924	2,211
COMPANIES.																					
Aberdeen Electric Co., Ltd.	5,952	5,185	1,501	..	..	..	150	369	612	40.77	207	..	560	353	..	560	10.66	1,172	..	..	..
Aberdeen Electric Co., Ltd.	70,454	69,000	14,097	..	4,007	..	1,735	4,179	9,921	69.17	2,580	..	3,738	1,139	..	3,738	4.70	13,650	..	..	..
Aberdeen Electric Co., Ltd.	5,153	5,153	753	..	400	..	100	54	614	79.16	26	..	20	..	..	20	0.55	640	..	..	..
Aberdeen Electric Co., Ltd.	7,430	6,000	4,008	..	549	..	571	1,404	2,624	60.53	..	..	247	..	..	247	3.32	2,771	..	..	..
Aberdeen Electric Co., Ltd.	1,304	400	739	..	..	..	60	97	681	84.40	45	..	108	123	..	108	12.88	840	..	..	..
Aberdeen Electric Co., Ltd.	103,567	27,101	7,081	9,400	..	..	1,437	958	5,829	84.43	..	..	830	830	..	830	0.80	0,650	..	..	..
Aberdeen Electric Co., Ltd.	80,278	58,148	5,499	..	395	..	751	2,801	5,358	90.35	3,103	..	5,300	2,173	..	5,300	0.01	10,724	..	..	..
Totals, Companies	291,447	161,987	34,278	0,400	570	..	4,810	9,922	25,539	56.50	0,070	..	10,935	4,805	..	10,935	3.75	36,474	..	..	..
Totals, all Supply Authorities	30,275,242	31,022,510	4,899,112	2,001,310	33,574	333,402	860,541	568,050	3,767,116	52.80	1,290,357	781,458	2,662,800	368,235	213,653	2,662,800	6.78	6,429,910	709,082	9,488	9,250

NOTES.—¹ Includes Arapuni, Horahora, Mangahao, and Waiharu Power Stations. ² Includes Lake Coverage, Waitaki, Monowai, and Arnold River Power Stations. ³ License delegated to Westland Power, Ltd. ⁴ No return received. ⁵ Includes cost of street lighting. ⁶ Actual running-costs only, including fuel (if any), wages, stores, repairs, and maintenance. ⁷ General rate. ⁸ Not yet actively functioning. ⁹ License delegated to on overseas interest payments. ¹⁰ Includes £35,304 standby capital charges. ¹¹ No return received for year ended 31st March, 1940. This return is for year ended 31st March, 1939. ¹² Includes £544 from arrears of e Exchange.

Net profit for year—
 Public Works Department .. 181,248
 Electric-power Boards .. 106,069
 Cities .. 203,830
 Boroughs .. 105,983
 Town Boards .. 927
 Counties .. 478
 Companies .. 8,650
 Total, net profit .. 567,194

TABLE XIII.—AVERAGES DERIVED FROM TABLES IX, X, AND XI, FOR YEAR ENDED 31ST MARCH, 1940—continued.
(For Summary of Relevant Totals from above-named Tables see Table XIIIb on page 34.)

Supply Authority.	Number of Consumers.	Capital Outlay.			Revenue from Sale of Electricity.							Working-costs.			Capital Charges.			Total Costs.			N o.
		Per Head of Population.	Per Consumer.	Per £1 of Revenue.	Per Unit sold (Overall including Bulk Supply).	Per Unit sold (Excluding Bulk Supply).	Per Unit sold (Domestic Supply).	Per Head of Population.	Per Retail Consumer.	Per k.W. of Maximum Demand.	Per Unit sold.	Per Unit sold.	Per k.W. of Maximum Demand.	Per Unit sold.	Per k.W. of Maximum Demand.	Per Unit sold.	Per k.W. of Maximum Demand.	Per Cent. of Distribution Capital.			
																			£(N.Z.)	£(N.Z.)	
OTHER LOCAL AUTHORITIES—continued.																					
1. Heathcote	1,012	6.27	21.07	1.75	1.012	8.000	3.61	12.06	13.72	581.38	0.868	0.150	2.03	1.017	13.75	57.56	1				
2. Kaitiaki	220	21.65	60.19	5.70	7.440	2.900	4.07	11.01	44.30	379.71	0.393	0.413	14.37	8.806	52.43	62.01	2				
3. Murchison	200	10.96	67.83	5.04	2.384	2.900	3.16	12.03	35.38	150.38	1.340	0.815	12.10	2.156	32.00	30.85	3				
4. Uawa	110	12.65	57.05	4.66	14.548	15.380	2.80	12.24	51.77	384.57	7.933	0.377	21.27	13.910	40.50	51.42	4				
5. Waumairi	3,985	5.20	19.39	2.71	0.768	0.695	1.94	7.14	13.22	191.52	0.564	0.198	3.41	0.763	13.13	36.64	5				
Averages, County Councils	..	0.65	24.13	2.83	0.930(d)	0.930(d)	2.37(g)	8.50(k)	..	290(m)	41-08(n)	..			
Averages, other Local Authorities	..	12.20	37.91	3.58	..	0.988(d)	3.28(g)	9.60(k)	..	630(m)	84-85(n)	..			
CORPORATIONS.																					
1. Auckland Electric Co., Ltd.	92	8.47	57.09	3.50	1.159	1.159	2.42	16.32	17.87	107.21	0.473	0.433	6.07	0.905	13.95	45.98	1				
2. Kaitiaki Electric, Ltd.	876	27.88	90.70	6.41	0.762	0.752	3.38(e)	10.60	12.06	506.70	0.608	0.191	3.06	0.690	11.20	51.90	2				
3. R. Kays, Kaitiaki	67	13.93	70.01	6.84	12.100	12.100	2.17	11.24	41.83	276.50	3.778	0.418	1.44	10.284	32.50	67.72	3				
4. Redwood Electric Light and Power Co., Ltd.	381	4.65	19.55	1.90	5.999	5.999	2.01	10.52	24.00	572.37	0.890	0.370	1.66	4.147	18.60	93.55	4				
5. Ravens Motors, Ltd.	67	3.73	22.86	1.77	7.580	7.580	2.31	12.97	52.80	739.00	0.890	1.730	12.00	8.720	60.65	..	5				
6. Wilson's (N.Z.) Portland Cement, Ltd.	195	207.43	251.11	6.28	0.316	0.225	15.65	7.42	7.40	358.41	0.112	0.016	0.38	0.128	3.03	29.30	6				
7. Westland Power, Ltd.	363	21.78	245.04	10.24	1.321	1.321	1.45	15.15	10.04	74.31	1.287	1.289	19.16	2.576	38.30	27.49	7				
Averages, Companies	..	28.05	143.50	6.07	0.500(f)	1.904(d)	3.44(f)	11.47(l)	..	253(m)	38-50(n)	..			
Averages, all Supply Authorities, 1940																					
(1,279,907,347).	..	25.09	92.11	5.61	0.937(c)	0.937(d)	3.35(g)	11.10(l)	..	256	20.41	..			
1939	..	23.07	91.74	6.05	0.982	1.040	3.12	10.68	..	238	22.25	..			
1937	..	23.00	91.40	6.38	1.028	1.090	2.69	10.28	..	228			
1936	..	23.42	92.20	6.81	1.071	1.107	2.69	9.93	..	215			
..	..	22.70	92.20	7.02	1.127	1.175	2.56	9.82	..	211			

Average Revenue per Unit (kWh.) sold for all Purposes for Year ended 31st March, 1940 : 0.937d.

NOTES TO TABLE XIII.—(a) Capital outlay divided by revenue from retail plus bulk sales.
(b) Derived from items 3 and 10, Table XIIIb.
(c) Excludes revenue from dredging (see Table XIIIa).
(d) Revenue from retail sales less revenue from large industrial and auction loads.
(e) Derived from items 5 and 11, Table XIIIb.
(f) Includes Arapuni, Horahora, Mangahao, and Walkaremoana Power Stations.
(g) Derived from items 2 and 11, Table XIIIb.
(h) Revenue from retail plus bulk sales.
(i) Includes Lake Coleridge, Waitaki, Monowai, and Arnold River Power Stations.
(j) No return received.
(k) License delegated to Westland Power, Ltd.
(l) No return received for year ended 31st March, 1940. This return is for year ended 31st March, 1939.

(c) Total revenue from retail sales (£4,009,112) divided by total units sold retail (4,279,907,347).
(d) Revenue from items 1 and 13, Table XIIIb.
(e) Derived from items 6 and 10, Table XIIIb.
(f) Revenue from items 6 and 10, Table XIIIb.
(g) Derived from items 6 and 10, Table XIIIb.
(h) Derived from items 6 and 10, Table XIIIb.
(i) Board constituted 31st March, 1939.
(j) No return received for year ended 31st March, 1940. This return is for year ended 31st March, 1939.

TABLE XIII.A.

Large Industrial and Traction Loads.—Units sold and Revenue received for Year ended 31st March, 1940.

Supply Authority.	Type of Load.	Units sold.	Revenue.
PUBLIC WORKS DEPARTMENT.	Gold-mining	kWh.	£(N.Z.)
	North Island System	10,313,480	16,051
	Shops; Traction, &c.	10,844,500	23,165
	South Island System	13,014,480	24,442
	Workshops; Traction, &c.	5,353,620	14,317
Totals	Chitchee Ch Tramways	8,673,750	10,263
	Amy Steel (N.Z.), Ltd.	1,115,968	2,092
Totals		59,215,777	96,350
ELECTRIC-POWER BOARDS.	Traction	21,003,553	50,321
	Grey	7,718,653	14,704
	Otago Central	1,606,690	9,700
	Wanganui-Rangitikei	1,104,220	2,740
	Totals	31,583,116	74,474
CITIES AND BOROUGHES.	Traction	4,102,117	8,703
	Invercargill	647,704	2,150
	New Plymouth	867,000	1,800
	Wellington	12,046,062	32,024
	Totals	17,763,063	45,280
Kaniere Electric, Ltd.	Gold-dredging	3,427,604	5,356
	Cement-manufacture	7,385,184	5,634
Totals		10,812,878	10,990
Totals for above Supply Authorities		119,368,434	227,070

TABLE XIII.B.
Summary of Totals from Tables IX, X, and XI.

Item.	Other Local Authorities.										Companies.	Totals, all Supply Authorities.
	Public Works Department.	Electric-power Boards.	City Councils.	Borough Councils.	Town Boards.	County Councils.	Total.	No.	£(N.Z.)	No.		
1. Population	No. 51,070	No. 910,390	No. 368,510	No. 150,400	No. 2,870	No. 20,100	No. 547,880	No. 10,390	No. 1,598,730	No. 1,598,730		
2. Number of consumers	12,413	235,654	122,079	47,883	758	5,536	176,656	2,031	426,394	426,394		
3. Total units sold (bulk plus retail)	1,292,622,678	837,369,404	350,870,224	128,834,698	1,427,331	12,158,185	502,297,279	18,713,672	1,970,007,347	1,970,007,347		
4. Units sold retail, less units sold for large industrial and traction loads (see Table XIII.A)	90,672,482	746,688,966	300,386,381	105,851,928	1,427,331	12,148,867	428,514,507	18,713,672	1,970,007,347	1,970,007,347		
5. Route-miles of lines	31,456,705	715,085,850	292,590,468	104,984,258	1,427,331	12,148,867	411,060,844	2,935,814	1,160,538,313	1,160,538,313		
6. Capital outlay	£(N.Z.) 17,366,157	£(N.Z.) 14,933,111	£(N.Z.) 4,948,190	£(N.Z.) 1,573,243	£(N.Z.) 25,499	£(N.Z.) 133,595	£(N.Z.) 6,089,327	£(N.Z.) 201,847	£(N.Z.) 39,273,242	£(N.Z.) 39,273,242		
7. Revenue (retail sales)	249,162	2,977,861	1,181,827	409,902	9,005	47,083	1,737,811	34,278	4,099,112	4,099,112		
8. Revenue (bulk sales)	1,007,380	195,053	62,761	36,646	..	43	1,29,480	43,400	2,001,319	2,001,319		
9. Revenue from retail sales less revenue from large industrial and traction loads (see Table XIII.A)	1,916,542	3,172,014	1,274,619	336,348	9,005	47,126	1,807,301	43,084	7,000,431	7,000,431		
10. Gross revenue (excluding rates)	1,942,111	3,288,260	1,292,447	552,178	9,312	47,072	1,901,600	45,133	7,127,113	7,127,113		
11. Gross revenue, less revenue from bulk sales	274,731	3,043,207	1,104,656	515,592	9,312	47,629	1,772,129	35,727	5,128,794	5,128,794		
12. Working-costs	642,974	1,054,485	841,807	359,855	6,607	35,789	1,244,118	25,539	3,767,116	3,767,116		
13. Capital charges	1,217,806	1,087,706	949,739	36,340	1,778	11,405	1,346,973	10,938	2,065,303	2,065,303		
14. Total costs	1,760,803	3,042,191	1,058,617	449,195	8,385	47,104	1,590,391	36,474	6,429,910	6,429,910		
15. Capital outlay on transmission and distribution systems	7,408,354	12,583,192	3,444,238	982,069	23,384	113,237	4,562,918	94,743	24,349,197	24,349,197		

TABLE XIV.—RETURN OF ELECTRIC RANGES, WATER-HEATERS, AND MILKING-MACHINES CONNECTED TO ELECTRIC-SUPPLY SYSTEMS AS AT 31ST MARCH, 1940.

Supply Authority.	Number of Consumers.			Ranges.			Water-heaters.			Milk-machines.			
	Domestic.	Commercial.	Total.	Under 5 Kilowatts.	5 Kilowatts and over.	Total Number.	Total kW.	Percentage of Domestic Consumers.	Number	Total Kilowatts.	Percentage of Total Consumers.	Number.	Horse-power.
PUBLIC WORKS DEPARTMENT.													
1. North Island system ¹ ...	403	16	419	26	253	279	1,819	69.25	307	387	73.27	1,332	2,321
2. South Island system ² ...	10,318	1,676	11,994	87 ^a	1,660	1,747	11,783	16.03	612	754	5.10	1,332	2,321
Totals, Public Works Department...	10,721	1,692	12,413	113	1,913	2,026	13,602	18.90	919	1,141	7.40	1,332	2,321
ELECTRIC-POWER BOARDS.													
1. Ashburton...	4,200	541	4,741	677 ^b	864	1,541	6,044	36.69	992	2,159	20.90	107	138
2. Auckland...	52,388	12,047	64,435	N.A.	17,045	17,045	119,315 ¹⁴	32.54	20,445	12,267	31.73	656	820
3. Banks Peninsula...	1,039	66	1,105	136	231	367	1,968	35.32	303	456	27.42	256	147
4. Bay of Islands...	716	160	876	17	89	106	473	14.80	95	69	10.84	51	44
5. Bay of Plenty...	1,872	252	2,124	78	638	716	4,342	38.25	1,340	1,012	63.09	708	919
6. Buller ³ ...	1,498	247	1,745	27	332	359	2,087	23.97	828	703	47.45	403	500
8. Central Hawke's Bay...	1,739	379	2,118	64	469	533	3,370	30.65	530	570	25.02	130	207
9. Central Waikato...	6,348	653	7,001	340 ¹⁰	1,112	1,452	8,206	22.87	2,936	2,013	41.94	1,972	2,972
10. Dannevirke...	2,671	536	3,207	72	426	498	3,002	18.64	3,779	652	27.35	483	586
11. Franklin...	4,725	500	5,225	386	1,433	1,819	9,222	38.50	3,149	1,979	60.27	2,108	2,480
12. Golden Bay...	434	80	514	62	48	110	389	25.35	133	86	25.88	105	94
13. Grey...	4,095	651	4,746	173	504	677	4,022	16.53	435	486	9.17	46	51
14. Hawke's Bay...	7,864	892	8,756	100	2,401	2,501	21,986	31.80	2,572	1,929	29.37	328	432
15. Horowhenua...	4,504	1,351	5,855	N.A.	1,480	1,480	9,189	32.86	1,887	1,262	32.23	1,288	1,123
16. Hutt Valley...	14,121	1,300	15,421	200	3,683	3,883	20,850	27.50	4,235	3,700	27.46	1,107	137
17. King-country ⁴...	...	...	...	...	...	...	...	...	...	...	...	...	...
18. Lake Wakatipu ⁵...	...	...	...	...	...	...	...	...	...	...	...	...	...
19. Matvein...	690	80	770	53	139	192	1,019	27.83	77	144	10.00	4	4
20. Manawatu-Oroua...	5,566	245	5,811	N.A.	1,389	1,389	9,474	24.96	2,204	1,489	37.83	1,454	2,099
21. Marlborough...	2,791	497	3,288	162	465	627	3,513	22.47	326	434	9.91	121	189
22. North Auckland...	2,998	749	3,747	49	604	653	3,850	21.78	1,275	829	34.03	951	1,263
23. North Canterbury...	2,999	288	3,287	231	459	690	3,902	23.01	502	812	15.27	170	155
24. Opanake...	1,096	171	1,267	39	181	220	1,267	20.07	365	256	28.81	374	437
25. Otago Central...	1,082	288	1,370	40	271	311	1,736	28.74	316	320	23.07	90	66
26. Otago...	3,924	1,018	4,942	35	428	463	2,965	11.80	423	440	8.56	135	212
27. Poverty Bay...	4,858	1,280	6,138	N.A.	1,890	1,890	10,701	38.90	1,642	1,107	26.75	250	226
28. Reefton ³ ...	4,638	660	5,298	126	750	876	5,827	18.80	594	725	11.21	150	161
29. South Canterbury...	3,324	680	3,974	96	725	821	5,087	24.70	1,317	834	33.14	813	1,059
30. Springs-Ellesmere...	2,600	260	2,860	205	438	643	3,410	24.73	507	840	19.83	236	269
31. Taranaki...	1,836	279	2,149	16	552	568	3,932	20.69	1,152	797	38.10	432	527
32. Taranaki...	1,836	313	2,149	208	483	691	3,729	37.64	726	493	33.78	800	1,047
33. Taranaki...	2,334	140	2,474	120	720	840	5,185	35.91	1,541	1,066	62.29	869	1,288
34. Tauranga...	2,164	454	2,618	201	558	759	3,851	35.07	1,251	1,046	47.78	869	1,288
35. Te Awamutu...	372	86	458	26	180	206	1,251	35.15	161	131	35.15	1	1
36. Teviot...	9,210	966	10,176	72	2,699	2,771	20,630	30.09	5,209	4,049	51.10	3,321	5,646
37. Thames Valley...	2,480	500	2,980	70	240	310	1,860	12.50	285	199	9.56	106	49
38. Waimca...	4,986	1,070	6,056	104	1,443	1,547	8,760	26.82	1,768	1,697	29.19	643	860
39. Waerapa...	4,496	72	4,568	15	181	196	1,230	30.52	263	164	46.30	180	201

(For notes, see page 37.)

TABLE XIV.—RETURN OF ELECTRIC RANGES, WATER-HEATERS, AND MILKING-MACHINES CONNECTED TO ELECTRIC-SUPPLY SYSTEMS AS AT 31ST MARCH, 1940—continued.

Supply Authority.	Number of Consumers.			Ranges.					Water-heaters.			Milkings-machines.	
	Domestic.	Commercial.	Total.	Under 5 Kilowatts.	5 Kilowatts and over.	Total Number.	Total kW.	Percentage of Domestic Consumers.	Number.	Total Kilowatts.	Percentage of Total Number of Consumers.	Number.	Horse-power.
	Number.	Number.	Number.	Number.	Number.	Number.	kW.	Per Cent.	Per Cent.	kW.	Per Cent.	Number.	Horse-power.
ELECTRIC-POWER BOARDS—continued.													
41. Waipoua	456	90	546	46	96	142	836	31.14	177	115	32.42	225	170
42. Waitaki	4,225	601	4,826	147	1,245	1,392	9,200	32.95	1,401	1,605	29.03	58	62
43. Waitemata	14,351	1,097	15,448	60	4,365	4,425	26,395	30.83	3,976	3,105	25.74	1,541	1,088
44. Waitomo	1,450	390	1,840	72	681	753	4,682	51.93	794	610	43.15	317	434
45. Wanganui-Rangitikei	9,635	2,235	11,870	N.A.	1,927	1,927	12,357	20.00	2,505	1,908	21.10	1,056	1,199
46. Westland .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals, Power Boards	201,520	34,134	235,654	4,615	53,564	58,179	371,823	28.87	71,574	54,558	30.37	24,207	31,481
OTHER LOCAL AUTHORITIES.													
<i>City Councils.</i>													
1. Christchurch	28,205	5,394	33,599	630	12,349	12,979	86,910	46.02	9,568	9,462	28.48	30	40
2. Dunedin	23,658	7,183	30,841	687	2,341	3,028	16,744	12.80	4,946	5,332	16.04	181	278
3. Invercargill	5,826	1,047	6,873	79	111	190	759	3.26	165	177	2.40	..	..
4. Nelson	2,650	899	3,549	..	..	..	..	..	..	..	..	..	..
5. Palmerston North	5,463	1,325	6,788	127	1,169	1,296	7,176	23.72	2,179	1,377	32.10	3	6
6. Wellington	29,541	10,888	40,429	386	3,002	3,388	22,008	11.47	6,472	8,351	16.01	15	11
Totals, City Councils	95,343	26,736	122,079	1,909	18,972	20,881	133,597	21.90	23,330	24,699	19.11	229	335
<i>Borough Councils.</i>													
1. Bluff	475	107	582	4	6	10	44	2.11	8	11	1.37	1	1
2. Hamilton	4,092	1,404	5,496	44	352	396	2,444	9.68	779	491	14.17	..	..
3. Inglewood	377	73	450	5	48	53	353	14.06	60	47	13.33	2	3
4. Kaiapoi	478	68	546	63	68	131	641	27.41	41	41	7.51	2	1
5. Lyttelton	897	133	1,030	8	169	177	1,170	19.73	92	62	8.92	4	5
6. Napier	3,863	1,101	4,964	44	577	621	4,165	16.08	1,085	742	21.86	..	..
7. New Plymouth	6,203	1,077	7,280	354	1,907	2,261	10,460	36.13	1,960	1,350	26.92	734	1,131
8. Ohakune	427	128	555	28	15	43	135	10.07	31	23	5.59	9	10
9. Patea	483	..	483	37	97	134	723	..	111	75	22.98	21	21
10. Picton	353	82	435	2	1	3	14	0.85	..	..	..	..	..
11. Queenstown	220	70	290	3	12	15	70	6.82	3	3	1.03	..	..
12. Raetihi	381	112	493	21	21	42	209	11.02	66	51	13.39	..	..
13. Rangiora	682	111	793	3	110	113	729	16.57	149	167	18.79	..	..
14. Riccarton	1,598	147	1,745	43	603	646	4,133	40.43	618	529	35.42	..	..
15. Ross .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..
16. Rotorua (Tourist Department)	2,434	728	3,162	149	360	509	2,718	20.91	632	788	19.99	..	..
17. Stratford	928	314	1,242	9	268	277	1,583	29.85	270	246	21.74	178	239
18. Sumner	1,157	24	1,181	74	183	257	1,489	22.21	163	140	13.80	3	4
19. Taihape	491	182	673	14	53	67	419	13.65	59	44	8.77	1	3
20. Taumarunui	919	255	1,174	38	77	115	615	19.51	88	56	7.50	3	4
21. Tauranga	1,167	327	1,494	138	656	794	5,805	68.04	808	419	54.08	32	28
22. Te Aroha	581	236	817	12	153	165	1,139	28.40	186	138	22.77	7	15
23. Te Puke	255	133	388	24	76	100	566	39.23	97	55	25.00	11	12
24. Thames	973	285	1,258	40	125	165	940	16.96	154	96	12.24	..	..
25. Timaru	4,204	1,039	5,243	N.A.	930	930	5,855	22.12	854	1,194	16.29	2	1

(For notes, see page 37.)

TABLE XIV.—RETURN OF ELECTRIC RANGES, WATER-HEATERS, AND MILKING-MACHINES CONNECTED TO ELECTRIC-SUPPLY SYSTEMS AS AT 31ST MARCH, 1940—continued.

Supply Authority.	Number of Consumers.			Ranges.					Water-heaters.			MILKING-MACHINES.	
	Domestic.	Commercial.	Total.	Under 5 Kilo-watts.	5 Kilo-watts and over.	Total Number.	Total kW.	Percentage of Domestic Consumers.	Number.	Total Kilo-watts.	Percentage of Total Consumers.	Number.	Horse-power.
OTHER LOCAL AUTHORITIES—continued.													
Borough Councils—continued.													
26. Waioira	585	238	823	14	230	244	1,724	43.25	282	104	34.26	2	2
27. Waitara	498	158	656	18	85	103	599	20.68	92	69	14.02	3	4
28. Westport	4,079	290	4,369	2	17	19	123	1.76	31	28	2.26	3	3
29. Whakatane	505	173	678	25	196	221	1,422	43.76	208	N.A.	30.68	7	9
30. Whangarei	1,871	712	2,583	35	363	398	2,665	21.27	304	204	11.77	15	25
Totals, Borough Councils	38,176	9,707	47,883	1,231	7,767	8,998	52,952	23.57	9,231	7,233	19.28	1,097	1,576
Town Boards.													
1. Kaponga	352	71	423	15	47	62	362	17.61	106	71	25.06	149	231
2. Mangaweka	117	34	151	6	36	42	209	35.90	31	17	20.53	12	9
3. Manunui	160	24	184	..	..	..	..	..	..	..	..	..	..
Totals, Town Boards	629	129	758	21	83	104	571	16.53	137	88	18.07	161	240
County Councils.													
1. Heathcote	1,008	4	1,012	101	461	562	2,857	55.75	423	394	41.80	7	4
2. Kaikoura	163	66	229	..	..	..	..	..	..	..	..	..	..
3. Murchison	179	21	200	10	10	20	76	11.17	23	15	11.50	24	29
4. Uawa	90	20	110	..	..	..	..	..	..	..	..	..	..
5. Waimairi	3,728	257	3,985	106	1,237	1,343	8,039	36.02	1,158	1,024	29.06	52	42
Totals, County Councils	5,168	368	5,536	217	1,708	1,925	10,972	37.25	1,604	1,433	28.97	83	75
Totals, other Local Authorities	139,316	36,940	176,256	3,378	28,530	31,908	198,092	22.90	34,302	33,453	19.46	1,570	2,226
COMPANIES.													
1. Alderton Utility Co., Ltd.	76	16	92	12	29	41	218	53.95	37	21	40.22	5	3
2. Kameri Electric, Ltd.	629	247	876	24	97	121	743	19.24	60	57	6.85	..	..
3. L. Keys, Kohukohu	46	21	67	1	..	1	3	2.17	1	1	1.49	..	..
4. Reefton Electric Light and Power Co., Ltd.	304	77	381	..	..	..	..	..	2	3	0.52	1	2
5. Ravene Motors, Ltd.	36	21	57	5	6	11	50	7.05	14	12	7.18	24	43
6. Wilson's (N.Z.) Portland Cement, Ltd.	156	39	195	15	21	36	193	12.16	39	49	10.74	44	71
7. Westland Power, Ltd.	296	67	363	..	..	..	..	..	..	..	..	..	..
Totals, Companies	1,543	488	2,031	57	153	210	1,207	13.61	153	143	7.53	74	119
Totals, all Supply Authorities, 1940	353,100	73,254	426,354	8,163	84,160	92,323	584,724	26.15	106,948	89,295	25.08	27,183	36,147
Totals, 1939	336,423	70,893	407,316	6,769	71,933	78,702	496,371	23.51	91,711	75,347	22.52	24,851	34,498

NOTES.—¹ Includes Aranui, Horahora, Waikaremoana, and Mangahao Power-stations inter-connected.
² Four constituted 15th May, 1940; not yet fully functioning.
³ Includes 23 heat-storage ranges.
⁴ Includes 608 heat-storage ranges.
⁵ Includes 108 heat-storage ranges.
⁶ License delegated to Westland Power, Ltd.
⁷ Includes 108 heat-storage ranges.
⁸ Ratio of domestic consumers to total consumers = 82.82 per cent.
⁹ Includes Lake Coleridge, Waitaki, Monowai, and Arnold River Power-stations inter-connected.
¹⁰ No return received.
¹¹ No return received.
¹² Estimated figure.
¹³ N.A. = Not available.
¹⁴ Not actively functioning.
¹⁵ This return is for year ended 31st March, 1939.