1956–57

VICTORIA

STATE ELECTRICITY COMMISSION OF VICTORIA

THIRTY-SEVENTH ANNUAL REPORT

FOR THE

FINANCIAL YEAR ENDED 30TH JUNE, 1956

TOGETHER WITH

APPENDICES

PRESENTED TO PARLIAMENT PURSUANT TO SECTION 35 (*h*) OF STATE ELECTRICITY COMMISSION ACT No. 3776.

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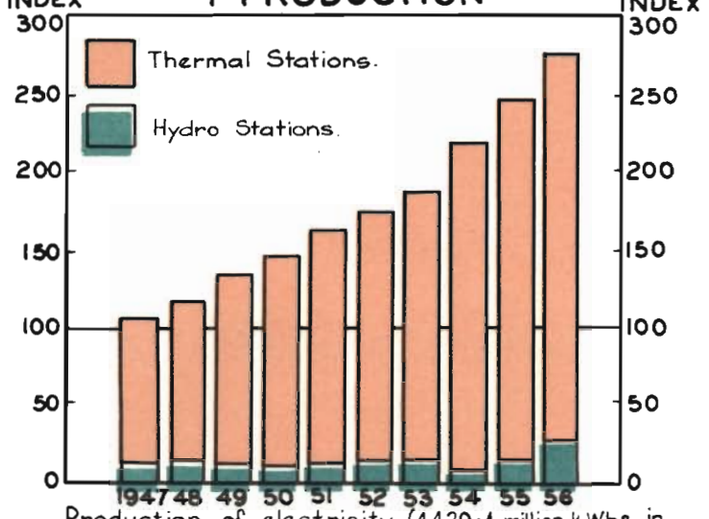
TEN YEAR STATISTICAL REVIEW
BASE YEAR 1945/46 = 100.

MAIN FEATURES OVER THE DECADE:-

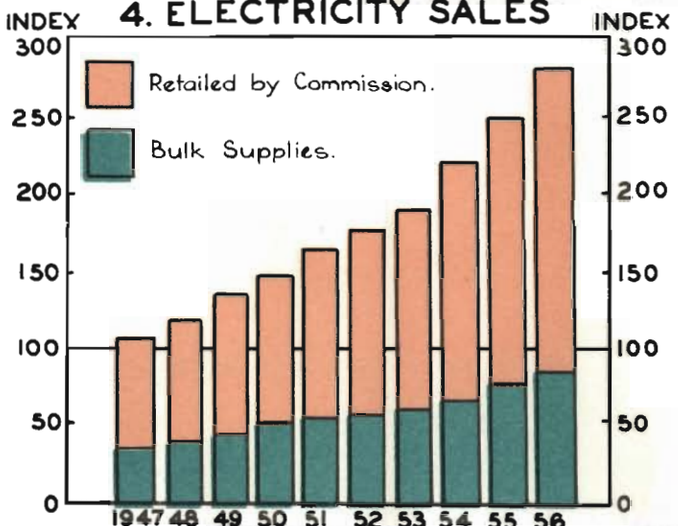
1 Electricity production and sales have almost trebled.
2 New generators installed have no more than kept pace with demand.
3 Despite major increases in cost levels, the cost per KWh of domestic electricity is only 31% higher than 10 years ago; largely because of the substantial increase in the use of electricity per consumer.
4 Active rural electrical development has doubled country consumers, (farms supplied have more than trebled)

1 PRODUCTION



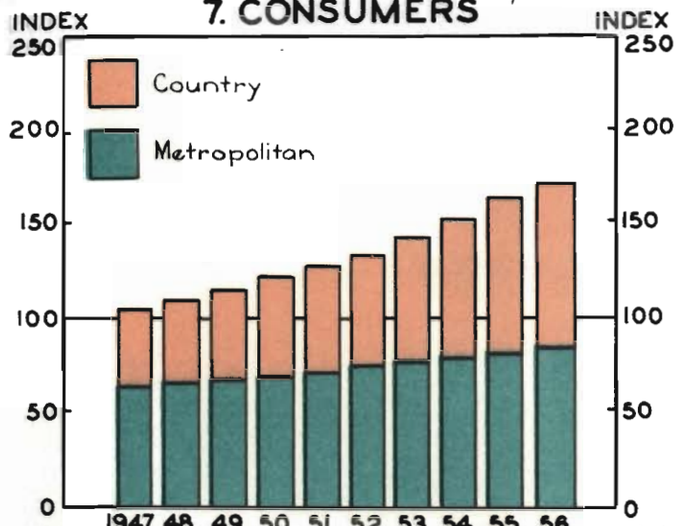
Production of electricity (4429·4 million kWhs in 1955/56) has almost trebled over the decade. (Statistics - App 6)

4. ELECTRICITY SALES



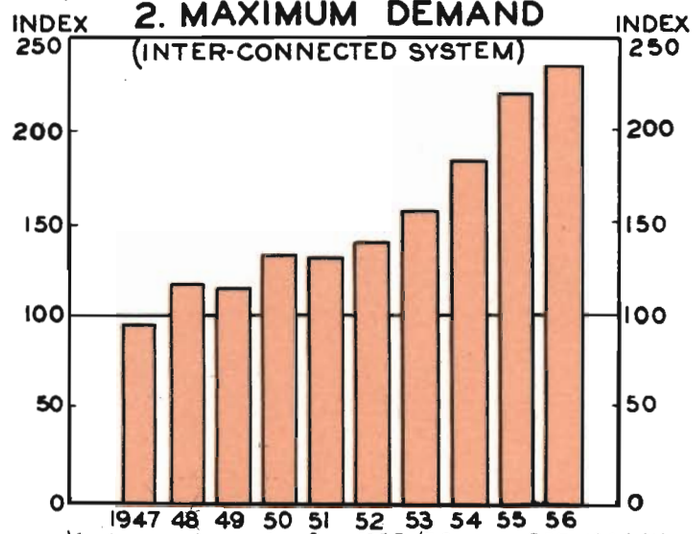
Sales for 1955/56 were 36055 million kWhs, an increase of 13·2 per cent over last year. (Statistics-AppII)

7. CONSUMERS



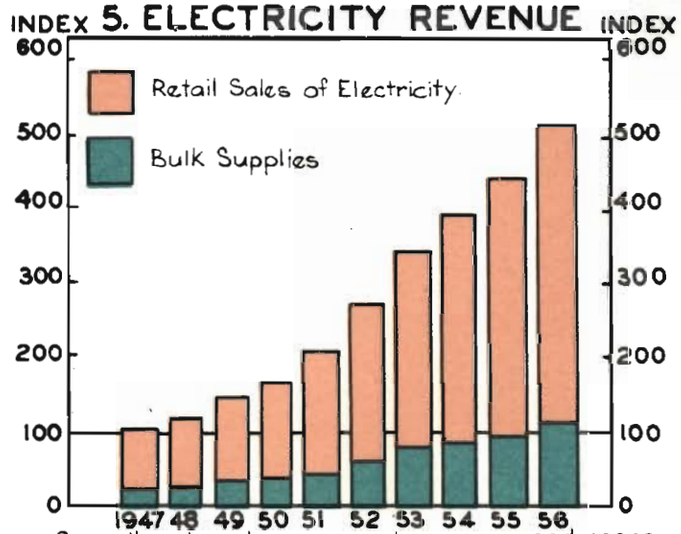
The number of consumers (561,892 at 30/6/56) has increased steadily over the decade. Country consumers have more than doubled. (Statistics-App. 10)

2. MAXIMUM DEMAND (INTER-CONNECTED SYSTEM)



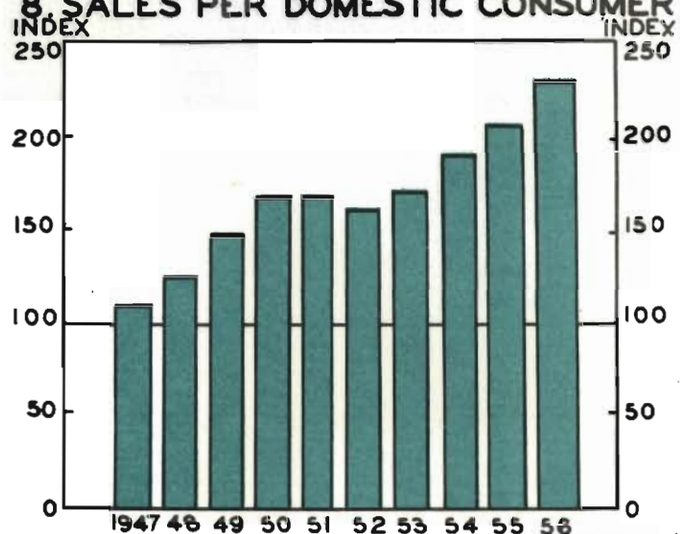
Maximum demand for 1955/56 was 897, 190 kW. (Statistics-App.6)

5. ELECTRICITY REVENUE



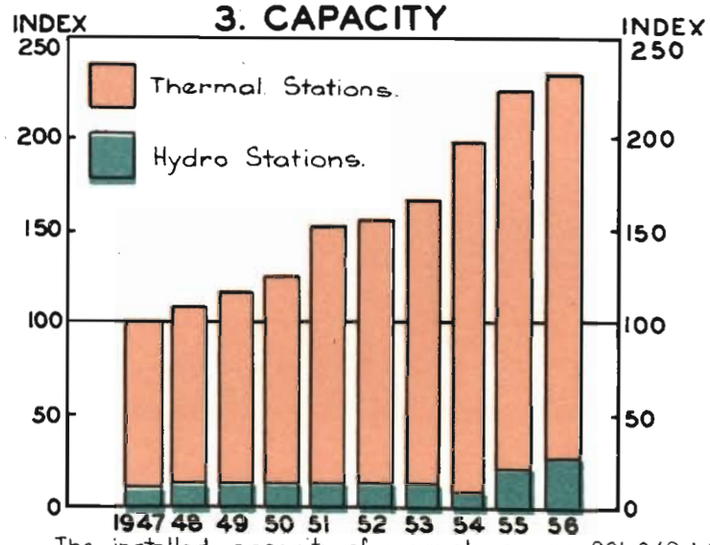
Over the decade revenue has increased more than fivefold. (Statistics - App 11)

8. SALES PER DOMESTIC CONSUMER



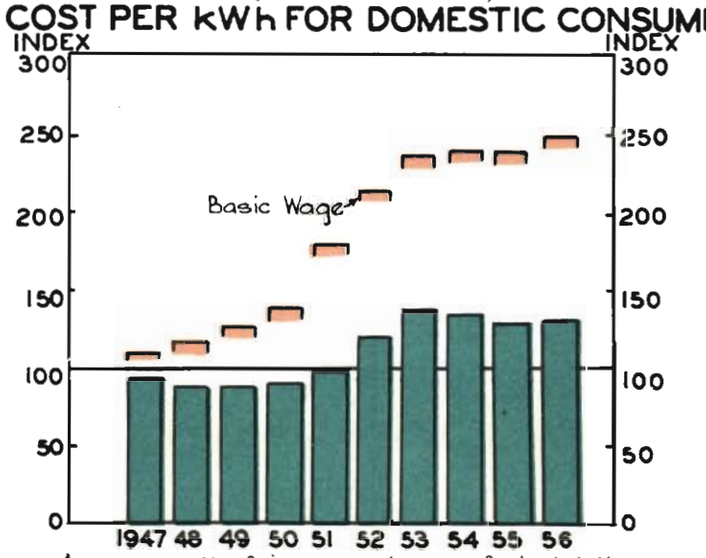
Over the last 10 years consumption per domestic consumer has increased from 928 to 2144 kWhs. (Statistics-App 10)

3. CAPACITY



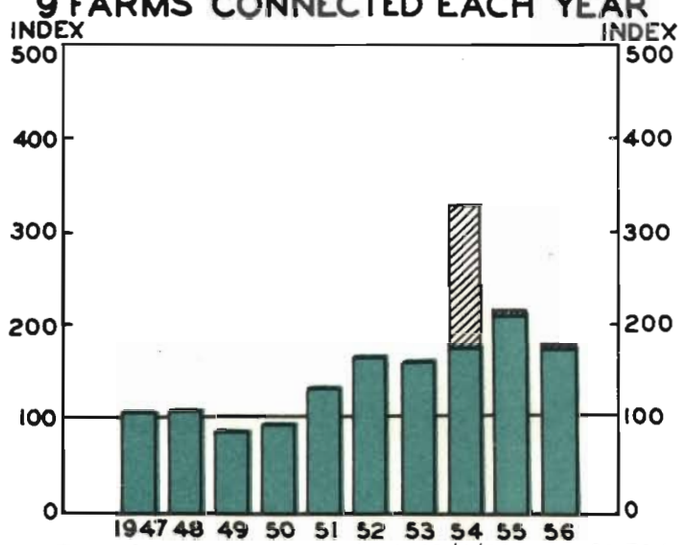
The installed capacity of generators was 961,049 kW at 30/6/56, an increase of 35,490 kW for year. (Statistics-App.8) Interconnected system 939,195 kW, Regional Stations 21,854 kW.

6. COST PER kWh FOR DOMESTIC CONSUMERS



As a result of increased use of electricity, revenue per kWh is only 31 per cent higher than 10 years ago notwithstanding that the basic wage has increased more than 150 per cent. (Statistics – App. 11)

9 FARMS CONNECTED EACH YEAR



Total farms connected at 30/6/56 was 32,734, an increase of 2603 for the year. Shaded portion of the graph represents farms previously supplied by undertakings acquired. (Statistics - App 10)

STATE ELECTRICITY COMMISSION
of
VICTORIA

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FOR THE FINANCIAL YEAR ENDED

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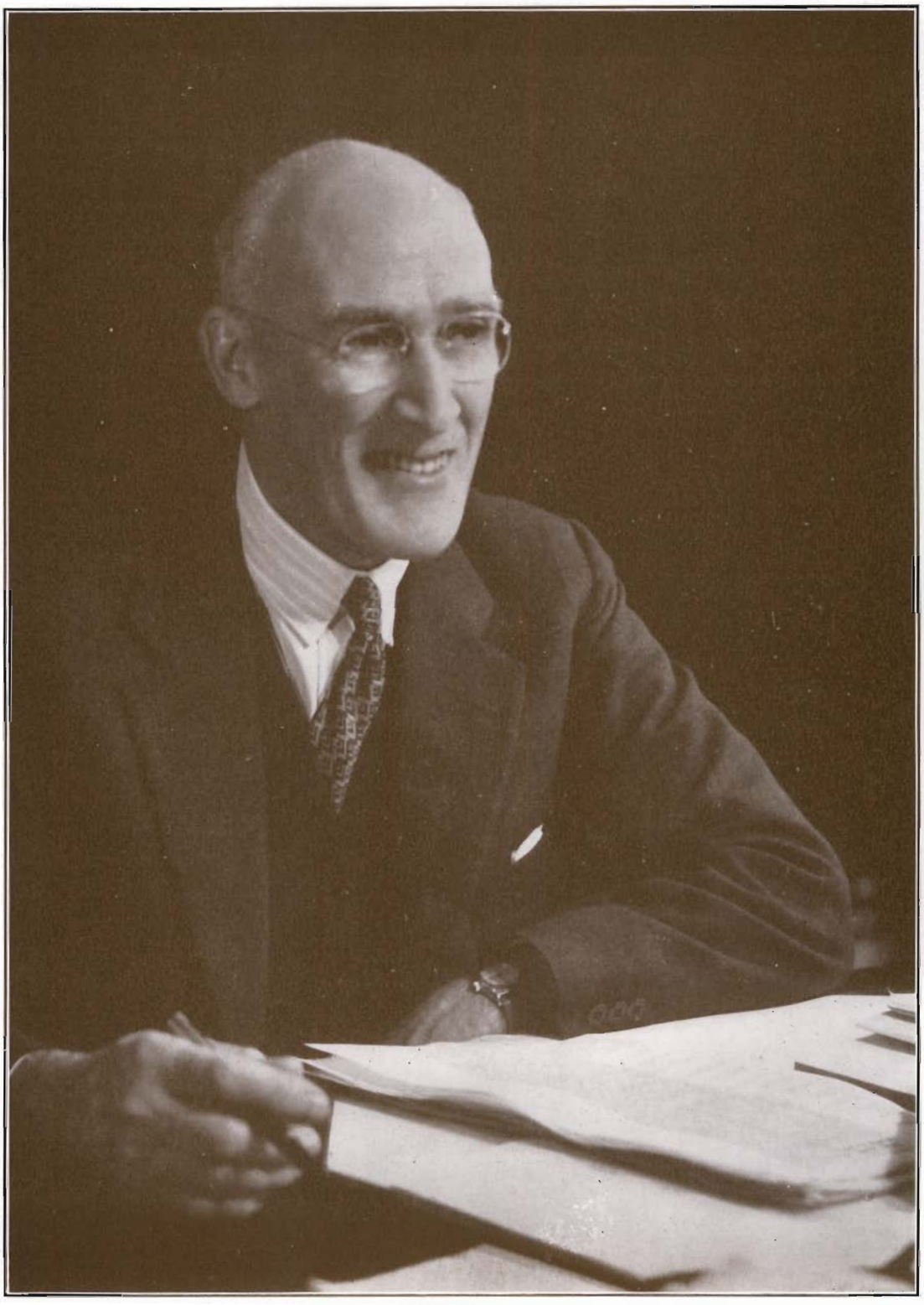
SECTION 35 (b) OF STATE ELECTRICITY COMMISSION ACT No. 3776



MR. R. A. HUNT, D.S.O., B.C.E., M.I.E.AUST.
CHAIRMAN OF THE COMMISSION 1949 - 1956

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ANNEXURE

Statement to Parliament 24th October, 1956, by the Minister of Electrical Undertakings on the main activities of the Commission

STATE ELECTRICITY COMMISSION OF VICTORIA

FEATURES OF 1955-56 OPERATIONS

	1955 - 56	1954 - 55	Increase or Decrease	Percentage
FINANCIAL				
INCOME—				
Electricity Supply .... £	28,887,195	24,838,401	+ 4,048,794	+ 16·3
Briquetting (after Stock Adjustment and less Transfers to Works) .... £	1,308,459	1,195,111	+ 113,348	+ 9·5
Brown Coal (less Transfers to Works) .... £	735,051	551,162	+ 183,889	+ 33·4
Tramways .... £	158,416	181,727	— 23,311	— 12·8
Miscellaneous .... £	12,858	15,425	— 2,567	— 16·6
TOTAL INCOME .... £	31,101,979	26,781,826	+ 4,320,153	+ 16·1
EXPENDITURE (incl. Appropriations, Writings off, etc.) £	30,739,515	26,422,258	+ 4,317,257	+ 16·3
NET SURPLUS .... £	362,464	359,568	+ 2,896	+ 0·8
CAPITAL EXPENDITURE—At end of Year .... £	212,014,706	192,325,336	+ 19,689,370	+ 10·2
Less Provision for Depreciation .... £	20,527,232	18,840,434	+ 1,686,798	+ 9·0
£	191,487,474	173,484,902	+ 18,002,572	+ 10·4
RESERVES—At end of Year .... £	8,162,820	7,731,065	+ 431,755	+ 5·6
ELECTRICITY PRODUCTION AND SALES				
MAXIMUM COINCIDENT DEMAND ON POWER STATIONS (8th June, 1956) .... kW	897,190	836,020	+ 61,170	+ 7·3
ELECTRICITY GENERATED .... kWh-millions	4,429·4	3,970·4	+ 459·0	+ 11·6
ELECTRICITY SALES .... kWh-millions	3,605·5	3,183·5	+ 422·0	+ 13·3
NUMBER OF CONSUMERS (excluding Bulk Supplies)	561,892	532,277	+ 29,615	+ 5·6
AVERAGE kWh SOLD PER CONSUMER—				
Domestic .... kWh	2,144	1,921	+ 223	+ 11·6
Commercial .... kWh	5,083	4,654	+ 429	+ 9·2
All Consumers (excluding Bulk Supplies) .... kWh	4,647	4,307	+ 340	+ 7·9
Per Head of Population (Victoria) .... kWh	1,324	1,203	+ 121	+ 10·1
AVERAGE PRICE PER kWh SOLD—				
Domestic .... d.	2·221	2·214	+ 0·007	+ 0·3
Commercial .... d.	3·291	3·114	+ 0·177	+ 5·7
Industrial .... d.	1·759	1·679	+ 0·080	+ 4·8
All Consumers (excluding Bulk Supplies) .... d.	2·117	2·076	+ 0·041	+ 2·0
MOTORS CONNECTED—				
Number	136,078	129,136	+ 6,942	+ 5·4
Horse-power	728,263	702,898	+ 25,365	+ 3·6
NUMBER OF FARMS SERVED	32,734	30,131	+ 2,603	+ 8·6
BRIQUETTES—				
Produced .... tons	634,099	630,579	+ 3,520	+ 0·6
Sold and used at Power Stations .... tons	632,263	581,594	+ 50,669	+ 8·7
BROWN COAL PRODUCED—				
Yallourn Open Cut .... tons	7,937,769	7,371,144	+ 566,625	+ 7·7
Yallourn North Open Cut .... tons	1,549,946	1,391,031	+ 158,915	+ 11·4
Morwell Open Cut .... tons	14,694	—	--	—
TRAMWAY PASSENGERS	9,710,879	12,637,464	— 2,926,585*	— 23·2

* Geelong Tramways ceased operation 25/3/56.

THIRTY-SEVENTH ANNUAL REPORT

Honourable G. O. Reid, M.L.A.,
Minister of Electrical Undertakings,
MELBOURNE.

Sir,

In conformity with the Provisions of Section 35(b) of the State Electricity Commission Act No. 3776, we have the honour to present the Thirty-seventh Annual Report of the Commission covering the financial year ended 30th June, 1956, together with the Balance Sheet and Profit and Loss Account.

It is gratifying to Commissioners to report:—

- The year's operating results improved and again were financially satisfactory.
- Electricity sales increased by 13 per cent. — the same rate of increase as last year. The increment of 422 million kWh was the largest yet recorded.
- The Commission supplied 99% of electricity used in Victoria.
- Total consumers now served are 561,892 (plus 165,471 through bulk supply authorities). 29,615 new consumers were connected by the Commission this year including 2,603 farms.
- Brown coal production reached 9.5 million tons — the highest figure yet recorded.
- Briquette production (634,000 tons) was also the highest recorded output.

FINANCIAL

The surplus for the year was £362,464 (£359,568 last year) after providing full interest and depreciation on assets in service and writing out £1,750,000 in respect of interest and other expenditure during construction temporarily capitalised.

Income from all sources totalled £31,101,979 — an increase of £4,320,153 (16.1 per cent.) Expenditure and appropriations — £30,739,515 — were £4,317,257 (16.3 per cent.) higher.

Expenditure has continued to increase under the influence of substantially higher outputs and the general inflationary movement. Excluding the incidence of inflation since 1949/50, it is significant that the Commission's costs of producing electricity are up 19 per cent. only whereas electricity sales have almost doubled, and the quantity of coal produced at the Yallourn Open Cut is up 24 per cent. with no increase in the cost per ton. The cost per kWh to domestic consumers as compared with the Basic Wage increase is shown in Graph No. 6 of the statistical review (frontispiece).

Electricity charges were increased as from 1st March, 1956, by 7½ per cent. for residential and farming consumers' supplies and 15 per cent. for commercial and industrial supplies (public lighting and traction tariffs were unaltered) to meet increasing costs, and also to provide some of the capital funds vital to the continuity of supply. In October, 1956, Commercial and Industrial tariffs were further increased by approximately 10 per cent. specifically for this latter purpose.

CAPACITY OF GENERATING SYSTEM

During the year, 35,500 kW were added to the installed generating capacity (compared with 114,000 kW last year), bringing the total installed capacity to 961,049 kW; the principal addition was at Kiewa No. 4 Power Station (30,800 kW).

At Eildon 120,000 kW will be installed before next winter and 21,000 kW are expected to be available at Yallourn "D". Progress with these extensions and at other major projects is referred to later in this report.

Over the 1956 winter there was no reserve of generating plant; on the day of heaviest load every unit (some 121 boilers and 102 generators) was in service and carried overload. Even so the full load could not quite be met. This availability of plant could not be expected to obtain always. A reserve of plant is a safeguard against breakdowns which are unavoidable and national or other emergencies, exceptionally large load increases, adverse operating conditions, etc. The position this winter again emphasises that a reserve is a real operating necessity.

CAPITAL FINANCE FOR MAJOR WORKS PROGRAMME

The dominant factor governing the rate of progress of installing new plant is the extent of financial resources available. Reference is made on page 11 to the engagement by the Commission of a firm, Ebasco Ltd., Engineering Consultants of New York, and an interim report of Mr. Murray F. Gill, their representative, appears on page 21 of the Statement of the Minister to Parliament which is annexed. This report emphasises the impracticability of carrying out long-term construction projects without the assurance of long term finance. Mr. Gill states:—

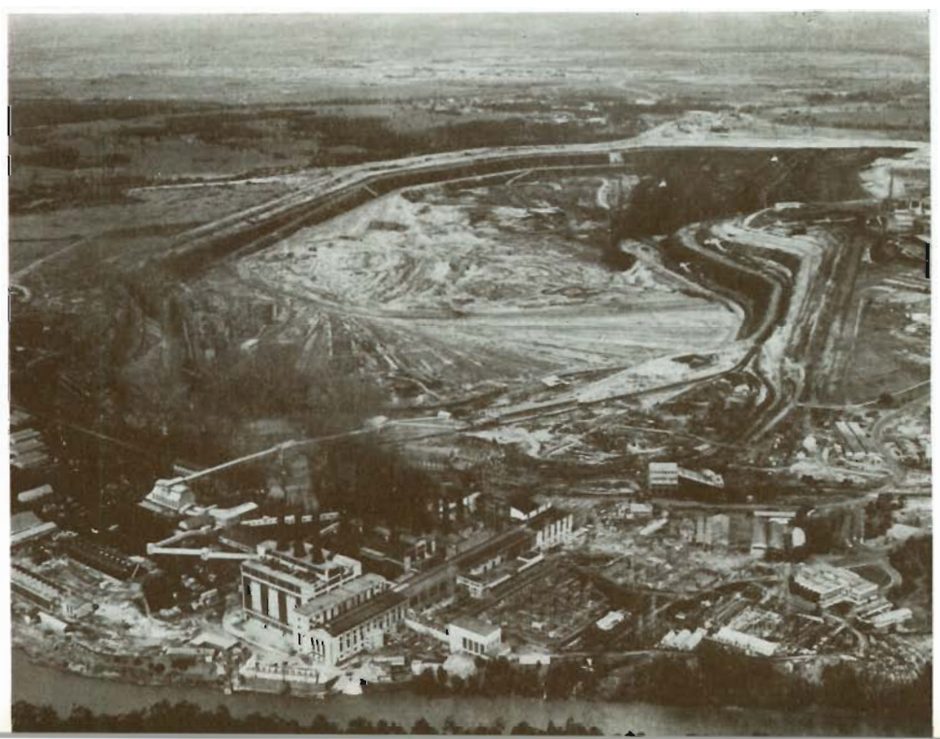
> "The greatest handicaps under which the State Electricity Commission is working are insufficiency and uncertainty of capital funds. Under the prevailing conditions of not planning capital funds for three to five years ahead, it is quite impracticable to plan economic construction programmes or to avoid extremely costly stopping and starting of construction works in progress. Some procedure whereby construction programmes which have received all requisite Governmental approvals could be carried through to completion on schedule is most urgently needed."

Mr. Gill emphasises that the only alternative to providing adequate long-term finance is to restrict extension of the State system and the growth of load by existing consumers.

This course is so obviously detrimental to the general progress and development of Victoria that the Commission has been pleased to note in your recent statement to Parliament that the Government is to approach the Commonwealth with a view to having the Commonwealth Co-ordinator of Works state a case for consideration at the next Loan Council meeting relative to long-term finance of public construction projects.

Yallourn "E" Power Station Extension.—This project, which is referred to later, will cost about £24 million spread over the next seven years. Orders should have been placed in 1956 for the station to commence operation as planned in 1961. Because of the uncertain outlook as regards sufficient capital funds for this work, the Commission in calling new tenders will invite offers from those firms prepared to receive payment for the work of construction by instalments over an extended period, and also from financial interests in Australia and overseas who may on proper security supported by appropriate legislation lend money to plant contractors to finance the task.

Should this course of action fail, other means of financing the project must be seriously considered in order to safeguard against any shortage of electricity about 1961.



YALLOURN OPEN CUT AND POWER STATION

New 'C' station practically completed (foreground). 'D' extension being constructed at opposite end of Power Station. Each of these extensions comprise two 50,000 kW turbo-generator sets.

STATEMENT TO PARLIAMENT ON THE COMMISSION'S ACTIVITIES

On the 24th October, 1956, the Minister of Electrical Undertakings made a statement to the Legislative Assembly on the Commission's main activities. The Commission gratefully acknowledges the Minister's acquiescence to a copy of his statement being annexed to this report. It was presented under five main headings:—

(i) Present state of development of Victoria's electricity and brown coal resources.

(ii) State's electricity needs and the electricity and fuel projects in course of construction or planning.

(iii) Future development of State-wide transmission and distribution system.

(iv) Capital needs of the Commission and the problems created by uncertainty of capital finance.

(v) Administration of the Commission.

NEW LEGISLATION

The Newport "A" Power Station Act 1955 (No. 5864) was passed by Parliament on 18th October, 1955; this Act authorised the transfer of loan liability (in respect of railway sidings and ancillary land buildings and equipment) from the Victorian Railways Commissioners to the Commission.

Since the close of the year, Parliament passed legislation:—

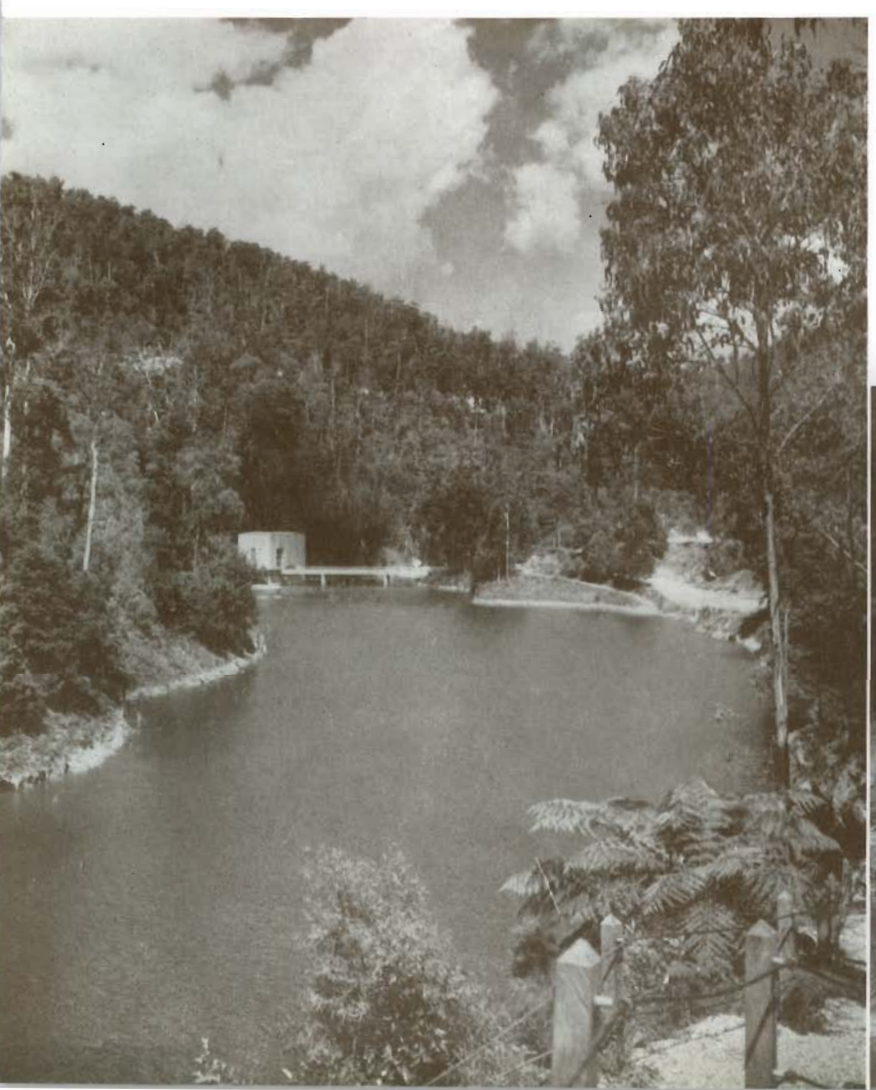
(i) enabling the Commission to erect transmission lines and other assets in New South Wales and South Australia as necessary;

(ii) enabling the Chairman of the Commission to participate in its Staff Provident Fund;

(iii) authorising the transfer of loan liability (in respect of generating plant at Redcliffs and houses and other equipment at Eildon) from the State Rivers & Water Supply Commission to the State Electricity Commission.

PARLIAMENTARY VISITS TO YALLOURN, MORWELL AND KIEWA

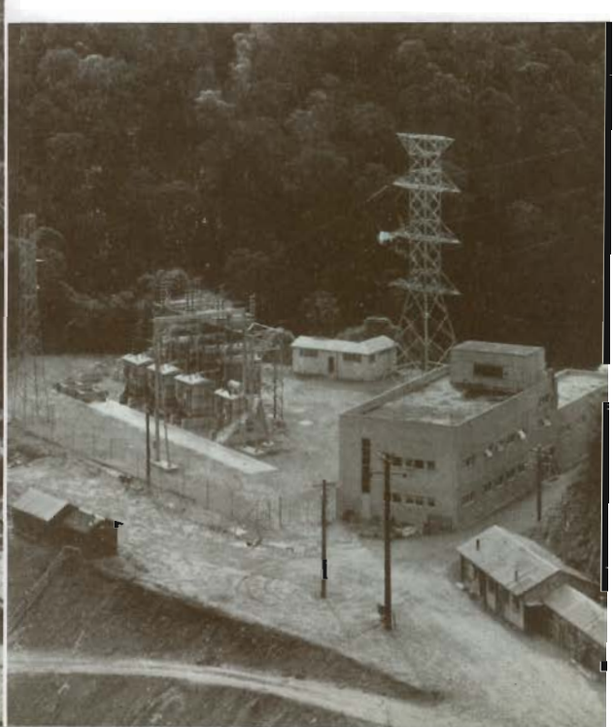
At the invitation of the Minister of Electrical Undertakings an official inspection of the Commission's Yallourn and Morwell undertakings was made by Members of both Houses of Parliament on 1st September, 1955, and the Kiewa Project on 11th-13th April, 1956.



KIEWA HYDRO-ELECTRIC SCHEME

At Left: View upstream from Clover Dam which serves No. 4 Power Station. No. 3 Power Station is in the background.

Below: Control Building and Switchyard for No. 4 Power Station, 450 ft. underground. This Power Station comprises four 15,400 kW turbo-generators.



ANNUAL ACCOUNTS

SUMMARY OF INCOME AND EXPENDITURE

After making full provision for interest and depreciation, the income, expenditure and net surplus were as follows:—

Year ended 30/6/55			Year ended 30/6/56	
£	£		£	£
		ELECTRICITY SUPPLY		
24,838,401		Income	28,887,195	
23,583,769		Expenditure	26,672,105	
	1,254,632	*Profit*		2,215,090
		BRIQUETTING		
1,195,111		Income	1,308,459	
1,175,176		Expenditure	1,298,918	
	19,935	*Profit*		9,541
		BROWN COAL – YALLOURN NORTH		
551,162		Income	735,051	
384,115		Expenditure	443,025	
	167,047	*Profit*		292,026
		PROVINCIAL TRAMWAYS		
181,727		Income	158,416	
415,325		Expenditure	366,110	
	233,598	*Loss*		207,694
	15,425	Miscellaneous Income		12,858
	83,051	Miscellaneous Expenditure (incl. Brown Coal Investigations £95,781)		209,357
		MAKING A TOTAL		
26,781,826		Income	31,101,979	
25,641,436		Expenditure	28,989,515	
	1,140,390	*Profit*		2,112,464
		Appropriations from the profit were:—		
380,822		Proportion of interest and other expenditure on works under construction temporarily capitalised now written out	1,750,000	
400,000		Contingency and Obsolescence Reserve	—	
	780,822			1,750,000
	£359,568	Leaving a surplus which was transferred to General Reserve		£362,464

As compared with the previous year, the variations in the respective financial results were:—

Electricity Supply	Profit up £960,458
Briquetting	Profit down £10,394
Brown Coal	Profit up £124,979
Tramways	Loss down £25,904

The improved results for Electricity Supply and Brown Coal are attributable to increased sales and prices.

Reduced tramway losses followed the abandonment of the Geelong system.

ASSETS AND LIABILITIES

Capital expenditure at 30th June, 1956, was as under: -

As at 30/6/55 £		As at 30/6/56 £
	Fixed Capital –	
12,029,681	Coal Production	13,860,105
16,477,926	Briquette Production and Distribution	17,537,168
76,914,221	Power Production	83,858,257
58,142,471	Transmission, Transformation and Distribution Systems	66,997,984
28,761,037	General (For details see Appendix No. 3)	29,761,192
£192,325,336		£212,014,706
18,840,434	Deduct Provision for Depreciation	20,527,232
£173,484,902		£191,487,474
8,076,729	*Current Assets in excess of Current Liabilities* (Reflects larger Bank Overdraft)	386,393
4,830,130	*Overburden Suspense* (cost of uncovering coal yet to be won)	5,181,585
7,387,471	*Other Suspense Expenditure* (net)	9,089,453
£193,779,232		£206,144,905
	The funds for this expenditure were obtained from:–	
	Loans –	
41,744,195	Victorian Government Advances	42,363,465
141,081,404	S.E.C. Debentures and Inscribed Stock	151,714,442
571,982	Acquired Undertakings' Debentures and Inscribed Stock	611,784
£183,397,581		£194,689,691
7,116,125	*Reserves* (excluding external investment)	7,426,309
3,265,526	*Consumers' Advances for Construction*	4,028,905
£193,779,232		£206,144,905

The General Profit and Loss Account, Balance Sheet, Schedules of Fixed Capital, Loans raised by the Commission, and Debentures guaranteed by the Commission, are shown in Appendices Nos. 1, 2, 3 and 5.

PROVISIONS AND RESERVES

Balances at 30th June, 1956, were:—

Provision for Depreciation	£20,527,232 (Increase £1,686,798)
Contingency and Obsolescence Reserve	£1,975,675 (Decrease £6,357)
Rural Development Reserve	£956,193 (Decrease £37,544)
Rate Stabilisation Reserve	£500,000 (Unchanged)
General Reserve (Including Sinking Fund Provision)	£4,730,952 (Increase £475,656)

The Depreciation and Sinking Fund Reserve shown in previous years has now been separated, depreciation being shown as a deduction from fixed capital assets, and the Sinking Fund Reserve transferred to the General Reserve. The Depreciation Provision is augmented regularly in respect of the fixed capital assets in service. Sinking Fund payments are met in full from depreciation moneys, the balance of which is used in the business of the Commission.

The increase in the General Reserve is made up of the transfer of the surplus for the year and the contribution by the Commonwealth Government to the National Debt Sinking Fund in respect of the Commission's liability for loan money advanced by the State.

LOAN LIABILITY

The total loan liability at 30th June, 1956, was £194,689,691, the increase for the year (£11,292,110) being incurred as follows:—

	New Indebtedness £	Less Sinking Fund Redemptions £	Net Increase £
State of Victoria	1,018,361	399,091	619,270
State Electricity Commission Loans	11,290,756	657,718	10,633,038
Municipalities (acquired undertakings)	85,395	45,593	39,802
	£12,394,512	£1,102,402	£11,292,110

The following is a summary in round figures of the new loan moneys received in each of the last six years — conversion and short term loans redeemed within the year are excluded:—

Year ended 30th June	Public Loans	Private Loans	Total Public & Private Loans	Advances by State of Victoria
	£	£	£	£
1951	9,100,000	22,500,000	31,600,000	1,250,000
1952	18,500,000	4,700,000	23,200,000	9,000,000
1953	9,100,000	8,100,000	17,200,000	7,000,000
1954	11,900,000	11,600,000	23,500,000	6,000,000
1955	11,000,000	7,300,000	18,300,000	2,000,000
1956	7,300,000	4,000,000	11,300,000	1,000,000

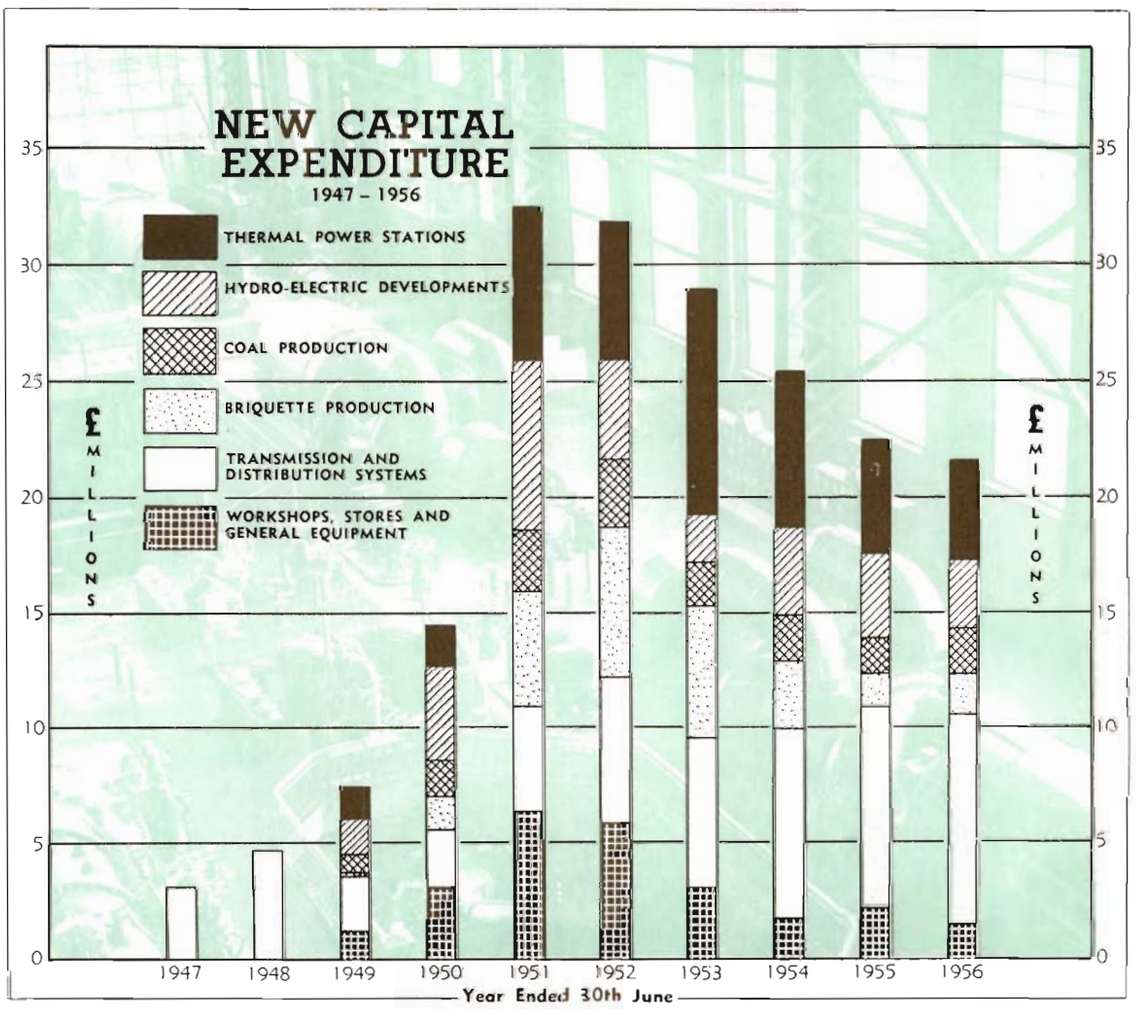
Public loans underwritten and the amounts subscribed during the period were:—

Amount under-written £	Term	Interest Rate per cent	Subscriptions £
2,000,000	10-20 years	4¾	1,433,350
2,000,000	10-20 years	4¾	1,063,600
1,000,000	5-10 years	4¾	1,097,250
2,250,000	5, 7, 15 years	5¼	2,495,450
2,000,000	5, 10, 15 years	5¼	2,049,750

Undersubscriptions were met by the underwriters; over-subscriptions to the last three loans (which closed early) had to be returned to the subscribers.

CAPITAL EXPENDITURE

Total Capital Expenditure at 30th June, 1956, was £212,014,706, an increase of £19,689,370 for the year, after deduction for retirements and the writing off of non-productive expenditure. Details of increases are set out in Appendix No. 3.



OVERSEAS CONSULTANT

During the year, the Commission arranged for the London firm of Price, Waterhouse and Company, who are world recognised consultants in the field of accountancy and auditing for large public authorities, to review broadly its accounting and internal audit methods. Their report is expected towards the end of 1956.

FUTURE DEVELOPMENT OF STATE GENERATING SYSTEM

REVIEW OF COMMISSION'S ACTIVITIES

The Commission, in successive annual reports, has strongly emphasised the difficulties being experienced by itself and other public authorities in obtaining sufficient capital finance. The maximum demand upon the interconnected system this year was approximately 943,000 kW; by 1965 — that is, nine years hence — the demand is estimated to increase to 1,773,000 kW. Adverse weather conditions could cause this estimate to be exceeded by 3 per cent.

Broadly, the capital expenditure necessary to meet this growth of load is £300 million, which would be expended on a gradually increasing scale, starting with £24 million in 1956/57 and rising to a little over £40 million in 1964/65.

Early in 1956, with the consent and encouragement of the Government, the Commission engaged a firm of engineering consultants of world standing — Ebasco Ltd. of New York — to review its future plans. This action was taken as it felt that the Commission's needs of capital funds are so substantial that it would be invaluable both to the Government and the Commission if the estimated requirements of the immediate future, in terms of plant and money, were to have the full support of an eminent engineering authority.

The terms of reference to Ebasco were, broadly, to examine and report on the forecasts of future loading on the State electricity supply system, the plans for meeting the future electricity needs of the State, and the capital expenditure necessary to carry out the plans.

Ebasco's representative is Mr. Murray F. Gill, B.E.E. (Texas), M.I.E.E., and the report of his firm is expected before the end of 1956.

Mr. Gill, in his interim report dated 13th August, 1956, has affirmed the need for an expenditure of between £282 million and £313 million during the next nine years, while his estimate of the 1965 maximum demand is 1,840,000 kW — a little higher than the Commission's estimate of 1,773,000 kW, plus 3 per cent. for adverse weather conditions. He points out that 100,000 kW of generating plant should be installed each year, even though 200,000 kW of Snowy electricity will be available by 1965, since there is no reserve capacity on the system at present.

Mr. Gill accepts the Commission's plans to instal practically all the new generating plant in the Latrobe Valley as the only sound programme to be followed.

Reference is also made on page 6 to Mr. Gill's statement concerning the stultifying effect of there being no satisfactory financial arrangements for the capital works programme under the present year to year approach by the controlling authorities.

In addition to such major projects as Eildon, Yallourn "D", Morwell and Kiewa, which are described on pages 14 to 17 the following are under study for detailed planning:—

Yallourn Power Station — "E" — This extension would bring the capacity of the station to 621,000 kW (based on 240,000 kW being installed).

New Latrobe Valley Power Station (Hazelwood) — A new power station with an ultimate capacity of possibly 800,000 kW to 1,000,000 kW to be constructed. The first unit of this station will be required not later than 1964.

The sharing of the output from the Snowy Mountains scheme is expected to commence early in 1959. By 1965, when the load on the Commission's generating system would have reached approximately 1,800,000 kW, the Snowy scheme is likely to add up to 200,000 kW of low load factor power. Further reference to this scheme is made hereunder.

SNOWY MOUNTAINS HYDRO-ELECTRIC SCHEME

Reference has been made in previous reports to the influence of this Project upon Victorian electricity supply. Negotiations have continued between the Commonwealth and the States of New South Wales and Victoria regarding the terms and conditions upon which the State water and electricity authorities will participate in the scheme: the detailed terms have reached a stage where they are generally acceptable to the three parties.

Construction of the Snowy Mountains Scheme was begun in August, 1949, in anticipation of the execution of the agreement, and the scheme is planned for completion by 1982/83. Victoria's share in the complete scheme (2,770,000 kW) would amount to approximately 920,000 kW and 1,900 million kWh per annum.

The Guthega Power Station which supplies its output to New South Wales came into operation in February, 1955. The first two main power stations (T.1 and T.2 on the Tumut River) will have a total capacity of 600,000 kW from which Victoria will receive a one-third share of the output (after Commonwealth requirements, if any, are met); T.1 will be in operation in 1959 and both are scheduled for completion by 1965.

One of the principal advantages to Victoria is the securing of up to 200,000 kW of power without having to bear the capital cost (approximately £30 million) that would be involved in installing thermal plant with its related coal production. The cost of a transmission line (£3.5 million by 1962) from the Snowy Mountains to link with Victorian load centres will be borne by the Commission.

Estimates of total annual costs up to the year 1965/66 show a slight saving in favour of a system which includes power from the Snowy Scheme rather than one which would provide an equivalent amount of low-load factor power from thermal stations. Victoria's interests are safeguarded by a ceiling price clause in the draft agreement which provides that the cost of Snowy power to Victoria shall not exceed the cost that would have resulted had the additional generating plant been thermal plant installed in this State.

The load factor of the Snowy Scheme is relatively low (30 per cent. for T.1 and T.2 Power Stations and 24 per cent. for the scheme when completed). Snowy power is only supplemental to thermal base load plant which would need to be operated at a load factor of approximately 80 per cent. in order to satisfy a total system load factor of 55 per cent. to 60 per cent. This means that the Snowy Scheme cannot stand alone; at all times its effective place in the generating systems of New South Wales and Victoria depends upon large thermal power stations being provided by these States.

SALE OF COMMISSION-OWNED HOMES

Associated with a review of rentals for all houses owned by the Commission as from the 1st June, 1956, a home purchase scheme was introduced in respect of the Commission's housing settlements at Newborough, Yallourn North and Newport to enable employee-tenants to become home owners at favourable purchase terms. A deposit of only 5 per cent. of the purchase price is required and the period for repayment can be as long as 45 years if this does not extend beyond the purchaser's 70th birthday; interest is payable at the low rate of 4½ per cent. The scheme provides under a free life assurance plan that, in the event of death of the employee-tenant, the outstanding debt would be cancelled.

Employees who are unable to raise the deposit immediately may contribute £1 per week or more to a "Home Purchase Savings Account" until the amount of the deposit is thus available.

Already thirty-four employee-tenants have entered into agreements to purchase their homes on this basis.

INSTALLATION OF HOT WATER SERVICES

With the rapid growth in popularity of the off-peak electric hot water service, it has been necessary in recent years to limit the rate of connection to 14,000 systems annually, which coincides broadly with the capacity of new base load generating plant being installed in the Latrobe Valley.

An assessment made during the year of the unrestricted demand by potential users was 20,000 systems: practical measures of meeting this requirement have been examined by the Commission and reviewed by a Sub-Committee appointed by the Government. This Committee after inquiry and discussion agreed that the present quotas should be continued and made several suggestions to relieve the position. Subsequently the Commission, arranged to allocate sufficient briquettes to enable an additional 6,000 briquette hot water services to be installed annually, increasing the total for this type of service to 12,000.

It is hoped that it will be practicable to meet the overall demand for hot water services by this additional allocation of briquettes, together with the 14,000 electric hot water services which are being connected each year. This step is an endeavour to relieve the position as regards the quotas for electric hot water systems and its effectiveness is under close review.

Briquettes allocated for this purpose will — until the Morwell Project is in production — involve the Commission in arranging for alternative fuels for its power stations.

CONNECTION OF NEW CONSUMERS

FINAL PHASE OF ELECTRIFICATION OF THE STATE

In 1951 the Commission's Report on the Final Phase of the Rural Electrification of Victoria was presented to Parliament. The report provided that during the succeeding ten years the extension of the Commission's supply system throughout Victoria would be virtually completed, leaving at the end of the period some 15,000 homes in the most isolated parts without supply. During the five years which have elapsed, considerable progress has been made with rural electrical development and every effort is being made to include in the plan as many as possible of these 15,000 homes.

At 30th June, 1956, approximately 637,000 dwellings were supplied with electricity. There is a dual task of connecting the 60,000 homes as yet unserviced with electricity, and at the same time extend supply to as many as possible of the 22,000 new homes being erected each year. The influence of this latter group on the Commission's distribution work is very great.

Since 1951 this rural extension programme has continued to depend on a plan of self-help whereby prospective consumers make advances towards the capital cost of construction. Under this arrangement, quarterly accounts for electricity consumed are offset against each advance; interest is credited on advances. Within the limits of its available funds the Commission has undertaken extensions on a "fifty-fifty" basis. However, some prospective consumers who have been eager to expedite their extensions have offered to advance the full capital cost, and this has enabled the Commission to maintain a consistent rate of progress which otherwise would have had to be curtailed.

The Commission expresses appreciation of this co-operative effort by consumers, which has contributed much to the satisfactory progress of the rural development plan. It has proved a very practical answer to a problem arising directly from the general shortage of funds for capital works.

SUMMARY OF PROGRESS — 146,200 NEW CONSUMERS IN FIVE YEARS

Year ended 30th June	Total	Metropolitan Area	Outside Metropolitan Area	Farms Connected
1952	27,332	8,518 (31 per cent.)	18,814 (69 per cent.)	2,381
1953	25,947	7,979 (31 per cent.)	17,968 (69 per cent.)	2,373
1954°	33,033	7,713 (23 per cent.)	25,320 (77 per cent.)	4,756
1955°	30,283	8,539 (28 per cent.)	21,744 (72 per cent.)	3,049
1956°	29,615	9,835 (33 per cent.)	19,780 (67 per cent.)	2,603
Total for 5 years	146,210	42,584 (29 per cent.)	103,626 (71 per cent.)	15,162

° During these years, 8,344, 3,459 and 1,630 consumers, respectively, were from undertakings acquired. The corresponding numbers of farms were 2,219, 45 and 12, respectively.

The number of extra-metropolitan consumers has more than doubled, and the number of farms connected has more than trebled, during the last decade. The extent of country electrical development is evident from the following statistics and the further information in the Ten Year Statistical Review Graphs 7 and 9 (frontispiece).

Financial Year	Total Consumers served directly by Commission	Extra-Metropolitan Consumers	Farms Supplied
1935-36	225,534	63,760	2,540
1940-41	284,373	93,226	6,410
1945-46	321,631	119,424	10,209
1950-51	415,682	182,382	17,572
1955-56	561,892	286,008	32,734

During 1955/56 twice as many consumers were added to the Commission's system in country areas as in the metropolis; the extent of work undertaken in country districts is emphasised by the following comparison:—

	Outside Metropolitan Area	Metropolitan Area
Poles erected	16,871	2,369
High Voltage lines erected	1,254.7 miles	25.5 miles
Low Voltage lines erected	410.4 miles	57.8 miles
Substations erected	1,626	64

MAJOR EXTENSIONS PROGRAMME

SYSTEM GENERATING CAPACITY

Generating plant on order or in course of construction (including associated boiler plant), its location and planned dates for operation are as follows:—

Plant	Planned Date of Operation as at 30/6/56
Yallourn Power Station	
Four 50,000 kW turbo-generator sets —	
Two sets	In operation
Two sets	1957/58
One 6,000 kW turbo-generator	In operation
Kiewa Hydro-Electric Project	
No. 1 Power Station — Six 16,000 kW turbo-generators	1961/62
Morwell Power and Fuel Project	
To produce — First Stage — 42,000 kW	1959
Second Stage — 24,000 kW	1960
Third Stage — 25,000 kW	1961
Fourth Stage — 42,000 kW	1963
(A 20,000 kW low pressure turbo-generator for the fourth stage is yet to be ordered.)	
Eildon Hydro-Electric Project	
Two 60,000 kW turbo-generators	1956/57
Spencer Street Power Station (Melbourne City Council)	
One 30,000 kW turbo-generator set	1959
Redcliffs Power Station	
Three 1,850 kW diesel-electric sets	1956/57

In addition —

1. Two 25,000 kW turbo-generators are to be installed at the Hume Weir by the Electricity Commission of New South Wales by 1957; the output is to be shared equally by New South Wales and Victoria.
2. The Commission expects to receive 25,000 kW from the Snowy Mountains Hydro-Electric Scheme in 1959, a further 15,000 kW in 1960, and progressive increases in the ensuing years.

YALLOURN POWER STATION

(Approved Development — Four 50,000 kW Sets)

Yallourn "C"

This extension, comprising two 50,000 kW turbo-generators, a 6,000 kW back-pressure set and six 200,000 lb./hr. boilers is practically complete. The first turbo-generator was placed in service on 22nd May, 1954, and the second on 30th April, 1955; five boilers are in operation and the one damaged by an explosion while being tested by the contractors will be ready for service about the end of 1956. The 6,000 kW back-pressure turbo-generator was completed in February, 1956.

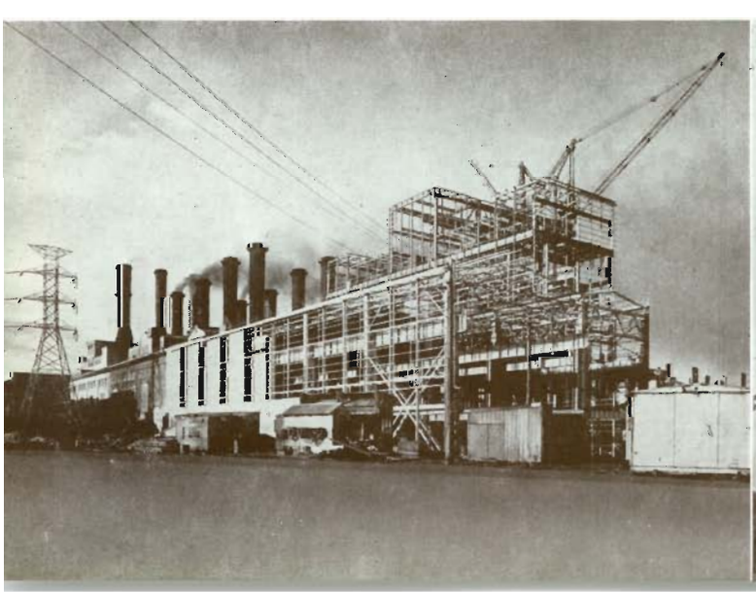
Yallourn "D"

This extension is generally similar to the "C" plant; the two 50,000 kW turbo-generators and associated boiler plant were ordered in 1950.

Work on the turbine and boiler houses is proceeding; erection of the first turbo-generator has commenced and should be completed by March, 1957. The first boiler plant will not be completed until some months later, but the set will receive steam in the initial stages by a cross-over from "C" station.

EXTENSION TO YALLOURN POWER STATION

New 'D' Station to house two 50,000 kW turbo-generator sets; first turbo-generator planned for service for winter 1957 using surplus steam from 'C' Station.



NEW DREDGER NEARING COMPLETION

Bucket wheel dredger — capacity 2,340 cubic yards per hour — being erected at Yallourn Open Cut as part of programme to augment coal production at this Open Cut to 11 million tons per annum.

Yallourn "E"

Tenders were called for the complete manufacture and construction of this power station, comprising two 75,000 kW turbo-generators and associated boilers and other plant. These offers are under consideration; however, based on latest overseas trends and the strong advice of Ebasco Ltd., of New York (see reference page 11), new tenders are being called for larger generating units of 120,000 kW each, to give the station a capacity of 240,000 kW.

General

New coal handling plant for the "C" and "D" extensions will improve the fuel delivery to the present "A" and "B" stations. The first section of this plant, comprising a 5,000 ton ditch bunker, a 3,000 ton slot bunker and connecting conveyors, crushing plant, etc., is in operation and a further section operating from the lower level of the open cut is being constructed.

930 men are employed by the Commission and 270 by contractors on these extensions.

KIEWA HYDRO-ELECTRIC PROJECT

Water Storages on the High Plains

Work continued throughout the summer period on the cut-off wall and the placing of selected earth and rock fill at the Rocky Valley Dam (capacity 23,600 acre feet).

No. 1 (Upper) Development — Approved Capacity 96,000 kW

The headrace tunnel has been completed and work is proceeding on the pipeline (two contracts) — steel deliveries for the upper section have commenced.

The foundation conditions encountered at the proposed surface site for the power station have been found unsatisfactory; the station now will be underground at a nearby location. The access shaft and the tailrace tunnel have been commenced. The station will comprise six 16,000 kW turbo-generators and is planned for operation during 1961/62.

No. 2 Development

Some of the preliminary designs have been completed. However, no commitment in respect of this development is possible in the immediate future.

No. 3 Development (Bogong) — Installed Capacity 26,000 kW

This power station has operated since 1944; the development was completed with the bringing into operation of the Bogong Creek raceline in 1953.

No. 4 Development — Installed Capacity 61,600 kW

The main components of this development have been completed; the last two of the four 15,400 kW turbo-generators were brought into service on the 28th September, 1955, and 11th April, 1956.

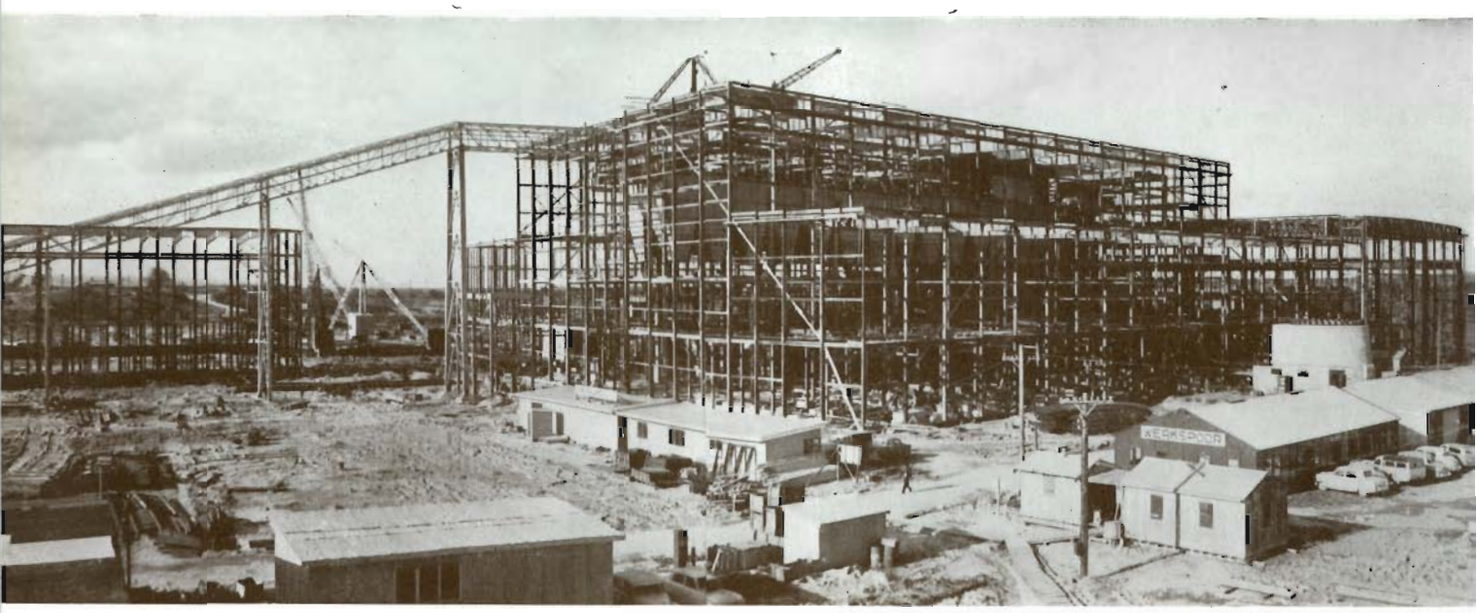
A tunnel to divert water from the West Kiewa River to No. 4 Power Station is being excavated from both ends and is 65 per cent. complete. It is expected that it will be in service before the 1957 winter.

Altogether 780 men were employed by the Commission on the Kiewa Project at 30th June, 1956.

ROCKY VALLEY DAM (CAPACITY 23,600 ACRE FEET), BOGONG HIGH PLAINS

1. Excavation to bedrock and cut-off wall being erected (foreground); selected earth fill being placed and compacted in the background.

2. Winter snow conditions at Rocky Valley Camp.



MORWELL POWER AND FUEL PROJECT

Boiler and turbine house buildings under construction.

MORWELL POWER AND FUEL PROJECT

Power output to system — 91,000 kW (3rd stage) with 1,564,000 tons of briquettes per annum

The preliminary work at the open cut was completed and the removal of overburden commenced in October, 1955, using a bucket wheel dredger (output 780 cubic yards per hour) and an overburden spreader (output 1,170 cubic yards per hour). A bucket chain overburden dredger (output 1,100 cubic yards per hour) has been brought into service since the close of the year. The mechanical erection of another bucket chain dredger, designed for similar output, has been completed. An order has been placed for a bucket chain coal dredger (output 2,900 cubic yards per hour).

Work has commenced on the foundations for the coal conveyors and associated equipment to carry coal from the open cut to the power station, briquette factories and to the Gas and Fuel Corporation's gasification plant.

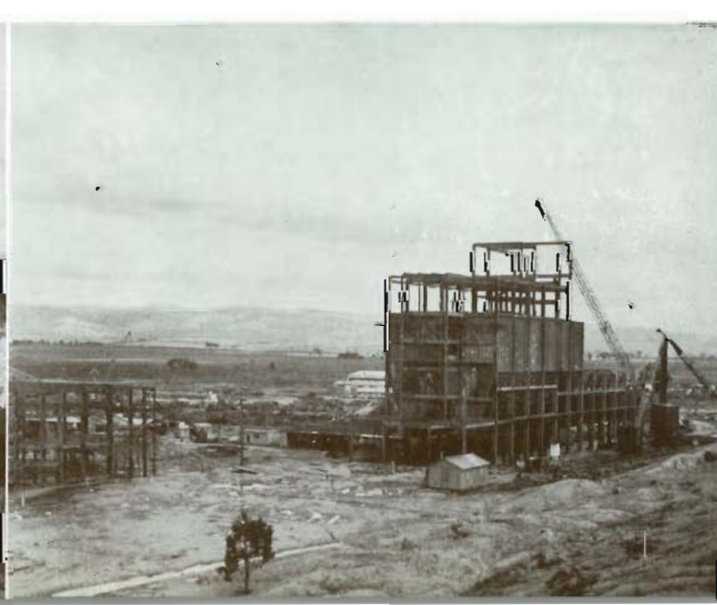
At the power station, steel erection is well advanced and the boilers are being installed. The erection of steelwork at the first briquette factory has commenced.

On this project 670 men are employed by the Commission and 420 by contractors.

MORWELL POWER AND FUEL PROJECT

Overburden removal by dredger has been commenced at Morwell Open Cut. Bucket wheel dredger (capacity 780 cubic yards per hour) in operation.

Slot bunkers being erected to receive coal from Open Cut for boiler house and briquette factories.



EILDON HYDRO-ELECTRIC PROJECT

Reference has been made in previous reports to the agreement with the State Rivers and Water Supply Commission concerning the installation of 120,000 kW of additional generating plant at the enlarged Eildon Reservoir. Under this agreement the reservoir has been enlarged slightly beyond the requirements of irrigation so that some water will be available for emergency and winter peak electricity demands; generally, however, storages will be filling during the winter and thus only a limited output of electricity will be generated when demand is highest.

Two 60,000 kW turbo-generators are being installed; the first is about to be placed in service and the second is scheduled for the winter of 1957. The two generators (8,000 kW each) removed from the old Sugarloaf Power Station were installed after re-conditioning in 1954.

A supplementary agreement has been entered into for the use of additional water for electricity generation during the winter up to 1960 when the position will be reviewed; as irrigation demands grow these additional winter releases will gradually decline until the ultimate irrigation development is reached about 1964.

REDCLIFFS POWER STATION

Generating plant at Redcliffs is being augmented by the installation of three 1,850 kW diesel-electric sets; completion is planned for the winter of 1957.

MAIN TRANSMISSION AND DISTRIBUTION

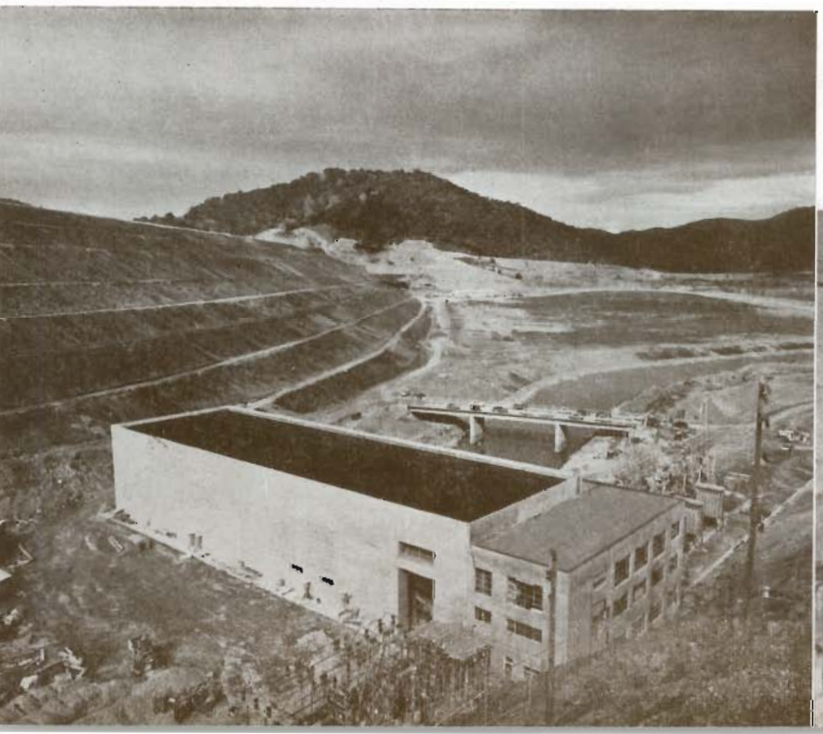
The second circuit of the new Yallourn-Melbourne 220 kV transmission line was completed and the first circuit, which was placed in service last year temporarily at 132 kV, has operated at 220 kV since February, 1956. Erection of a second 220 kV circuit between Eildon and Melbourne (section of the Kiewa transmission line) is well advanced.

The first circuit of a 220 kV transmission line from Thomastown Terminal Station to a new terminal station at Rowville (near Dandenong) has been placed in service and provides interconnection between the Yallourn and Kiewa 220 kV lines.

Orders have been placed for the erection of a 220 kV transmission line between Kiewa, Shepparton and Bendigo, and for a 220 kV transmission line between Keilor (near Melbourne), Geelong and Colac.

Tenders have also been called for the construction of a 330 kV transmission line to receive power from the Snowy Mountains Hydro-Electric Scheme and to link with the State interconnected system at Dederang.

New terminal stations were placed in service during the year at Rowville (referred to above) and Ringwood and a new main substation at Tottenham.



EILDON HYDRO-ELECTRIC SCHEME
At Left: Power Station Building to house two 60,000 kW and two 8,000 kW turbo-generators. New Big Eildon Dam erected by State Rivers and Water Supply Commission (background).
Below: First of the two 60,000 kW Turbo-generators nearing completion. First set will be completed by end of 1956, second set for winter 1957.

POWER PRODUCTION

The State generating system comprises interconnected power stations at Yallourn, Melbourne (Newport, Richmond and Spencer Street City), Kiewa, Eildon-Rubicon, Geelong, Ballarat, Shepparton, Warrnambool and Hamilton. The Commission also operates regional stations at Mildura-Redcliffs and Horsham-Murtoa.

Terminal stations are located at Richmond, West Melbourne, Yarraville, Brunswick, Clifton Hill, Thomastown, East Malvern, Sunshine, Ringwood, Rowville (near Dandenong) and Geelong.

From these generating and terminal stations electricity is transmitted to the Commission's various Electricity Supply Branches, Melbourne and country, and also to those Melbourne municipal undertakings which purchase in bulk.

STATE GENERATING SYSTEM

INSTALLED CAPACITY AND LOADING AT COMMISSION POWER STATIONS

Power Station	Installed Capacity of Generators 30/6/56	Maximum Demand		kWh Generated (Millions)	
		1955/56	1954/55	1955/56	1954/55
(i) *Interconnected State System*	kW	kW	kW		
(a) *Thermal Stations*					
Yallourn (including allowance for briquette factory)	289,000	279,000	260,000	1,887.8	1,668.1
Melbourne—					
Newport	311,000	298,400	303,000	1,278.7	1,249.9
Spencer Street	84,750	94,000	83,000	269.3	306.6
Richmond	53,000	52,500	52,000	200.1	175.2
Geelong "A"	10,500	12,200	11,800	17.1	21.6
Geelong "B"	30,000	35,500	35,400	161.5	160.4
Ballarat "A"	5,900	5,500	6,050	4.9	8.2
Ballarat "B"	20,000	26,000	25,800	72.3	91.0
Shepparton	10,530	10,250	10,300	18.3	19.7
Warrnambool	4,980	4,980	4,980	6.5	7.5
Hamilton	3,020	2,400	1,960	7.2	7.4
(b) *Hydro Stations*					
Eildon-Rubicon	28,915	31,170	31,250	171.1	141.5
Kiewa	87,600	90,000	61,000	288.2	77.8
Total Interconnected System	939,195	897,190°	836,020°	4,383.0	3,934.9
(ii) *Not connected to State System Thermal Stations*					
Redcliffs } Inter-	12,000	10,000	8,650	36.6	32.7
Mildura } connected	7,000	3,100	3,800	5.2	2.4
Horsham } Inter-	2,264	1,310	1,270	4.4	0.4
Murtoa } connected	590	260	—	0.2	—
Sub-Total	21,854	—	—	46.4	35.5
TOTAL	961,049	—	—	4,429.4	3,970.4

° Maximum Coincident Demand.

Notes:—

1. The effective capacity of generators is reduced because at Yallourn generators have been completed ahead of their related boilers and at Newport, Ballarat "A" and Mildura there were some limitations on boiler capacity.

   Two generators at Eildon (totalling 16,000 kW) were unavailable when the level of water in the reservoir exceeded 936 ft. in May, 1956; they were operated for approximately 7 months of the year.

2. At Redcliffs generators totalling 2,000 kW were taken over from the State Rivers and Water Supply Commission on 29th February, 1956. Murtoa Power Station was acquired 1st March, 1956.

The maximum coincident demand 897,190 kW which occurred on 8th June, 1956, represented the total available capacity of the plant at the time; industrial standby plants assisted to the extent of 10,800 kW and it was necessary to shed 17,000 kW for a short period.

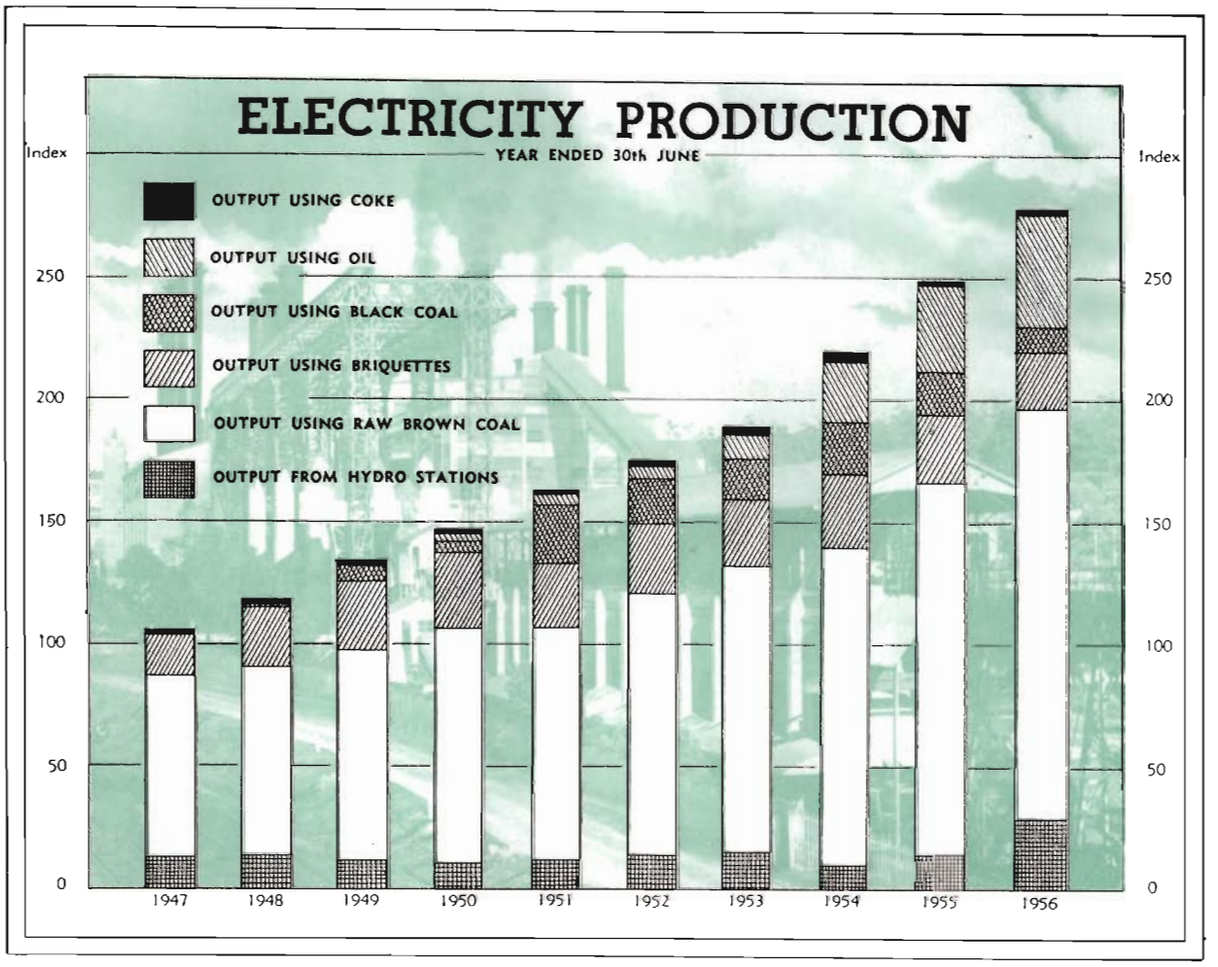
Since the close of the year the system carried 943,330 kW with the assistance of a further 10,800 kW from industrial standby plants; some load shedding and reduction in frequency were necessary for a short period.

The higher output of electricity was met principally by Yallourn and Kiewa where new plant has been installed; in addition, weather conditions have been favourable for hydro generation.

Details of loading, output, load factors and fuels used in respect of power stations throughout Victoria are contained in Appendices Nos. 6 and 7.

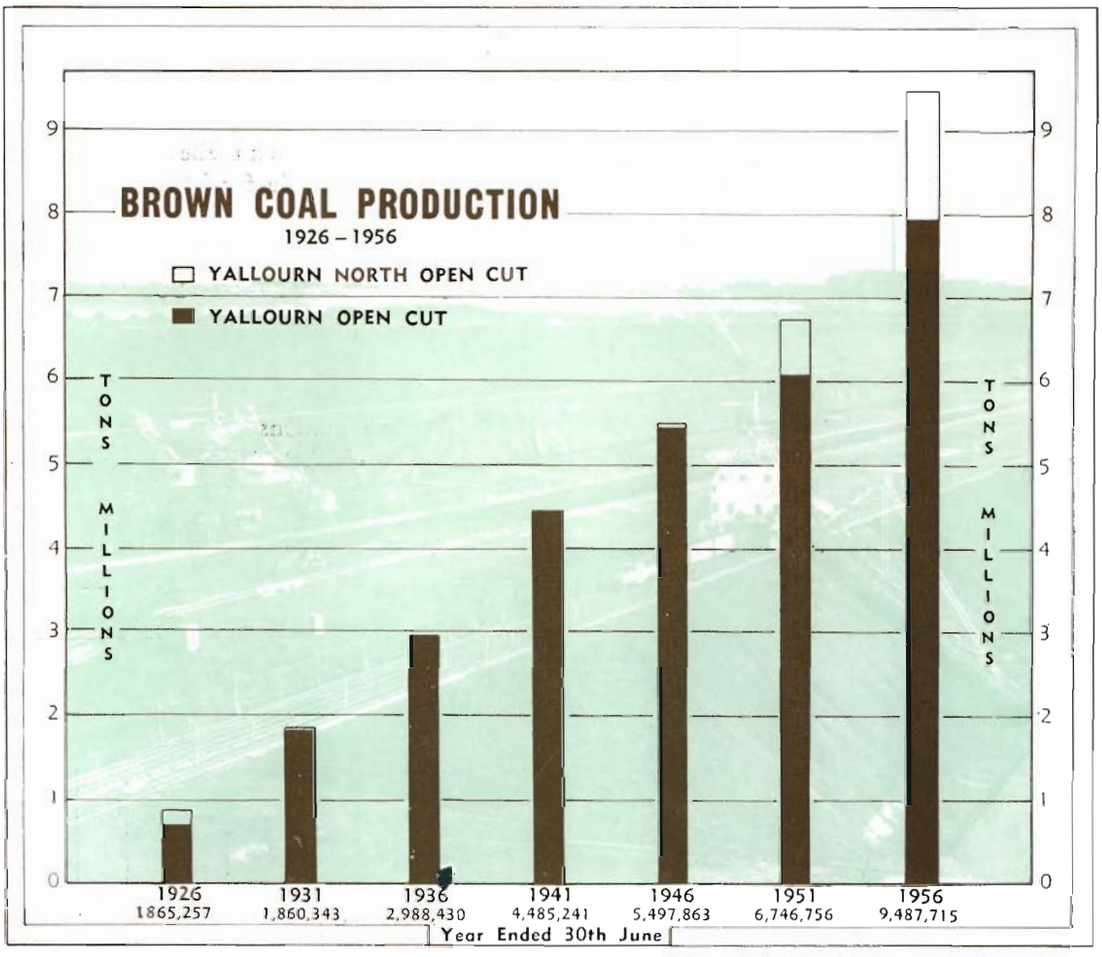
FUEL SUPPLIES

Over the last decade the output from the Comission's power stations has almost trebled. Most of the fuel needed for this increased production has been met from Victoria's own resources — brown coal or briquettes (see accompanying graph).



As previously reported, the only practicable extension of the State generating system during the war and the immediate post-war years was at stations designed originally for peak load operation. As these plants now operate at higher load factors — and will continue to do so for several years yet — they require relatively greater quantities of fuel. During the year 1,084,883 tons of brown coal (principally from Yallourn North) and 120,656 tons of black coal (mainly from Callide, Queensland) were used at peak load stations. Fuel supplies were adequate for power station requirements.

The conversion of four boilers at Newport "A" Power Station to oil firing has been completed.



Coal Winning

The year's operations brought the total coal excavated since the commencement of operations to over 130 million tons. Of the 7,937,769 tons won during the year, 5,409,229 tons were delivered to the Yallourn Power Station and 2,528,540 tons to the Briquette Factory. On the 8th September, 1955, 26,169 tons of coal were produced — the highest daily output yet achieved.

Overburden Removal

3,372,480 cubic yards of overburden were removed compared with 3,575,250 cubic yards in the previous year, bringing the total removed to 30th June, 1956, to over 49 million cubic yards.

The area of this open cut has increased from 865 to 933 acres at grass level and from 769 to 828 acres at the surface of the coal.

Plant

To provide fuel for the extensions to the Yallourn Power Station, the annual output of coal will have to be progressively increased to some 11 million tons; additional dredgers are required to cope with this increase and for the ultimate replacement of two of the older dredgers. Two German manufactured bucket wheel dredgers (capacity of each — 2,340 cubic yards per hour) were ordered in 1951; one was placed in service during May, 1956, but, unfortunately, was later damaged extensively by fire. The second machine has been placed in service since the close of the year.

YALLOURN NORTH OPEN CUT

1,549,946 tons of coal were won during the year for power generation (Newport Power Station) and industry compared with 1,391,031 tons last year. To date, the Commission has excavated 10,255,721 tons from this Open Cut.

At the present rate of production it is estimated that the workable reserves of coal at the present location will be depleted in 1959/60. Accordingly to meet requirements until the Morwell briquette factories come into full production, a limited extension of these workings (at a site about four miles east on part of the same coal seam) was opened up during the year. 444,851 cubic yards of overburden have been removed and coal winning commenced.

MORWELL OPEN CUT

Overburden removal was restarted during the year; 769,199 cubic yards were removed, bringing the total to date to 3,792,821 cubic yards.

As part of the opening up process, 14,694 tons of coal were won and used at the Yallourn Power Station.

BRIQUETTE PRODUCTION AND DISTRIBUTION

	Tons
1930-31	225,473
1935-36	357,601
1940-41	433,756
1945-46	493,144
1950-51	511,404
1955-56	634,099

Production was 3,520 tons greater than last year, and is the highest yet attained.

By-product electricity amounted to 88.0 million kWh of which 55.0 million kWh were delivered to the State system, the remainder being used at the factory. This year, 1,816 tons of pulverised fuel were produced for use in Victorian Railways locomotives compared with 2,239 tons last year.

Alterations to plant and buildings to improve operating conditions were completed in Factory "B" and similar work in Factory "A" is in progress. A new four-stamp press transferred from Morwell is being installed in "B" Factory.

The two taller chimneys with latest equipment for the extraction of dust from flue gases have been installed at the boiler house ("B" and "C" factories).

DISTRIBUTION

Sales	315,156 tons
(excluding Commission Power Stations — 317,107 tons)	
Revenue	£1,308,459
Expenditure	£1,298,918
Profit	£9,541

The profit on operations (£9,541) compared with a profit in the previous year of £19,935. The decrease resulted from higher wages and special expenditure on plant rehabilitation. To meet rising costs, the price of briquettes has been increased since the close of the year.

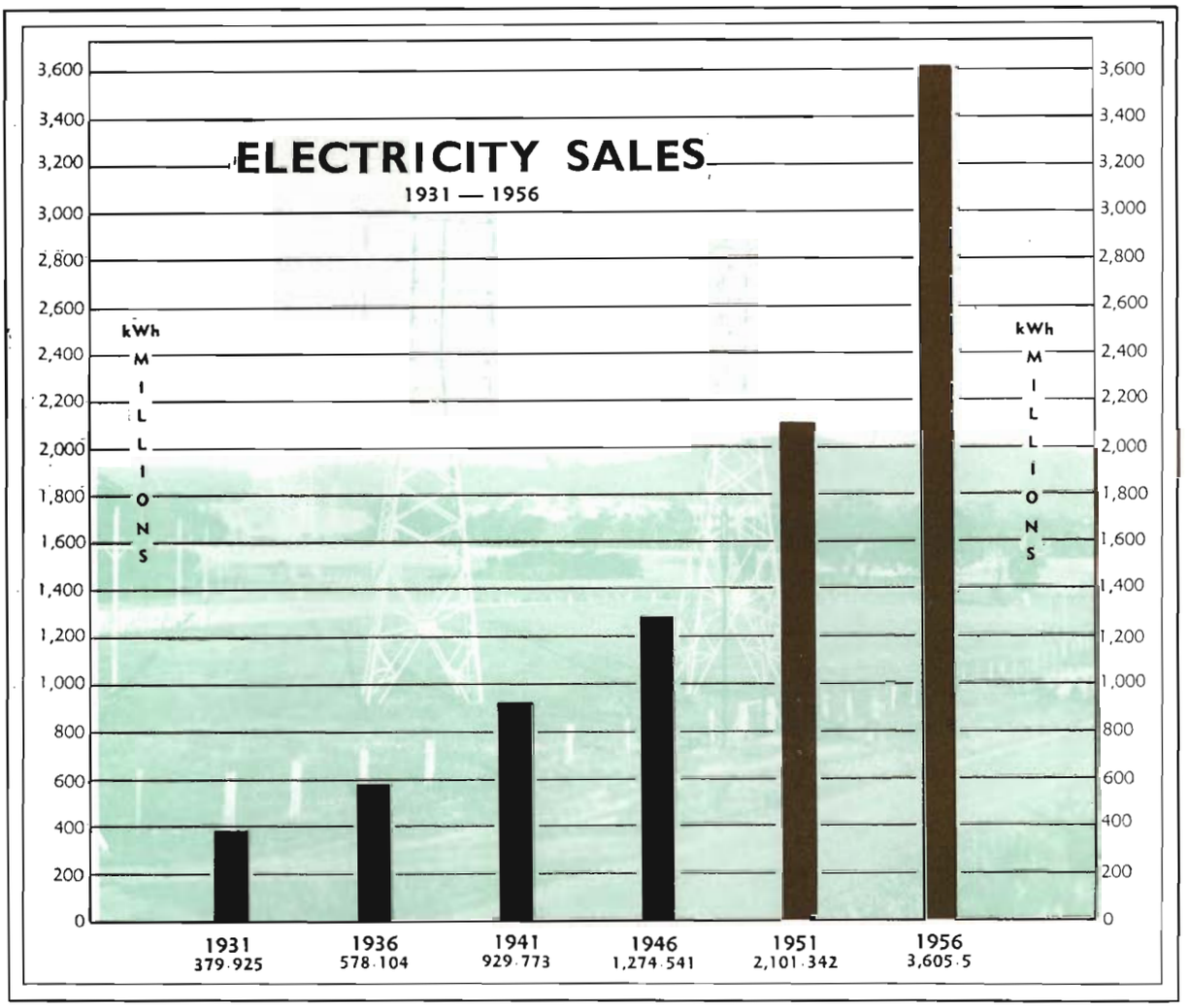
Because of the very favourable output from hydro-electric power stations it was possible to make a special release of approximately 70,000 tons briquettes to the public to assist in meeting the winter demand for fuel.

ELECTRICITY SUPPLY

ANALYSIS OF DEVELOPMENT

Electricity sold to all consumers, retail and bulk, totalled 3,605 million kilowatt-hours — an increase of 13 per cent.

This rate of increase is at the same high level as last year and resulted partly from an increase of nearly 6 per cent. in the number of consumers. However, the substantially increased use by existing consumers has continued to reflect a greater application of electricity, particularly for power and heating in industry and commerce and for general purposes in the home and on the farm.



Sales by the Commission to domestic consumers increased by 18 per cent.; there were 23,969 new consumers in this class. The average consumption per domestic consumer for each of the last five years is as follows:—

	Average Consumption per Domestic Consumer kWh	Increase or Decrease kWh
1951-52	1,496	— 70
1952-53	1,600	+ 104
1953-54	1,770	+ 170
1954-55	1,921	+ 151
1955-56	2,144	+ 223

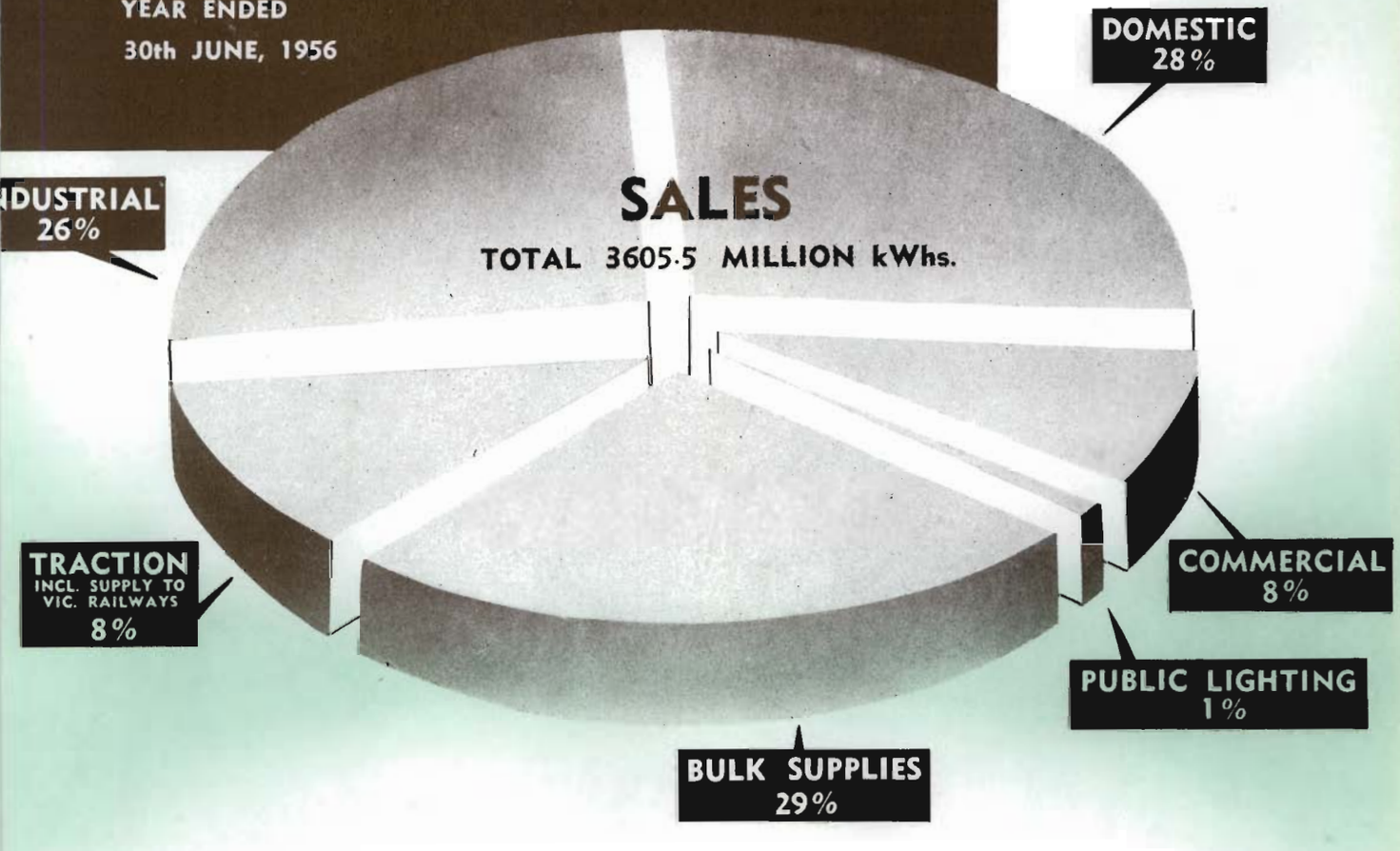
The average revenue received for each kilowatt-hour sold to the domestic consumer for all household purposes is today lower than the pre-war period whereas since 1939 the basic wage has trebled. This favourable comparison is largely the result of greater use of electricity by consumers, particularly at the lower off-peak tariff rates. (Based on 1939 consumption, the average rate per kilowatt-hour sold would have increased by about one-third of the basic wage increase.) The trend over the last ten years is shown in Graph No. 6 "Ten Year Statistical Review" at the front of this report.

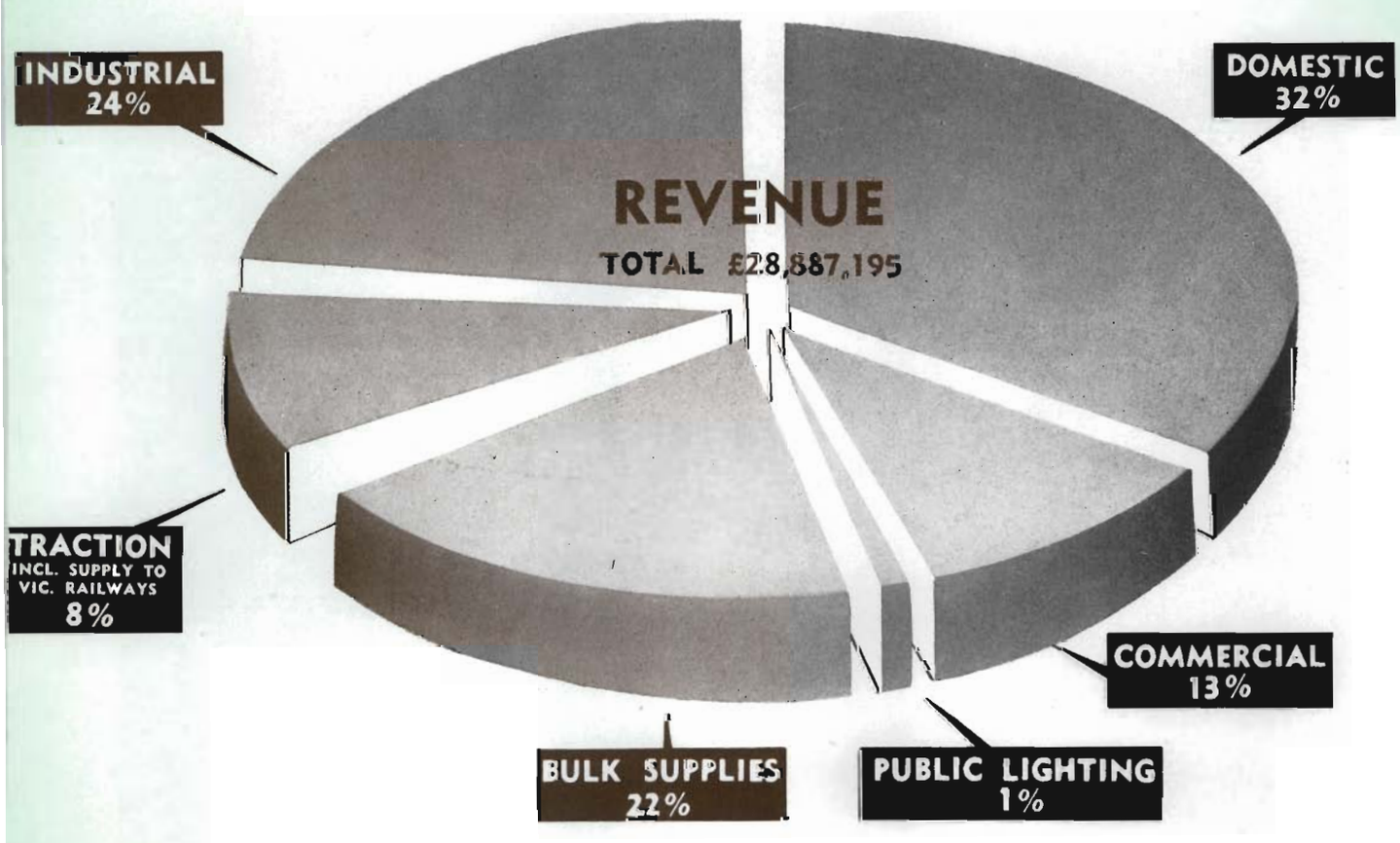
Sales to commercial and industrial consumers increased by 16.4 per cent. and 12.8 per cent. respectively. The number of consumers in these classes increased by 5,626 and an additional 25,365 h.p. of motors was connected.

ELECTRICITY SALES AND REVENUE

SUBDIVISIONS ACCORDING TO CLASSES OF CONSUMERS

YEAR ENDED
30th JUNE, 1956

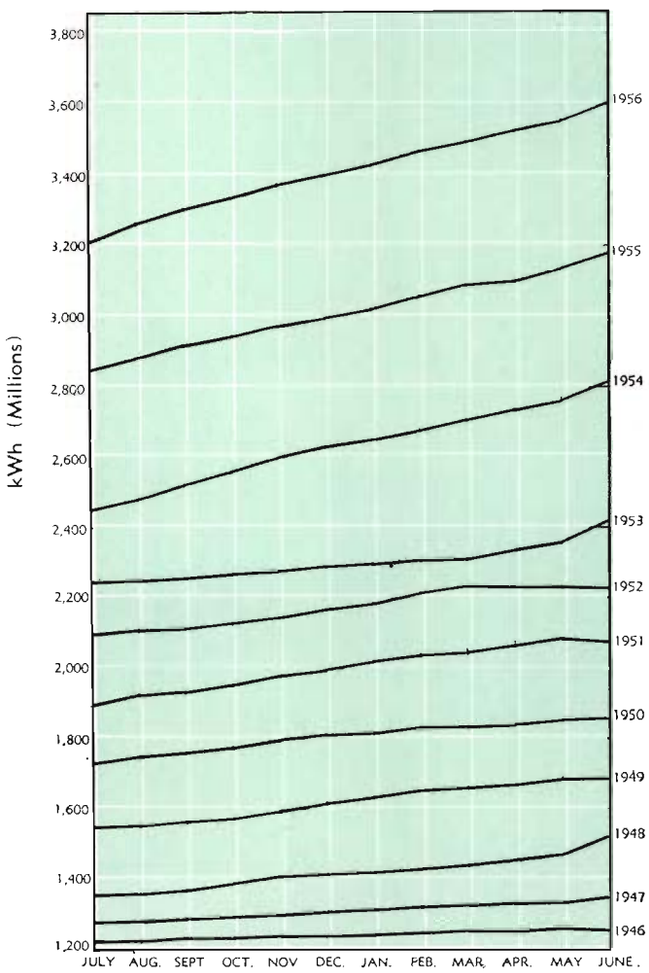




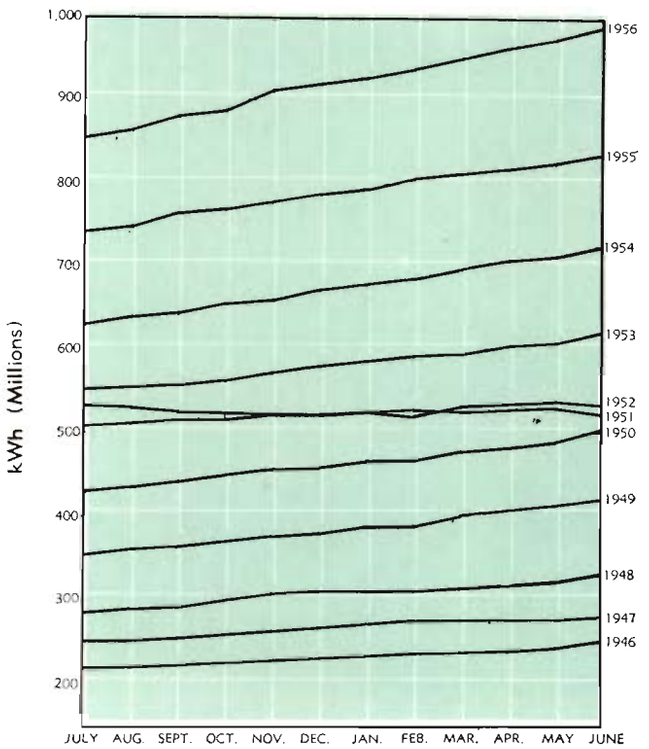
ELECTRICITY SALES

MOVING ANNUAL TOTALS

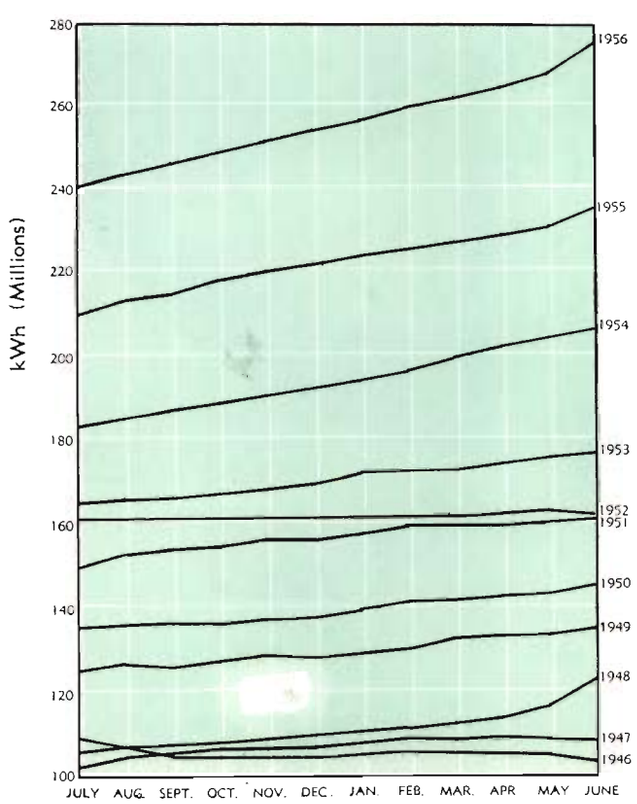
TOTAL SALES
(RETAIL AND BULK)



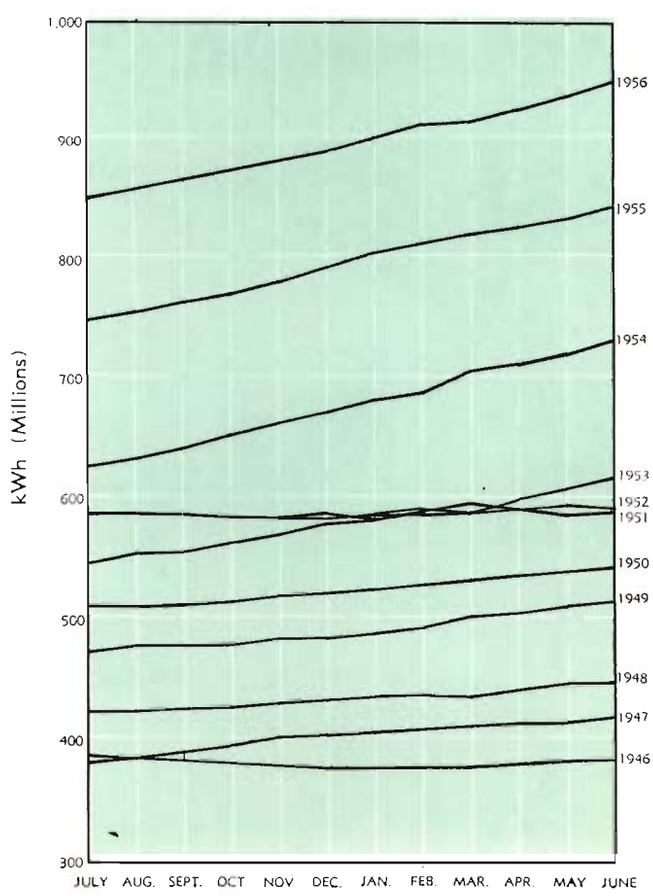
DOMESTIC



COMMERCIAL



INDUSTRIAL



COMMISSION'S UNDERTAKINGS FOR LOCAL DISTRIBUTION

The following summary of statistical data relating to the nine branches of the Commission's Electricity Supply Department is compiled from information contained in this report:—

Revenue increased by £3,197,395 (16.6 per cent.) to £22,467,871.

Sales of Electricity increased by 318,776,172 (14.3 per cent.) to 2,546,694,426 kWh.

Consumers increased by 29,615 (5.6 per cent.) to 561,892.

Farms increased by 2,603 (8.6 per cent.) to 32,734.

Branch or Region	Area of Supply (sq. miles)	No. of Consumers	Electricity sold kWh (millions)	Increase this year				No. of Farms Supplied
				Substations		Distribution Lines		
				No.	Capacity kVA	H.V. Route Miles	L.V. Route Miles	
Metropolitan	338.5	275,884	1,550.995	64	41,765	25.5	57.8	1,142
Ballarat	500.9	21,528	66.528	87	3,560	57.6	18.8	1,496
Eastern Metropolitan	1,016.0	74,174	250.280	169	47,640	64.5	97.7	4,654
Geelong	291.6	29,472	127.276	62	2,413	32.5	26.1	1,198
Gippsland (incl. Yallourn)	2,942.7	44,207	174.193	232	11,995	145.4	88.4	7,167
Midland	801.0	14,501	36.563	106	690	87.5	23.8	1,805
North Eastern (incl. Kiewa)	3,401.0	44,254	172.405	417	39,340	341.8	50.3	6,314
North Western	950.3	29,051	79.595	226	7,805	297.8	60.3	3,643
South Western	1,992.0	28,821	88.859	327	17,330	227.6	45.0	5,315
Total	12,234.0	561,892	2,546.694	1,690	172,538	1,280.2	468.2	32,734

BRANCH TRANSMISSION AND DISTRIBUTION

Transformer capacity has been augmented at Mornington and Castlemaine substations and similar work is proceeding at Kyabram, Bendigo, Colac, Warragul and Leongatha.

In the year under review the following larger country extensions were completed or were nearing completion at 30th June, 1956:—

Ballarat Branch — Lexton.

Eastern Metropolitan Branch — Warrandyte North, Hurstbridge, Wattle Glen and Mt. Dandenong T.V. Stations.

Geelong Branch — Anakie.

Gippsland Branch — Nicholson-Sarsfield, Limonite, Blackwood Forest, Nambrok-Denison Soldier Settlement.

Midland Branch — Moliagul, Toolern Vale, Newham.

North Eastern Branch — Taggerty, Tennyson, Tawonga-Running Creek, Marysville, Coomboona, Numurkah East, Murray Valley Soldier Settlement, Ulupna.

North Western Region — Hunter, Kurting-Powlett, Piavella, Wanalta, Cohuna.

South Western Branch — Merino, Woolsthorpe-Oblong East, Moutajup-Warrayure.

The Heathcote and Charlton local electricity supply undertakings (North Western Region) were acquired following the extension of transmitted supply. As part of the Wimmera regional scheme, the Murtoa-Rupanyup-Minyip undertaking was acquired and linked to Horsham.

NEW RINGWOOD OFFICE - SHOWROOM

Officially opened by Minister of Electrical Undertakings (Hon. G. O. Reid, M.L.A.) 26th June, 1956.

TRAMWAYS

BALLARAT, BENDIGO AND GEELONG

Revenue — £158,416 Loss — £207,694

As reported last year the Transport Regulation Board after a public hearing on passenger transport facilities at Geelong recommended that the tram services in that city should be scrapped as soon as an adequate alternative service could be provided; also it recommended that the alternative service would best be provided by a modern motor omnibus service so organised as to provide for the maximum convenience and economy over the whole urban area.

A formal notice of intention to abandon the Geelong Tramways, in accordance with the requirements of Section 19 of the State Electricity Commission Act 1929, was laid before Parliament on 13th September, 1955. Subsequently arrangements were made by the Transport Regulation Board for omnibus services to supplant the tramways which finally ceased operation on 25th March, 1956.

The Commission has for many years emphasised that all three provincial tramway services — Ballarat, Bendigo and Geelong — have never been economically justified. The successful changeover to omnibus services at Geelong has relieved the heavy burden of loss in that city. Ballarat and Bendigo street transport services continue to incur annual losses of nearly £150,000 and the provision of alternative services would not only eliminate these losses, which have to be borne by the electricity consumers, but would more adequately provide for the convenience of the travelling public.

Despite an increase in fares from 1st November, 1955: the loss on operations was Ballarat — £76,758; Bendigo — £69,926; and Geelong — £61,010.

The year's revenue, expenditure and passenger traffic for the three systems and the variations from last year's figures were:—

	Revenue		Expenditure		Passengers	
	£	%	£	%		%
Geelong (ceased operation 25/3/56)	50,604	(—34.5)	111,614	(—34.3)	3,038,899	(—43.8)
Ballarat	65,298	(+ 2.2)	142,056	(+ 4.0)	4,149,847	(— 8.1)
Bendigo	42,514	(+ 4.7)	112,440	(+ 3.2)	2,522,133	(— 6.9)
Total	£158,416	(—12.8)	£366,110	(—11.8)	9,710,879	(—23.2)

PERSONNEL

Total Personnel

	30/6/56	30/6/55
Staff	6,492	6,014
Wages	11,997	12,172
	18,489	18,186

Wages employees at 30th June, 1956:—

Location	Operation	Construction
Power Generation	2,079	1,566
Main Transmission Lines, Terminal and Substations	383	617
Electricity Supply — Metropolitan Branch Distribution	349	147
Electricity Supply — Country Branch Distribution	690	690
Briquette Production and Distribution	461	176
Coal Winning — Yallourn	1,076	—
General Services — Town and Workshops — Yallourn	1,377	496
General Services — Workshops — Elsewhere	1,375	332
Tramways — Ballarat and Bendigo	183	—
Total	7,973	4,024
GRAND TOTAL:	11,997	

Education and Training

As reported last year, the Commission has extended its scholarship scheme to provide that up to ten scholarships for engineering courses at the University and ten for diploma courses at Technical Schools may be granted each year, subject to the total number current at any one time not exceeding 42. These scholarships are available to University and Technical School students as well as Commission trainees. Also a limited number of scholarships are to be granted to enable Commission engineers to gain overseas experience.

During the year eight scholarships were awarded for University courses, seven for Technical Schools and eight for overseas experience — a total of 23. Twenty-eight scholarships were current at the end of the year and 142 Commission trainees had been granted time-off to pursue part-time courses.

Within the Commission two graduates, 63 cadet engineers and two agricultural science cadets are receiving special training; 223 men completed the course at the Training School for Linesmen; there are 601 apprentices principally in the engineering trades. Special courses are being held for commercial executives, commercial trainees and junior officers, draftsmen, power station personnel, operators, assistant officers-in-charge of electricity supply districts, meter testers and chemical assistants.

Safety

Safety and accident prevention measures are being constantly reviewed by Section, Branch and Departmental Committees, special attention being given to safety education. Another 203 qualified as First Aiders.

PUBLIC SAFETY AND OTHER REGULATORY RESPONSIBILITIES

ELECTRIC LIGHT AND POWER ACT 1928

At the close of the financial year, 56 electricity supply undertakings (34 municipal and 22 owned by companies or persons) were operating in Victoria under the provisions of this Act.

The Governor in Council approved the following Orders in Council authorising supply of electricity:—

Order No.	Undertakers	Area of Supply
292	Balmoral Electricity Supply Co. Pty. Ltd.	Outer area of Balmoral
293	F. W. Brown	Township of Manangatang (renewal)
294	H. A. Block	Township of Apollo Bay (renewal)
295	Morning Star (G.M.A.) Mines N.L.	Township of Woods Point
296	Ararat City Council	Outer area of Ararat

Orders in Council for the supply of electricity by local authorities were revoked following the transfer of the following undertakings to state ownership — Charlton, Murtoa-Rupanyup-Minyip, Heathcote and Horsham.

Extensions (totalling 2,020 kW) to generating plants at Apollo Bay, Rainbow, Robinvale, Swan Hill and Wycheproof were approved.

Inspections were made of 31 electricity supply undertakings in addition to newly-installed generating plants and high voltage systems. Complaints of unsatisfactory service were also investigated.

Licensing of Electrical Mechanics

Licences in force as at 30th June, 1956:—Grade "A" — 4,412; Grade "B1" — 142; Grade "B" — 1,116; Grade "C" — 1,410. Two licensing examinations (including theory and practice) were held.

Special conditional permits were issued — 1,079 for periods not exceeding six months and 570 for periods not exceeding twelve months.

Registration of Electrical Contractors

At 30th June, 1956, 1,526 registrations were in force — 95 more than the previous year.

Electrical Approvals Board

Under the Board's constitution two of its members retire each year. Mr. R. J. Marriott, representing the interests of manufacturers of electrical goods, did not seek re-appointment and Mr. L. J. Forbes was appointed in his stead. The Commission expresses its sincere appreciation of the services of Mr. Marriott.

Mr. A. T. Williams, who represents the Victorian Electric Supply Undertakings, was re-appointed as a member of the Board for the ensuing three years.

Since the inception of the Board in 1935, 4,536 articles have been tested and approval given to 3,421; in addition, approximately 4,400 articles were voluntarily submitted to test.

Of the 18 electrical fatalities during the year, eight (including one Commission employee) were killed by contact with overhead or other conductors, eight were caused by incorrect connection or lack of maintenance of flexible cords or faulty alteration of wiring; there were two suicides.

Electrolysis Mitigation

The Electrolysis Technical Sub-Committee continued its work of investigating stray current electrolysis, the connection of new drainage bonds and the maintenance of existing bonds. The number of faults on steel water mains decreased by 40 per cent.

COMMISSIONERS

RETIREMENT OF MR. R. A. HUNT, D.S.O., B.C.E., M.I.E.AUST. CHAIRMAN OF THE COMMISSION

Mr. R. A. Hunt retired on 31st August, 1956, after a long association with the Commission culminating with seven years' service as Chairman. The Commission on the 6th September, 1956, recorded the following minute in appreciation of his services to the State and the Commission:—

"On the occasion of the retirement of Mr. R. A. Hunt, D.S.O., B.C.E., M.I.E.Aust., from the post of Chairman of the State Electricity Commission of Victoria on the 31st August, 1956, the Commission records its high appreciation of the invaluable service which Mr. Hunt has given to the State and the Commission over more than 40 years.

"That service began in 1915 with the State Rivers and Water Supply Commission. From November, 1916, to August, 1919, Mr. Hunt served with His Majesty's Forces in World War I, during which he was awarded the Distinguished Service Order and also Mentioned in Despatches. He joined the Commission's staff in February, 1921, as Assistant Construction Engineer, Yallourn, in which post he was closely associated with the early development of the Yallourn area including the Power Station and the Briquette Factory. Six years later he was appointed to the post of Resident Engineer, Yallourn, responsible for municipal works on the area, and in November, 1934, Assistant and Deputy to the General Superintendent, Yallourn. Upon the retirement in 1938 of Mr. R. D. Dixon, Mr. Hunt became General Superintendent, Yallourn, with responsibility for the administration of all Commission activities in the Yallourn territory and for their proper local co-ordination and for the good order, government and discipline of the territory. In this post he was responsible, during the strenuous years of World War II, for the maintenance of the Yallourn undertaking as a vital factor in the nation's war production.

"Mr. Hunt's selection by the Government in September, 1949, for the post of Chairman of the Commission, was the culmination of his career and the commencement of a period of development unsurpassed in the history of the Commission. During the seven years of his administration, the installed generating capacity was doubled. The total capital expenditure of the undertaking grew from £47 million to £212 million — revenue increased from £8.8 million to £31.1 million per annum — and the number of consumers rose from 372,000 to 562,000. This development occurred over a period fraught with difficulties of restricted capital finance and of tremendous industrial expansion.

"As head of this vast undertaking, which in 35 years he had seen grow almost from the blue-print stage, Mr. Hunt brought to the many problems associated with its development a spirit of leadership and enthusiasm, a high sense of responsibility, a keen desire to serve both the State and his fellow man, and a devotion to duty which at once was an inspiration and a challenge to those whose privilege it was to be associated with him.

"It is the sincere wish of Commissioners and staff that, in his retirement, Mr. Hunt may long be spared to enjoy a full measure of health, happiness and contentment."

APPOINTMENT OF MR. W. H. CONNOLLY, B.E.E., B.COM., M.I.E.AUST., A.M.A.I.E.E., CHAIRMAN OF THE COMMISSION

The Government has appointed Mr. W. H. Connolly, B.E.E., B.Com., M.I.E.Aust., A.M.A.I.E.E., Chairman of the Commission for a period of five years from 1st September, 1956. Mr. Connolly at the time of his apointment was Assistant General Manager, having served the Commission since 1921.

RE-APPOINTMENT OF COMMISSIONERS

Commissioners Sir Andrew W. Fairley, K.B.E., C.M.G., and A. W. Henderson were re-appointed by the Government as Commisioners for periods of one year and three years respectively as from 1st January, 1956. Sir Andrew Fairley's term of appointment was limited to the shorter period at his own request.

STAFF

Consequent upon the appointment of Mr. W. H. Connolly as Chairman, the Commission has appointed Mr. W. J. Price, Dip.Com., F.C.I.S., as Assistant General Manager as from 6th September, 1956. At the time of his appointment, Mr. Price was Commercial Manager, having served the Commission since 1920.

Mr. J. W. Schulz, A.M.I.E.Aust., was appointed Project Manager, Morwell, as from 1st September, 1956. Mr. Schulz, at the time of his appointment, was Construction Engineer, Morwell, having joined the Commission in 1954.

The Commission again has pleasure in placing on record its appreciation of the splendid service being rendered to the community by the efficiency and loyalty of the personnel engaged throughout the many phases of its activities. The vast programme of new works and the development and operation of the power and fuel projects referred to in this report indicate the magnitude of the task so willingly accepted by all.

We have the honour to be, Sir, your obedient servants,

W. H. CONNOLLY, Chairman
ANDREW W. FAIRLEY, Commissioner
A. W. HENDERSON, Commissioner
A. A. FITZGERALD, Commissioner

D. H. MUNRO,
Secretary

1st November, 1956

PROFIT AND LOSS ACCOUNT,

BALANCE SHEET

AND

FINANCIAL STATISTICS

STATE ELECTRICITY COMMISSION OF VICTORIA

GENERAL PROFIT AND LOSS ACCOUNT — YEAR ENDED 30th JUNE, 1956

(Adjusted to the nearest £)

EXPENDITURE—	£	£
Electricity Supply—		
Purchased Electricity	1,695,765	
Generation, Transmission, Transformation and Distribution	16,417,248	
Interest	4,467,507	
Depreciation	1,710,007	
Administration and General Expenses	1,438,646	
Employees' Facilities and Welfare Expense	623,371	
Loan Flotation Expense	155,005	
Accommodation and Miscellaneous Services	372,169	
	26,879,718	
Deduct—Electricity transferred to Works	207,613	
		26,672,105
Briquetting—		
Manufacture and Distribution	2,633,502	
Interest	115,425	
Depreciation	40,605	
Administration and General Expenses	66,875	
Employees' Facilities and Welfare Expense	44,785	
Loan Flotation Expense	3,561	
Accommodation and Miscellaneous Services	92,843	
	2,997,596	
Deduct—Briquettes transferred to Works	1,698,678	
		1,298,918
Brown Coal (Yallourn North)—		
Winning and Distribution	1,976,957	
Interest	44,770	
Depreciation	18,356	
Administration and General Expenses	26,589	
Employees' Facilities and Welfare Expense	17,003	
Loan Flotation Expense	589	
Accommodation and Miscellaneous Services	41,285	
	2,125,549	
Deduct—Brown Coal transferred to Works	1,682,524	
		443,025
Tramways—		
Power and Traffic Expenses	324,826	
Interest	179	
Depreciation	1,470	
Administration and General Expenses	30,280	
Employees' Facilities and Welfare Expense	9,355	
		366,110
General—		
Miscellaneous Expenses (incl. Brown Coal Investigations, £95,781)		209,357
Profit—Carried down		2,112,464
		31,101,979
Proportion of Interest and Other Expenditure on Works under Construction temporarily Capitalised now written out		1,750,000
Contingency and Obsolescence Reserve		—
Surplus for year transferred to General Reserve		362,464
		2,112,464

INCOME—	£	£
Electricity Supply—		
Domestic—General	8,426,217	
Domestic—Farms	781,279	
Commercial	3,781,640	
Industrial—General	6,282,309	
Industrial—Mining	57,780	
Industrial—Farms	640,032	
Traction	2,137,809	
Public Lighting	352,932	
Bulk Supplies	6,419,323	
Miscellaneous	7,874	
		28,887,195
Briquetting—		
Briquette Sales	1,297,290	
Add—Briquettes on hand at end of year	414,224	
	1,711,514	
Deduct—Briquettes on hand at beginning of year	403,055	
		1,308,459
Brown Coal (Yallourn North)—		
Brown Coal Sales	735,051	
		735,051
Tramways—		
Traffic Receipts	157,849	
Advertising, etc.	567	
		158,416
General—		
Miscellaneous Income		12,858
		31,101,979
Profit—Brought down		2,112,464
		2,112,464

The following amounts have been included in the Depreciation provision for Sinking Fund Contributions:—

	1954-55	1955-56
Electricity Supply	£1,028,955	£1,178,255
Briquetting	27,747	27,066
Brown Coal	4,668	4,482

Sale of Electrical Appliances.—The operating accounts include in respect of this function

	Revenue	Expenditure
1954-55	£891,574	£864,013
1955-56	£952,500	£917,836

STATE ELECTRICITY COMMISSION OF VICTORIA

GENERAL BALANCE SHEET AS AT 30th JUNE, 1956

(Adjusted to the nearest £)

LIABILITIES	£	£
Capital Liabilities—		
Victorian Government Advances	46,658,140	
Deduct—Redeemed or Cancelled Securities	4,294,675	
	42,363,465*	
Debentures and Inscribed Stock	£	
Issued by Commission (See Schedule)	154,572,810	
Deduct—Redeemed or Cancelled Securities	2,858,368	
	151,714,442†	
Issued by Undertakings acquired by Commission (See Schedule)	611,784	
		194,689,691
Current and Accrued Liabilities—		
Bank Overdraft	6,585,950	
Accounts Payable	4,602,005	
Consumers' Deposits	65,034	
Service Charges received in Advance	281,200	
Unclaimed Salaries and Wages and Interest	56,825	
Other Deposits and Trust Moneys	143,822	
Interest Accrued	1,887,211	
Salaries and Wages Accrued	409,393	
Pay Roll Tax Accrued	46,439	
Workers Compensation Insurance Accrued	167,617	
Freight Accrued	124,397	
Miscellaneous	251,643	
		14,621,536
Suspense Credits—		
Consumers' Advances for Construction	4,028,905	
Miscellaneous	46,727	
		4,075,632
Reserves—		
Contingency and Obsolescence	1,975,675	
Rate Stabilisation	500,000	
Rural Development	956,193	
General	4,730,952	
		8,162,820
		221,549,679

* Of these totals the undermentioned amounts are deemed to have been raised overseas and to be repayable in Sterling—
30th June, 1955 .... £6,540,557 30th June, 1956 .... £6,534,557

† Includes the undermentioned amounts raised in London and repayable in Sterling—
30th June, 1955 .... £1,241,443 30th June, 1956 .... £1,235,042

ASSETS	£	£
Fixed Capital—		
Coal Production	13,860,105	
Briquette Production	17,305,008	
Briquette Storage and Distribution	232,160	
Power Production—Thermal Stations (Steam)	50,769,825	
" " Thermal Stations (Internal Combustion)	2,222,933	
" " Hydro Stations	30,865,499	
Transmission System	15,546,763	
Terminal Transformation System	11,753,947	
Distribution System	40,053,559	
Tramways	674	
General	29,760,758	
	212,371,231	
Deduct—Provision for Depreciation	20,527,232	
	191,843,999	
Deduct—Proportion of cost of extensions payable by consumers	356,525	
		191,487,474
Current and Accrued Assets—		
Cash	—	
Accounts Receivable	2,992,166	
Materials and Supplies (Construction and Operation)	8,509,159	
Working Fund Advances	42,848	
Accounts in hands of Agent-General, London	25,532	
Investment of Self Help Contributions Unexpended	1,431,293	
Prepayments	48,101	
Accrued Revenues	1,926,406	
Miscellaneous	32,424	
		15,007,929
Suspense Debits—		
Overburden Removal and Disposal	5,181,585	
Preliminary Investigations	299,618	
Unallocated Contract Expenditure	659,487	
Unamortised Loan Flotation Expense	907,705	
Work in Progress	374,857	
Interest and Other Expenditure on Works under Construction temporarily Capitalised	6,792,213	
Miscellaneous	102,300	
		14,317,765
Reserve Funds—		
Sinking Funds	736,511	
		736,511
		221,549,679

Contingent Assets and Liabilities in respect of securities lodged with the Commission and the Agent-General for Victoria in London as bona fides under Commission Contracts were as follows:—

	30th June, 1955	30th June, 1956
Pounds (Australian)	2,148,933	1,844,960
Pounds (Sterling)	793,059	723,495
German (Deutschmarks)	5,611	5,611
Italian (Lire)	—	7,244,602

EDWIN TUCK, Chief Accountant.

W. H. CONNOLLY, Chairman
19th November, 1956

AUDITOR-GENERAL'S CERTIFICATE

The Accounts of the State Electricity Commission of Victoria have been audited for the year ended 30th June, 1956. In my opinion the above Balance Sheet presents a correct view of the affairs of the undertaking at the 30th June, 1956, and the Profit and Loss Account properly summarizes the operations of the Commission for the year.

E. A. PEVERILL, Auditor-General
26th November, 1956

STATE ELECTRICITY COMMISSION OF VICTORIA

SCHEDULE OF FIXED CAPITAL EXPENDITURE AS AT 30th JUNE, 1956

(Adjusted to nearest £)

	YALLOURN		MORWELL		ELECTRICITY SUPPLY DEPARTMENT		KIEWA		OTHER AREAS & GENERAL		TOTAL	
	1955/56 New Expenditure	As at 30/6/56	1955/56 New Expenditure	As at 30/6/56	1955/56 New Expenditure	As at 30/6/56	1955/56 New Expenditure	As at 30/6/56	1955/56 New Expenditure	As at 30/6/56	1955/56 New Expenditure	As at 30/6/56
	£	£	£	£	£	£	£	£	£	£	£	£
Coal Production	1,076,864	**10,093,986**	785,895	**3,766,119**	....	....	....	....	....	....	1,862,759	**13,860,105**
Briquette Production	114,465	**2,736,040**	991,182	**14,568,968**	....	....	....	....	....	....	1,105,647	**17,305,008**
Briquette Storage and Distribution	....	**53,551**	....	....	....	....	....	....	1,771	**178,609**	1,771	**232,160**
Steam Power Stations—												
Ballarat "B"	....	....	....	....	....	....	....	....	81,801	**3,055,814**	....	....
Geelong "A"	....	....	....	....	....	....	....	....	....	**293,458**	....	....
Geelong "B"	....	....	....	....	....	....	....	....	61,241	**3,701,789**	....	....
Mildura	....	....	....	....	....	....	....	....	6,785	**158,621**	....	....
Newport	....	....	....	....	....	....	....	....	224,119	**10,272,198**	....	....
Redcliffs	....	....	....	....	....	....	....	....	147,930	**1,574,434**	....	....
Richmond	....	....	....	....	....	....	....	....	25,103	**3,436,456**	....	....
Yallourn	2,905,434	**23,663,974**	....	....	....	....	....	....	....	....	....	....
Swan Hill	....	....	....	....	....	....	....	....	348	**9,651**	....	....
Morwell	....	....	403,093	**4,603,430**	....	....	....	....	....	....	3,855,854	**50,769,825**
Internal Combustion Power Stations—												
Hamilton	....	....	....	....	....	....	....	....	3,451	**154,736**	....	....
Shepparton	....	....	....	....	....	....	....	....	14,527	**1,055,234**	....	....
Warrnambool	....	....	....	....	....	....	....	....	3,093	**525,243**	....	....
Horsham	....	....	....	....	....	....	....	....	568	**50,836**	....	....
Redcliffs	....	....	....	....	....	....	....	....	77,217	**418,985**	....	....
Dunmunkle	....	....	....	....	....	....	....	....	12,386	**17,899**	111,242	**2,222,933**
Hydro Power Stations—												
Kiewa	....	....	....	....	....	....	2,263,467	**27,466,021**	....	....	....	....
Eildon-Rubicon	....	....	....	....	....	....	....	....	780,385	**3,399,478**	3,043,852	**30,865,499**
Transmission System	198,608	**2,030,337**	315,313	**628,751**	....	....	42,692	**1,933,805**	1,373,078	**10,949,800**	1,929,691	**15,542,693**
Terminal Transformation System	....	....	....	....	....	....	....	....	1,618,946	**11,734,524**	1,618,946	**11,734,524**
Distribution System—												
Metropolitan Branch	....	....	....	....	1,283,044	**12,195,306**	....	....	....	....	....	....
Provincial and Country Branches	....	....	....	....	4,319,133	**27,431,150**	....	....	....	....	....	....
Yallourn	3,419	**94,311**	....	....	....	....	....	....	....	....	5,605,596	**39,720,767**
Tramways	....	....	....	....	....	**674**	....	....	....	....	....	**674**
General—												
Offices, Stores, Workshops, etc.	472,016	**3,490,569**	214,277	**637,137**					115,133	**2,811,569**	801,426	**6,939,275**
Plant and Equipment	140,640	**1,685,838**	55,232	**954,714**	Included in Distribution Systems		Included in Hydro Power Stations		463,518	**5,161,811**	659,390	**7,802,363**
Accommodation — Townships, Hostels, etc.	227,487	**6,407,054**	42,067	**1,184,913**					13,929	**570,611**	283,483	**8,162,578**
Miscellaneous Services (Roads, Railways, Sewerage, Electricity, Telephones, Fire Services, etc.)	168,025	**2,361,948**	559,427	**3,179,820**					78,600	**1,314,534**	806,052	**6,856,302**
	5,306,958	**52,617,608**	3,366,486	**29,523,852**	5,602,177	**39,627,130**	2,306,159	**29,399,826**	5,103,929	**60,846,290**	21,685,709	**212,014,706**
Deduct Provision for Depreciation												**Cr.20,527,232**
												191,487,474

STATE ELECTRICITY COMMISSION OF VICTORIA

ABSTRACT OF CAPITAL, REVENUE AND OPERATING ACCOUNTS

Year ended 30th June	Capital				Revenue						Operating Expenditure including Writings Off, etc.	+ Surplus — Deficit
	Capital Expenditure	Loan Liability	Depreciation Provision	Reserves	Electricity Supply	Briquetting	Brown Coal	Tramways	Miscellaneous	Total		
	£	£	£	£	£	£	£	£	£	£	£	£
1925	**7,759,825**	**8,293,765**	**43,300**	**636**	**617,286**	**40,468**	**41,602**	....	....	**699,356**	**963,638**	— **264,282**
1926	9,032,464	10,120,794	67,208	408	713,252	122,379	19,476	....	....	855,107	1,125,077	— 269,970
1927	10,742,104	11,849,698	262,533	409	975,362	179,184	16,124	....	....	1,170,670	1,367,324	— 196,654
1928	12,762,939	13,567,546	493,143	792	1,262,787	192,256	10,698	....	....	1,465,741	1,463,868	+ 1,873
1929	**14,530,684**	**15,126,107**	**767,123**	**66,495**	**1,427,751**	**226,186**	**7,858**	....	....	**1,661,795**	**1,657,181**	+ **4,614**
1930	16,397,608	16,778,413	1,057,237	93,902	1,624,255	264,459	9,153	....	....	1,897,867	1,892,601	+ 5,266
1931	18,553,592	19,286,428	1,444,883	148,579	2,234,756	276,930	1,116	30,971	1,120	2,544,893	2,562,846	— 17,953
1932	**19,337,273**	**19,735,177**	**1,915,465**	**219,740**	**2,456,696**	**357,056**	....	**35,450**	**717**	**2,849,919**	**2,846,888**	+ **3,031**
1933	19,667,259	19,668,146	2,415,059	408,853	2,577,547	313,435	....	34,180	97	2,925,259	2,921,830	+ 3,429
1934	19,748,318	19,109,659	2,858,907	473,189	2,717,992	309,936	....	33,510	74	3,061,512	3,028,393	+ 33,119
1935	**20,305,078**	**19,527,309**	**3,402,565**	**355,247**	**2,995,707**	**297,858**	....	**77,121**	**10,098**	**3,380,784**	**3,374,306**	+ **6,478**
1936	20,866,242	18,806,748	3,787,609	592,438	3,164,703	348,650	....	78,207	8,180	3,599,740	3,572,012	+ 27,728
1937	21,638,314	18,682,415	4,255,919	752,108	3,339,560	337,227	....	76,142	7,500	3,760,429	3,721,528	+ 38,901
1938	**22,698,893**	**19,242,265**	**4,752,164**	**920,179**	**3,539,974**	**394,634**	....	**75,567**	**1,008**	**4,011,183**	**3,957,354**	+ **53,829**
1939	24,268,880	19,422,927	5,273,991	1,175,716	3,685,107	377,022	....	78,664	1,099	4,141,892	4,020,992	+ 120,900
1940	25,369,679	20,524,010	5,832,704	1,467,494	3,894,893	400,125	....	78,211	3,700	4,376,929	4,250,416	+ 126,513
1941	**26,116,795**	**20,678,339**	**6,365,755**	**1,852,323**	**4,241,264**	**379,847**	....	**89,571**	**13,374**	**4,724,056**	**4,563,376**	+ **160,680**
1942	26,955,737	20,523,266	6,962,906	2,293,554	4,657,450	330,756	12,594	109,955	42,894	5,153,649	5,069,227	+ 84,422
1943	28,345,527	20,348,116	7,605,229	2,854,998	4,935,602	341,631	20,542	135,900	56,413	5,490,088	5,348,695	+ 141,393
1944	**29,695,740**	**20,164,482**	**8,269,445**	**3,277,571**	**5,101,631**	**316,847**	**21,263**	**143,086**	**45,953**	**5,628,780**	**5,503,908**	+ **124,872**
1945	31,297,130	20,997,826	8,983,062	3,919,272	5,259,881	329,428	24,443	146,605	38,804	5,799,161	5,739,953	+ 59,208
1946	33,622,088	20,927,313	9,759,802	4,688,513	5,605,333	341,761	25,702	146,503	40,886	6,160,185	6,096,722	+ 63,463
1947	**36,460,148**	**23,220,783**	**10,642,598**	**5,043,406**	**5,835,194**	**321,711**	**67,767**	**142,281**	**32,561**	**6,399,514**	**6,310,109**	+ **89,405**
1948	40,523,149	26,990,075	11,541,035	5,024,987	6,543,089	325,181	102,003	143,878	33,338	7,147,489	7,360,561	+ 29,928*
1949	47,327,034	33,829,561	12,286,528	5,161,998	8,129,973	300,277	194,995	147,797	32,776	8,805,818	8,879,517	+ 29,301†
1950	**61,358,803**	**51,270,067**	**13,321,314**	**4,879,110**	**9,446,008**	**436,862**	**244,100**	**171,504**	**40,183**	**10,338,657**	**10,688,025**	— **249,368‡**
1951	93,096,608	83,647,043	14,291,427	5,017,185	11,524,389	520,052	203,418	175,063	31,576	12,454,498	12,452,638	+ 1,860
1952	124,010,685	117,048,987	15,387,228	5,208,528	15,099,864	751,676	295,434	180,697	5,992	16,333,663	16,124,453	+ 209,210
1953	**150,386,031**	**139,127,925**	**16,590,666**	**5,930,424**	**19,189,514**	**932,481**	**422,031**	**184,596**	**7,943**	**20,736,565**	**20,393,414**	+ **343,151**
1954	173,313,439	164,086,427	17,389,921	7,143,725	22,117,381	884,652	484,330	184,756	9,860	23,680,979	23,321,485	+ 359,494
1955	192,325,336	183,397,581	18,840,434	7,731,065	24,838,401	1,195,111	551,162	181,727	15,425	26,781,826	26,422,258	+ 359,568
1956	**212,014,706**	**194,689,691**	**20,527,232**	**8,162,820**	**28,887,195**	**1,308,459**	**735,051**	**158,416**	**12,858**	**31,101,979**	**30,739,515**	+ **362,464**

* After transfers of £243,000 from Reserves. † After transfers of £103,000 from Reserves. ‡ After transfer of £100,000 from Reserves.

APPENDIX No. 5

STATE ELECTRICITY COMMISSION OF VICTORIA

DEBENTURES AND INSCRIBED STOCK — CURRENT AS AT 30th JUNE, 1956

Loans Raised under the Authority of the State Electricity Commission Act No. 4512 and Amendments

Loan No.	Amount Authorised	Amount Subscribed and Received	Rate	Term	Due	Sinking Fund	Amount Redeemed	Outstanding as at 30th June, 1956
	£	£	%	Years		%	£ s. d.	£ s. d.
Loan No. 9	300,000	300,000	3·4375	16	1957	1	11,150 0 0	288,850 0 0
Loan No. 11	150,000	150,000	3·3125	10	1956	1	15,434 2 1	134,565 17 11
Loan No. 12	1,350,000	1,350,000	3·3125	10	1956	1	138,906 19 0	1,211,093 1 0
Loan No. 13	500,000	500,000	3·3125	10	1957	1	51,447 0 5	448,552 19 7
Loan No. 14 ...	500,000	500,000	3·25	10	1957	1	51,315 19 5	448,684 0 7
Loan No. 15 ...	1,000,000	1,000,000	3·25	15	1962	1	89,716 3 2	910,283 16 10
Loan No. 16	500,000	500,000	3·25	15	1962	1	44,858 1 8	455,141 18 4
Loan No. 17	500,000	500,000	3·25	15	1963	1	44,858 1 8	455,141 18 4
Loan No. 18	1,000,000	1,000,000	3·1875	10	1958	1	89,517 4 6	910,482 15 6
Loan No. 19	720,000	720,000	3·1875	10	1958	1	64,452 8 1	655,547 11 11
Loan No. 20 ...	1,000,000	1,000,000	3·1875	10	1958	1	89,517 4 6	910,482 15 6
Loan No. 21	1,000,000	1,000,000	3·1875	10	1958	1	77,060 18 2	922,939 1 10
Loan No. 22	1,000,000	1,000,000	3·1875	10	1958	1	77,060 18 2	922,939 1 10
Loan No. 23	1,000,000	1,000,000	3·1875	10	1958	1	77,060 18 2	922,939 1 10
Loan No. 24	500,000	500,000	3·1875	10	1958	1	38,530 9 1	461,469 10 11
Loan No. 25	1,340,300	1,340,300	3·1875	12	1961	1	61,300 0 0	1,279,000 0 0
Loan No. 26	1,500,000	1,500,000	3·1875	10	1959	1	115,591 7 3	1,384,408 12 9
Loan No. 27	300,000	300,000	3·1875	12	1961	1	23,118 5 6	276,881 14 6
Loan No. 28	360,000	360,000	3·1875	12	1961	1	....	360,000 0 0
Loan No. 29	2,334,000	2,334,000	3·1875	12	1961	1	114,050 0 0	2,219,950 0 0
Loan No. 30	2,000,000	2,000,000	3·1875	10	1959	1	129,978 14 10	1,870,021 5 2
Loan No. 31	500,000	500,000	3·1875	10	1959	1	32,494 13 9	467,505 6 3
Loan No. 32	1,000,000	1,000,000	3·1875	10	1959	1	64,989 7 5	935,010 12 7
Loan No. 33	1,250,000	1,250,000	3·25	12	1961	0·5	....	1,250,000 0 0
Loan No. 34	1,000,000	1,000,000	3·25	10	1959	0·5	....	1,000,000 0 0
Loan No. 35	1,000,000	1,000,000	3·1875	10	1959	0·5	32,494 13 8	967,505 6 4
Loan No. 36	400,000	400,000	3·25	15	1964	0·5	13,018 5 9	386,981 14 3
Loan No. 37	100,000	100,000	3·25	15	1964	0·5	....	100,000 0 0
Loan No. 38	1,000,000	1,000,000	3·1875	10	1959	0·5	32,494 13 8	967,505 6 4
Loan No. 39	1,000,000	1,000,000	3·1875	10	1960	0·5	32,494 13 8	967,505 6 4
Loan No. 40	2,488,800	2,488,800	3·25	15	1965	0·5	68,050 0 0	2,420,750 0 0
Loan No. 41 ...	1,000,000	1,000,000	3·1875	10	1960	0·5	32,494 13 8	967,505 6 4
Loan No. 42	1,500,000	1,500,000	3·3125	12	1962	0·5	....	1,500,000 0 0
Loan No. 43 ...	1,000,000	1,000,000	3·3125	15	1965	0·5	....	1,000,000 0 0
Loan No. 44	193,000	193,000	3·3125	15	1965	0·5	....	193,000 0 0
Loan No. 45	220,000	220,000	3·1875	10	1960	0·5	7,148 16 8	212,851 3 4
Loan No. 47	550,000	550,000	3·3125	12	1962	0·5	....	550,000 0 0
Loan No. 48 ...	500,000	500,000	3·3125	12	1962	0·5	....	500,000 0 0
Loan No. 49 ...	500,000	500,000	3·1875	10	1960	0·5	16,247 6 10	483,752 13 2
Loan No. 50 ...	3,106,050	3,106,050	3·25	15	1965	0·5	75,900 0 0	3,030,150 0 0
Loan No. 51	500,000	500,000	3·1875	10	1960	0·5	13,322 13 8	486,677 6 4
Loan No. 52	500,000	500,000	3·3125	15	1965	0·5	13,356 0 3	486,643 19 9
Loan No. 53	500,000	500,000	3·375	15	1965	0·5	....	500,000 0 0
Loan No. 54 ...	1,800,000	1,800,000	3·375	15	1965	0·5	....	1,800,000 0 0
Loan No. 55 ...	500,000	500,000	3·375	12	1962	0·5	....	500,000 0 0
Loan No. 56	250,000	250,000	3·375	19/20	1969/70	0·5	....	250,000 0 0
Loan No. 57	500,000	500,000	3·375	14	1964	0·5	....	500,000 0 0
Loan No. 58	1,300,000	1,300,000	3·375	12	1962	0·5	....	1,300,000 0 0
Loan No. 59	500,000	500,000	3·375	14	1964	0·5	....	500,000 0 0
Loan No. 60 ...	1,000,000	1,000,000	3·375	12	1962	0·5	....	1,000,000 0 0
Loan No. 61	1,000,000	1,000,000	3·375	12	1962	0·5	....	1,000,000 0 0
Loan No. 62	500,000	500,000	3·375	12	1962	0·5	....	500,000 0 0
Loan No. 64	500,000	500,000	3·375	12	1962	0·5	....	500,000 0 0
Loan No. 65	800,000	800,000	3·325	12	1962	0·5	....	800,000 0 0
Loan No. 67 ...	250,000	250,000	3·375	12	1962	0·5	....	250,000 0 0
Loan No. 68 ...	6,000,000	5,998,450	3·375	12	1963	0·5	125,950 0 0	5,872,500 0 0
Loan No. 70	250,000	250,000	3·375	12	1962	0·5	....	250,000 0 0
Loan No. 71 ...	500,000	500,000	3·375	12	1962	0·5	....	500,000 0 0
Loan No. 72	250,000	250,000	3·375	12	1962	0·5	....	250,000 0 0
Loan No. 73 ...	500,000	500,000	3·5	12	1963	0·5	....	500,000 0 0
Loan No. 74	2,000,000	2,000,000	3·5	10	1961	0·5	....	2,000,000 0 0
Loan No. 75	500,000	500,000	3·5	12	1963	0·5	....	500,000 0 0
Loan No. 76	1,000,000	1,000,000	3·375	10	1961	0·5	26,745 8 4	973,254 11 8
Loan No. 77	100,000	100,000	3·5	12	1963	0·5	2,681 4 8	97,318 15 4
Loan No. 78	350,000	350,000	3·5	10	1961	0·5	9,384 6 5	340,615 13 7
Loan No. 79	200,000	200,000	3·5	10	1961	0·5	....	200,000 0 0
Loan No. 81	100,000	100,000	3·5	10	1961	0·5	....	100,000 0 0
Loan No. 82	200,000	200,000	3·5	10	1961	0·5	....	200,000 0 0
Loan No. 83	1,500,000	1,500,000	3·5	10	1961	0·5	40,218 9 10	1,459,781 10 2
Loan No. 84	150,000	150,000	3·5	10	1961	0·5	....	150,000 0 0
Loan No. 85	6,000,000	5,993,700	3·5	10	1961	0·5	114,800 0 0	5,878,900 0 0
Loan No. 86	25,000	25,000	3·5	10	1961	0·5	670 6 3	24,329 13 9
Loan No. 87	118,850	118,850	3·5	12	1963	0·5	3,186 12 11	115,663 7 1
Loan No. 88	2,000,000	2,000,000	3·5	5	1956	0·5	48,282 1 5	1,951,717 18 7
Loan No. 89 ...	100,000	100,000	4·125	12	1963	0·5	2,127 3 9	97,872 16 3
Loan No. 90	100,000	100,000	4·125	12	1963	0·5	2,127 3 9	97,872 16 3
Loan No. 91	1,000,000	1,000,000	4·0	10	1961	0·5	21,232 6 5	978,767 13 7
Loan No. 92	4,930,000	4,929,800	4·125	10	1961	0·5	79,900 0 0	4,849,900 0 0
Loan No. 93 ...	1,000,000	1,000,000	4·125	10	1962	0·5	21,271 17 8	978,728 2 4
Loan No. 94/99 ...	7,712,050	7,711,150	4·125	10	1962	0·5	101,550 0 0	7,609,600 0 0
Loan No. 95	250,000	250,000	4·125	10	1962	0·5	5,317 19 4	244,682 0 8
Loan No. 96 ..	1,000,000	1,000,000	4·125	10	1962	0·5	21,271 17 8	978,728 2 4
Loan No. 97	1,000,000	1,000,000	4·125	10	1962	0·5	21,504 17 4	978,495 2 8
Loan No. 98	150,000	150,000	3·625	10	1962	0·5	....	150,000 0 0
Loan No. 102	2,403,450	2,401,250	4·5	10	1962	0·5	35,900 0 0	2,365,350 0 0
Loan No. 104 ...	2,250,000	2,249,700	4·75	10·5	1963	0·5	29,000 0 0	2,220,700 0 0
Loan No. 111 ...	2,250,000	2,249,850	4·75	7/12	1960/65	0·5	24,150 0 0	2,225,700 0 0
Loan No. 117 ..	100,000	100,000	4·875	25	1978	0·5	....	100,000 0 0
Loan No. 118 ...	1,000,000	1,000,000	4·75	7	1960	0·5	15,723 15 8	984,276 4 4
Loan No. 119	100,000	100,000	4·75	11	1964	0·5	....	100,000 0 0
Loan No. 120	2,119,200	2,119,200	4·75	7/12	1960/65	0·5	21,650 0 0	2,097,550 0 0
Loan No. 122	500,000	500,000	4·875	10	1963	0·5	....	500,000 0 0
Loan No. 124 ...	100,000	100,000	4·875	12	1965	0·5	....	100,000 0 0
Loan No. 126	3,000,000	3,000,000	4·875	15	1968	0·5	47,832 19 0	2,952,167 1 0
Loan No. 127	2,000,000	2,000,000	4·75	7	1960	0·5	20,475 0 0	1,979,525 0 0
Loan No. 128	50,000	50,000	4·875	25	1978	0·5	....	50,000 0 0
Loan No. 130 ...	2,600,000	2,600,000	4·75	7/15/25	1960/68/78	0·5	20,000 0 0	2,580,000 0 0
Loan No. 131	100,000	100,000	4·875	11	1964	0·5	....	100,000 0 0
Loan No. 132	250,000	250,000	4·875	25	1978	0·5	....	250,000 0 0
Loan No. 133	1,000,000	1,000,000	4·75	7	1960	0·5	10,237 10 0	989,762 10 0
Carried Forward	£106,370,700	£106,359,100					£2,712,621 15 1	£103,646,478 4 11

APPENDIX No. 5 *continued*

STATE ELECTRICITY COMMISSION OF VICTORIA

DEBENTURES AND INSCRIBED STOCK — CURRENT AS AT 30th JUNE, 1956

Loan No.	Amount Authorised	Amount Subscribed and Received	Rate	Term	Due	Fund Sinking	Amount Redeemed	Outstanding as at 30th June, 1956
Brought Forward	£ 106,370,700	£ 106,359,100	%	Years		%	£ s. d. 2,712,621 15 1	£ s. d. 103,646,478 4 11
Loan No. 134	4,250,000	4,246,150	4·75	10/15	1963/68	0·5	26,600 0 0	4,219,550 0 0
Loan No. 135	1,778,190	1,778,190	4·5/4·75	5/7/12	1958/66	0·5	1,700 0 0	1,776,490 0 0
Loan No. 136	1,000,000	1,000,000	4·875	15	1969	0·5	10,371 12 0	989,628 8 0
Loan No. 137	100,000	100,000	4·875	15	1968	0·5	....	100,000 0 0
Loan No. 138	250,000	250,000	4·875	10	1963	0·5	....	250,000 0 0
Loan No. 139	75,000	75,000	4·875	25	1979	0·5	....	75,000 0 0
Loan No. 141	1,000,000	1,000,000	4·75	7	1961	0·5	10,237 10 0	989,762 10 0
Loan No. 142	5,000,000	4,996,500	4·75	10/20	1964/74	0·5	25,000 0 0	4,971,500 0 0
Loan No. 143	500,000	500,000	4·875	10	1964	0·5	....	500,000 0 0
Loan No. 144	1,000,000	1,000,000	4·875	15	1969	0·5	10,371 12 0	989,628 8 0
Loan No. 146	50,000	50,000	4·875	25	1979	0·5	....	50,000 0 0
Loan No. 147	250,000	250,000	4·875	10	1964	0·5	....	250,000 0 0
Loan No. 148	150,000	150,000	4·875	25	1979	0·5	....	150,000 0 0
Loan No. 149	100,000	100,000	4·875	25	1979	0·5	....	100,000 0 0
Loan No. 150	1,000,000	1,000,000	4·75	7	1961	0·5	10,237 10 0	989,762 10 0
Loan No. 151	100,000	100,000	4·875	20	1974	0·5	....	100,000 0 0
Loan No. 152	75,000	75,000	4·875	10	1964	0·5	....	75,000 0 0
Loan No. 153	250,000	250,000	4·875	10	1964	0·5	....	250,000 0 0
Loan No. 154	795,420	795,420	4·375	12	1966	0·5	8,128 4 0	787,291 16 0
Loan No. 155	500,000	500,000	4·875	25	1979	0·5	....	500,000 0 0
Loan No. 156	500,000	500,000	4·875	25	1979	0·5	....	500,000 0 0
Loan No. 158	250,000	250,000	4·875	10	1964	0·5	....	250,000 0 0
Loan No. 159	250,000	250,000	4·875	20	1974	0·5	....	250,000 0 0
Loan No. 160	3,000,000	2,999,700	4·75	10/20	1964/74	0·5	10,000 0 0	2,989,700 0 0
Loan No. 161	2,500,000	2,500,000	4·75	7	1961	0·5	12,500 0 0	2,487,500 0 0
Loan No. 162	50,000	50,000	4·875	10	1964	0·5	....	50,000 0 0
Loan No. 163	500,000	500,000	4·875	25	1979	0·5	....	500,000 0 0
Loan No. 164	100,000	100,000	4·875	15	1969	0·5	....	100,000 0 0
Loan No. 165	3,750,000	3,749,900	4·75	10/20	1964/74	0·5	4,300 0 0	3,745,600 0 0
Loan No. 166	880,000	880,000	4·75	10	1965	0·5	4,400 0 0	875,600 0 0
Loan No. 167	150,000	150,000	4·875	20	1974	0·5	....	150,000 0 0
Loan No. 168	2,500,000	2,499,950	4·75	10/20	1965/75	0·5	3,100 0 0	2,496,850 0 0
Loan No. 169	150,000	150,000	4·875	20	1974	0·5	....	150,000 0 0
Loan No. 170	750,000	750,000	4·75	7	1962	0·5	3,750 0 0	746,250 0 0
Loan No. 171	450,000	450,000	4·375	12	1967	0·5	2,250 0 0	447,750 0 0
Loan No. 172	150,000	150,000	4·875	15	1970	0·5	....	150,000 0 0
Loan No. 173	500,000	500,000	4·75	7	1962	0·5	2,500 0 0	497,500 0 0
Loan No. 174	1,750,000	1,750,000	4·75	10/20	1965/75	0·5	300 0 0	1,749,700 0 0
Loan No. 175	500,000	500,000	4·875	25	1980	0·5	....	500,000 0 0
Loan No. 176	100,000	100,000	4·875	20	1975	0·5	....	100,000 0 0
Loan No. 177	200,000	200,000	4·75	7	1962	0·5	....	200,000 0 0
Loan No. 178	250,000	250,000	4·875	20	1975	0·5	....	250,000 0 0
Loan No. 180	500,000	500,000	4·875	25	1980	0·5	....	500,000 0 0
Loan No. 181	2,000,000	2,000,000	4·75	10/20	1965/75	0·5	....	2,000,000 0 0
Loan No. 182	2,000,000	2,000,000	4·75	10/20	1965/75	0·5	....	2,000,000 0 0
Loan No. 183	500,000	500,000	4·75	7	1962	0·5	....	500,000 0 0
Loan No. 184	750,000	750,000	4·875	10	1966	0·5	....	750,000 0 0
Loan No. 185	1,000,000	1,000,000	4·75	5/10	1961/66	0·5	....	1,000,000 0 0
Loan No. 186	200,000	200,000	5·0	20	1976	0·5	....	200,000 0 0
Loan No. 187	86,100	86,100	4·625/4·875	5/7/12	1961/63/68	0·5	....	86,100 0 0
Loan No. 189	2,250,000	2,247,790	5·25	5/7/15	1961/63/71	0·5	....	2,247,790 0 0
Loan No. 190	335,710	335,710	5·0/5·25	5/7/12	1961/63/68	0·5	....	335,710 0 0
Loan No. 191	50,000	50,000	5·5	15	1971	0·5	....	50,000 0 0
Loan No. 192	125,000	125,000	5·375	7	1963	0·5	....	125,000 0 0
Loan No. 193	150,000	150,000	5·5	20	1976	0·5	....	150,000 0 0
Loan No. 194	150,000	150,000	5·4375	7	1963	0·5	....	150,000 0 0
Loan No. 195	500,000	500,000	5·5	15	1971	0·5	....	500,000 0 0
Loan No. 196	2,000,000	73,300	5·25	5/10/15	1961/66/71	0·5	....	73,300 0 0
Loan No. 197	100,000	100,000	5·375	5	1961	0·5	....	100,000 0 0
	£156,521,120	£154,572,810					£2,858,368 3 1	£151,714,441 16 11

Issued by Undertakings Acquired by the State Electricity Commission of Victoria:

Original Issues	£924,050 0 0
Outstanding at Dates of Acquisition	£715,187 0 8
Outstanding at 30th June, 1956	£611,783 14 7

STATISTICS
POWER PRODUCTION

STATE OF VICTORIA
GENERATION OF ELECTRICITY

Station	State Electricity Commission of Victoria																									
	Interconnected System																				Other Stations		Total S.E.C.		Other Undertakings		Total for Victoria	
	Yallourn*		Newport		Richmond		Spencer Street (Melbourne City Council)		Regional Stations: Geelong "A" & "B"		Regional Stations: Ballarat "A" & "B"†		Regional Stations: Shepparton, Warrnambool and Hamilton		Eildon-Rubicon		Kiewa		Total Interconnected System		Mildura, Redcliffs, Horsham and Murtoa					
Year	kWh (mills.)	M.D.kW	kWh (mills.)	M.D.kW	kWh (mills.)	M.D.kW	kWh (mills.)	M.D.kW	kWh (mills.)	M.D.kW summated	kWh (mills.)	M.D.kW summated	kWh (mills.)	M.D.kW summated	kWh (mills.)	M.D.kW	kWh (mills.)	M.D.kW	kWh (mills.)	M.D.kW Coincident	kWh (mills.)	M.D.kW summated	kWh (mills.)		kWh (mills.)	
	Operation commenced 15.6.24		Operation commenced 12.10.23 Newport "A" acquired 21.1.51		Station acquired and reconditioned. Restarted 6.5.29		Station operated as part of State system from 1.1.41		"A" Station acquired 1.9.30		"A" Station acquired 1.7.34		Operation commenced Shepparton 7.3.51 Warrnamb'l 7.4.52 Hamilton connected to State system from 3.2.55		Operation commenced 14.3.28		Operation commenced 1.9.44				Hamilton acquired 1.7.46 Mildura acquired 1.10.53 Redcliffs commenced operation 16.1.54 Horsham acquired 1.6.55 Murtoa acquired 1.3.56					
1924–25	48·4	29,000	53·4	15,800	....	....	....	....	....	....	....	....	....	....	....	....	....	....	101·8	40,500			101·8		345·5	447·3
1925–26	**142·7**	**37,500**	**46·0**	**16,800**	....	....	....	....	....	....	....	....	....	....	....	....	....	....	**188·7**	**50,000**						
1926–27	238·8	61,000	45·4	19,800	....	....	....	....	....	....	....	....	....	....	....	....	....	....	284·2	76,000			284·2		302·1	586·3
1927–28	319·7	68,500	54·3	20,800	....	....	....	....	....	....	....	....	....	....	4·8	11,500	....	....	378·8	87,500	....	....	378·8		252·3	631·1
1928–29	**304·5**	**64,000**	**49·0**	**20,000**	**3·5**	**15,000**	....	....	....	....	....	....	....	....	**65·3**	**16,310**	....	....	**422·3**	**95,500**	....	....	**422·3**		**248·5**	**670·8**
1929–30	310·6	62,500	50·8	21,000	21·9	16,200	....	....	....	....	....	....	....	....	77·9	19,300	....	....	461·2	103,160	....	....	461·2		245·0	706·2
1930–31	251·9	63,000	38·4	19,800	26·6	15,520	....	....	20·5	5,570	....	....	....	....	120·9	23,100	....	....	458·3	109,013	....	....	458·3		211·1	669·4
1931–32	**320·1**	**80,000**	**9·8**	**18,800**	**25·7**	**15,000**	....	....	**26·9**	**6,510**	....	....	....	....	**122·4**	**23,400**	....	....	**504·9**	**116,959**	....	....	**504·9**		**194·7**	**699·6**
1932–33	386·2	88,500	2·8	14,400	22·5	15,360	....	....	27·1	6,560	....	....	....	....	111·1	23,400	....	....	549·7	123,404	....	....	549·7		197·9	747·6
1933–34	429·3	95,000	7·6	18,500	22·6	15,120	....	....	29·5	6,690	....	....	....	....	101·0	22,800	....	....	590·0	127,621	....	....	590·0		206·2	796·2
1934–35	**310·8**	**94,000**	**54·0**	**18,200**	**56·5**	**15,500**	....	....	**30·8**	**6,980**	**12·7**	**3,711**	....	....	**155·3**	**25,300**	....	....	**620·1**	**141,993**	....	....	**620·1**		**235·3**	**855·4**
1935–36	487·6	107,500	16·7	19,300	29·8	15,100	....	....	34·1	7,930	13·2	3,825	....	....	134·7	25,400	....	....	716·1	158,862	....	....	716·1		228·9	945·0
1936–37	531·2	122,500	27·2	19,000	25·3	15,400	....	....	32·1	7,930	12·5	3,750	....	....	141·4	25,490	....	....	769·7	173,300	....	....	769·7		233·9	1,003·6
1937–38	**654·8**	**140,500**	**27·1**	**18,600**	**24·2**	**15,300**	....	....	**34·4**	**8,620**	**10·0**	**3,797**	....	....	**85·6**	**25,090**	....	....	**836·1**	**181,847**	....	....	**836·1**		**240·4**	**1,076·5**
1938–39	696·6	136,500	23·9	19,600	26·7	15,200	....	....	38·0	9 230	9·4	2,716	....	....	103·2	24,300	....	....	897·8	198,000	....	....	897·8		240·2	1,138·0
1939–40	776·1	168,000	39·3	35,000	16·2	15,400	....	....	31·5	7,710	11·6	2,988	....	....	149·5	25,400	....	....	1,024·2	218,600	....	....	1,024·2		227·5	1,251·7
1940–41	**939·5**	**171,500**	**44·6**	**45,300**	**21·2**	**15,360**	**16·0**	**26,000**	**21·7**	**10,050**	**14·3**	**3,820**	....	....	**97·8**	**20,800**	....	....	**1,155·1**	**261,820**	....	....	**1,155·1**		**222·5**	**1,377·6**
1941–42	1,027·3	187,500	45·2	54,800	35·2	15,540	44·1	35,000	30.7	10,600	14·6	4,140	....	....	133·4	25,600	....	....	1,330·5	297,696	....	....	1,330·5		202·3	1,532·8
1942–43	1,110·5	186,000	45·8	63,000	38·6	15,600	55·4	33,000	34·3	11,800	15·0	5,960	....	....	156·2	26,100	....	....	1,455·4	319,300	....	....	1,455·4		188·1	1,643·5
1943–44	**1,088·0**	**188,000**	**83·3**	**71,600**	**44·5**	**15,600**	**63·8**	**40,650**	**44·8**	**12,200**	**20·8**	**5,400**	....	....	**130·4**	**25,700**	....	....	**1,475·6**	**328,000**	....	....	**1,475·6**		**193·0**	**1,668·6**
1944–45	1,133·2	187,000	92·1	89,500	40·2	15,530	59·3	35,070	38·8	11,200	18·9	5,000	....	....	101·1	25,500	18·7	24,000	1,502·3	351,600	....	....	1,502·3		207·4	1,709·7
1945–46	1,136·7	190,500	136·9	93,500	33·1	15,600	55·0	34,200	31·2	11,900	16·0	5,350	....	....	134·3	25,650	51·4	26,000	1,594·6	377,100	....	....	1,594·6		202·8	1,797·4
1946–47	**1,180·6**	**185,000**	**181·6**	**88,000**	**23·5**	**15,520**	**51·1**	**29,820**	**26·9**	**11,800**	**18·0**	**5,150**	....	....	**144·7**	**25,850**	**61·5**	**26,700**	**1,687·9**	**364,750**	**2·8**	**1,000**	**1,690·7**		**208·9**	**1,899·6**
1947–48	1,223·9	195,500	299·0	134,000	29·6	15,400	66·3	34,500	33·1	11,750	18·8	5,650	....	....	161·8	25,850	68·3	26,400	1,900·8	449,500	3·6	1,140	1,904·4		252·3	2,156·7
1948–49	1,291·6	194,000	513·6	138,000	26·1	15,600	77·0	35,220	32·9	11,800	18·8	5,850	....	....	139·1	25,550	44·4	28,000	2,143·5	436,930	4·5	1,290	2,148·0		254·6	2,402·6
1949–50	**1,287·6**	**186,500**	**717·8**	**175,000**	**26·6**	**15,600**	**105·4**	**41,910**	**28·6**	**11,950**	**15·6**	**6,000**	....	....	**129·2**	**26,050**	**46·8**	**28,500**	**2,357·6**	**504,090**	**5·2**	**1,382**	**2,362·8**		**260·5**	**2,623·3**
1950–51	1,241·8	187,000	990·5	242,800	19·5	15,000	105·6	38,700	30·6	11,400	16·7	6,100	0·8	1,663	146·0	26,050	48·2	28,000	2,599·7	497,370	5·8	1,488	2,605·5		158·2	2,763·7
1951–52	1,282·4	196,000	1,085·5	249,400	28·7	14,800	94·2	39,450	45·8	12,100	16·7	5,900	5·4	4,083	160·6	26,150	65·8	28,000	2,785·1	533,370	6·6	1,580	2,791·7		59·0	2,850·7
1952–53	**1,326·6**	**202,500**	**1,205·2**	**305,000**	**72·2**	**52,000**	**93·6**	**35,400**	**46·1**	**12,000**	**22·5**	**6,000**	**12·3**	**12,000**	**168·2**	**25,950**	**66·7**	**28,000**	**3,013·4**	**602,310**	**7·0**	**1,800**	**3,020·4**		**64·5**	**3,084·9**
1953–54	1,394·0	243,000	1,322·7	304,400	202·0	51,900	212·4	73,000	103·6	47,400	53·4	29,800	30·2	15,230	92·6	26,950	62·3	28,000	3,473·2	701,650	29·2	12,800	3,502·4		50·3	3,552·7
1954–55	1,668·1	260,000	1,249·9	303,000	175·2	52,000	306·6	83,000	182·0	47,200	99·2	31,850	34·6	17,240	141·5	31,250	77·8	61,000	3,934·9	836,020	35·5	13,720	3,970·4		45·5	4,015·9
1955–56	**1,887·8**	**279,000**	**1,278·7**	**298,400**	**200·1**	**52,500**	**269·3**	**94,000**	**178·6**	**47,700**	**77·2**	**31,500**	**32·0**	**17,630**	**171·1**	**31,170**	**288·2**	**90,000**	**4,383·0**	**897,190**	**46·4**	**14,670**	**4,429·4**		**43·4**	**4,472·8**

*Including electricity transferred from Briquette Factory. †Including Bendigo, acquired 1/7/34, closed down 31/12/37.

(a) LOAD FACTORS AT POWER STATIONS

Based on Appendix No. 6

Year Ended 30th June	Interconnected System										Other Stations
	Yallourn (including electricity from Briquette Factory)	Newport	Richmond	Spencer St. (Melbourne City Council)	Regional Stations: Geelong "A" and "B"	Regional Stations: Ballarat "A" and "B"	Regional Stations: Shepparton, Warrnambool and Hamilton	Eildon-Rubicon	Kiewa	Total Interconnected System	Mildura, Redcliffs and Horsham
	%	%	%	%	%	%	%	%	%	%	%
1926	43·4	31·3	....	....	....	....	....	....	....	43·1	....
1931	45·7	22·1	19·6	....	50·6	....	....	59·8	....	48·0	....
1936	51·6	9·9	22·5	....	49·0	39·3	....	60·4	....	51·3	....
1941	62·5	11·2	15·8	14·2	24·6	42·7	....	53·7	....	50·4	....
1946	68·1	16·7	24·2	18·4	29·9	34·1	....	59·8	22·6	48·3	....
1951	75·8	46·6	14·8	31·2	30·6	31·3	5·5	64·0	19·7	59·7	44·5
1952	74·5	49·6	22·1	27·2	43·1	32·2	15·1	69·9	26·8	59·4	47·6
1953	74·8	45·1	15·9	30·2	43·9	42·8	11·7	74·0	27·2	57·1	44·4
1954	65·5	49·6	44·4	33·2	24·9	20·5	22·6	39·2	25·4	56·5	26·0
1955	73·2	47·1	38·5	42·2	44·0	35·6	22·9	51·7	14·6	53·7	29·5
1956	77·0	48·8	43·4	32·6	42·6	27·9	20·7	62·5	36·5	55·6	36·5

(b) FUEL USED AT POWER STATIONS (TONS)

Station	Type of Fuel	1955-56	1954-55	1953-54	1952-53	1951-52	1950-51	1949-50	1948-49	1947-48	1946-47
Yallourn	Brown Coal	5,432,123	4,846,876	4,380,080	4,203,197	4,154,742	3,968,509	4,075,675	4,035,535	3,766,828	3,666,105
	Briquettes	22,774	36,740	13,061	10,265	18,698	15,408	10,416	6,421	6,155	6,944
	Oil	1,414	3,021	397	....	....	....	....	....	....	....
Newport	Brown Coal	852,950	794,668	742,472	722,884	562,198	358,148	332,676	94,155	315	290
	Briquettes	210,627	221,442	253,352	217,028	244,083	222,066	273,034	279,956	232,439	153,882
	Black Coal	118,846	216,836	259,640	220,935	241,733	263,001	46,173	62,569	5,669	736
	Oil	82,566	25,306	26,303	38,498	26,332	25,359	18,551	2,266	9	10
Richmond	Briquettes	23,017	30,563	29,662	25,103	32,695	23,180	30,564	29,783	32,313	27,248
	Oil	54,658	44,613	51,740	15,739	....	....	....	....	....	....
	Coke	....	....	....	154	....	....	....	....	....	....
Spencer Street (Melbourne City Council)	Brown Coal	....	....	....	....	....	....	....	....	41	113
	Briquettes	16,641	22,225	41,547	60,364	65,935	69,261	71,610	49,475	41,411	34,069
	Black Coal	1,810	8,994	8,706	1,223	15	6,008	221	276	1,142	1,125
	Oil	82,970	84,484	37,017	19	22	23	18	17	....	....
	Coke	21,840	35,365	52,113	40,088	35,903	37,828	42,014	41,403	34,542	23,817
Geelong "A" and "B"	Brown Coal	231,933	219,164	106,955	7,378	66,906	11,356	....	....	....	....
	Briquettes	14,958	18,711	26,431	43,036	10,544	26,012	31,093	35,407	35,321	30,169
Ballarat "A" and "B"	Brown Coal	....	38,085	77,318	....	....	....	....	....	....	....
	Briquettes	6,872	11,161	18,531	25,144	19,628	19,747	18,135	22,772	22,845	21,791
	Oil	27,192	26,942	1,386	....	....	....	....	....	....	....
Shepparton	Oil	4,611	4,952	5,975	2,099	1,173	177	....	....	....	....
Warrnambool	Oil	1,510	1,728	1,448	829	100	....	....	....	....	....
Hamilton	Oil	1,693	1,737	1,799	1,650	1,565	1,317	1,132	975	812	623
	Wood	....	....	....	....	697	1,277	1,352	1,311	1,289	1,033
Mildura*	Briquettes	7,896	4,828	14,284	....	....	....	....	....	....	....
	Oil	....	7	....	....	....	....	....	....	....	....
Redcliffs†	Briquettes	28,793	26,292	8,434	....	....	....	....	....	....	....
	Oil	6	25	9	....	....	....	....	....	....	....
Horsham‡	Oil	1,190	108	....	....	....	....	....	....	....	....
Murtoa§	Oil	76	....	....	....	....	....	....	....	....	....

*Acquired 1/10/53. †Commenced operation 16/1/54. ‡Acquired 1/6/55. §Acquired 1/3/56.

APPENDIX No. 8

STATE ELECTRICITY COMMISSION OF VICTORIA

STATE GENERATING SYSTEM

(a) TOTAL INSTALLED PLANT CAPACITY

	kW
(i) Interconnected System	
Maximum continuous rating of plant installed at 30/6/56	931,195
Add—Available from Yallourn Briquette Factory	8,000
Total	939,195
(ii) Not connected to State System	21,854

Note — At Yallourn, Newport, Ballarat "A" and Mildura Stations, generators could not be used to full capacity because of limitations on boiler capacity.

(b) GENERATORS INSTALLED AT POWER STATIONS

(i) Interconnected System

Power Station	Set No.	Make	Maximum Continuous Rating	Voltage	R.P.M.	Year Installed
STEAM—			kW			
Yallourn	1	Metropolitan Vickers	12,500	11,000	3,000	1924
	2		12,500	11,000	3,000	1924
	3		12,500	11,000	3,000	1924
	4		12,500	11,000	3,000	1924
	5		12,500	11,000	3,000	1925
	6		12,500	11,000	3,000	1928
	7		25,000	11,000	3,000	1932
	8		25,000	11,000	3,000	1935
	9		25,000	11,000	3,000	1938
	10		25,000	11,000	3,000	1938
	C1		50,000	11,000	3,000	1955
	C2		50,000	11,000	3,000	1954
	C3		6,000	3,300	3,000	1956
Newport	A1*	Parsons	12,500	3,300	1,500	1918
	A2*		30,000	20,000	1,500	1951
	A3*		14,000	3,300	1,500	1922
	A4*		30,000	20,000	1,500	1943
	A5*		12,500	3,300	1,500	1921
	A6*		14,000	3,300	1,500	1923
	1	Brown Boveri	15,000	6,600	3,000	1923
	2		15,000	6,600	3,000	1923
	3		30,000	22,000	3,000	1939
	4		30,000	22,000	3,000	1945
	5	Parsons	30,000	11,000	3,000	1946
	6		30,000	11,000	3,000	1948
	7		30,000	11,000	3,000	1950
	8	Brush Ljungstrom	18,000	6,600	3,000	1944
Richmond	1	Metropolitan Vickers	15,000	6,600	3,000	1929
	2	Brown Boveri	38,000	11,000	3,000	1952
Geelong	1	Brush Ljungstrom	1,500	6,600	3,000	1921
	2	Metropolitan Vickers	3,000	6,600	3,000	1922
	3		3,000	6,600	3,000	1923
	4		3,000	6,600	3,000	1925
	B1	Westinghouse	10,000	11,500	3,000	1953
	B2		10,000	11,500	3,000	1954
	B3		10,000	11,500	3,000	1954
Ballarat	1	Brush Ljungstrom	1,400	6,600	3,000	1925
	2		1,400	6,600	3,000	1925
	3		1,400	6,600	3,000	1937
	4		1,400	6,600	3,000	1940
	5*	Brush Electrical	300	500	2,400	1912
	B1	Westinghouse	5,000	6,900	3,000	1954
	B2		5,000	6,900	3,000	1954
	B3		5,000	6,900	3,000	1953
	B4		5,000	6,900	3,000	1953
Spencer St. (Melbourne City Council)	1	English Electric	5,500	6,600	3,000	1927
	6	Parsons	5,500	6,600	3,000	1935
	7	A.S.E.A.	6,875	6,600	3,000	1939
	8		6,875	6,600	3,000	1939
	9	Parsons	15,000	6,600	3,000	1949
	10		15,000	6,600	3,000	1954
	11		30,000	22,000	3,000	1953
INTERNAL COMBUSTION—						
Shepparton	1	Brush (Mirrlees Engine)	830	6,600	375	1951
	2		830	6,600	375	1951
	3		830	6,600	375	1951
	4		830	6,600	375	1952
	5		830	6,600	375	1952
	6		830	6,600	375	1952
	7	Electric Construction Co. (Sulzer Engine)	1,850	6,600	250	1953
	8		1,850	6,600	250	1953
	9		1,850	6,600	250	1953
Warrnambool	1	Brush (Mirrlees Engine)	830	6,600	375	1952
	2		830	6,600	375	1952
	3		830	6,600	375	1953
	4		830	6,600	375	1953
	5		830	6,600	375	1953
	6		830	6,600	375	1953
Hamilton	2	Brush (Crossley Engine)	550	415	375	1947
	4	Brush (Mirrlees Engine)	200	415	230	1946
	5		310	415	300	1937
	6	Bruce Peebles (Mirrlees	420	415	300	1937
	7	Engine)	770	415	375	1950
	8	Brush (Mirrlees Engine)	770	415	375	1951
HYDRO—						
Rubicon Falls	1	A.S.E.A. (Boving Turbine)	275	6,600	500	1926
Lower Rubicon	1		2,700	6,600	750	1928
Royston	1	Westinghouse (Boving Turbine)	840	6,600	1,000	1928
Rubicon	1		4,550	6,600	500	1928
	2		4,550	6,600	500	1928
Eildon	3	Brown Boveri (Boving Turbine)	8,000	6,600	250	Re-installed 1954
	4		8,000	6,600	250	Re-installed 1954
Kiewa No. 3	1	English Electric	13,000	11,000	428	1944
	2		13,000	11,000	428	1945
Kiewa No. 4	1	Metropolitan Vickers	15,400	11,000	600	1956
	2		15,400	11,000	600	1955
	3		15,400	11,000	600	1955
	4		15,400	11,000	600	1955
			931,195			

* Newport Nos. A1 to A6 inclusive-25 cycle; Ballarat No. 5-D.C.; all others A.C., 3 phase, 50 cycle.

APPENDIX No. 8 *continued*

STATE ELECTRICITY COMMISSION OF VICTORIA

STATE GENERATING SYSTEM

(ii) Not connected to State System

Power Station	Set No.	Make	Maximum Continuous Rating	Voltage	R.P.M.	Year Installed
STEAM—						
Mildura	1	Metropolitan Vickers	1,000	6,600	1,000	1932
	2	Metropolitan Vickers	1,000	6,600	1,000	1934
	3	S.T.A.L.	2,500	6,600	3,000	1940
	4	S.T.A.L.	2,500	6,600	1,500	1950
Redcliffs	A1	Metropolitan Vickers	1,000	6,600	1,500	1937
	A2	Metropolitan Vickers	1,000	6,600	1,500	1943
	C1	Westinghouse	5,000	6,900	3,000	1954
	C2	Westinghouse	5,000	6,900	3,000	1954
INTERNAL COMBUSTION—						
Horsham	1	Laurence Scott (Ruston & Hornsby Engine)	132	415	300	1949
	2	Laurence Scott (Ruston & Hornsby Engine)	132	415	300	1949
	3	Laurence Scott (Ruston & Hornsby Engine)	220	415	428	1951
	4	Laurence Scott (Ruston & Hornsby Engine)	400	415	428	1950
	5	Harland (Bellis & Morcom Engine)	300	415	375	1943
	6	Harland (Bellis & Morcom Engine)	520	415	375	1943
	7	Brush (Ruston & Hornsby Engine)	560	400/440	428	1952
Murtoa	1	Brush (Ruston & Hornsby Engine)	160	415	500	1955
	2	G.E.C. (Ruston & Hornsby Engine)	75	420	1,000	1952
	3	G.E.C. (Crossley Engine)	75	420	1,000	1952
	4	G.E.C. (Ruston & Hornsby Engine)	140	415	600	1952
	5	Brush (Ruston & Hornsby Engine)	140	415	600	1952
			21,854			

(Appendix No. 8 continued next page)

APPENDIX No. 8 *continued*

STATE ELECTRICITY COMMISSION OF VICTORIA

STATE GENERATING SYSTEM

(c) BOILERS INSTALLED AT POWER STATIONS

(i) Interconnected System

Power Station	Boiler No.	Make	Rated Evaporative Capacity of each Boiler lb./per hour	Working Pressure of each Boiler lb. (gauge) per sq. in.	Total Steam Temperature including Superheat Deg. F.	Year Installed
Yallourn	1	John Thompson	68,600	270	650	1924
	2		68,600	270	650	1924
	3		68,600	270	650	1924
	4		68,600	270	650	1925
	5		98,000	270	650	1925
	6		98,660	270	650	1928
	7		78,800	270	650	1927
	8		98,000	270	650	1925
	9		98,000	270	650	1925
	10		77,400	270	650	1925
	11		68,600	270	650	1924
	12		68,600	270	650	1924
	13		75,000	270	750	1931
	14		75,000	270	750	1931
	15		75,000	270	750	1937
	16		75,000	270	750	1937
	17		75,000	270	750	1938
	18		75,000	270	750	1938
	19		75,000	270	750	1937
	20		75,000	270	750	1937
	21		75,000	270	750	1932
	22		75,000	270	750	1932
	C1		200,000	645	840	1954
	C2		200,000	645	840	1955
	C5		200,000	645	840	1955
	C6		200,000	645	840	1954
Newport	A1		30,000	200	600	1918
	A2		30,000	200	600	1918
	A3		30,000	200	600	1918
	A10		30,000	200	600	1918
	A11		30,000	200	600	1918
	A12		30,000	200	600	1918
	A13	Babcock & Wilcox	30,000	200	600	1918
	A14		30,000	200	600	1918
	A15		30,000	200	600	1918
	A16		30,000	200	600	1918
	A17		30,000	200	600	1918
	A18		30,000	200	600	1918
	A19	International Combustion	54,000	200	600	Reconstd. 1927
	A20		30,000	200	600	1918
	A21		30,000	200	600	1918
	A22	Babcock & Wilcox	30,000	200	600	1918
	A23		30,000	200	600	1918
	A24		30,000	200	600	1918
	A1M		187,500	400	780	1952
	A2M		187,500	400	780	1951
	A3M	International Combustion	187,500	400	780	1943
	A4M		187,500	400	780	1943
	1		43,000	270	650	1923
	2		43,000	270	650	1923
	3	Babcock & Wilcox	43,000	270	650	1923
	4		43,000	270	650	1923
	5		43,000	270	650	1923
	6		60,000	270	750	1939
	7		60,000	270	750	1939
	8		60,000	270	750	1939
	9		60,000	270	750	1939
	10		60,000	270	750	1939
	11		160,000	620	820	1945
	12	John Thompson	160,000	620	820	1945
	13		160,000	620	820	1947
	14		160,000	620	820	1948
	15		160,000	620	820	1950
	16		160,000	620	820	1950
	17		160,000	620	820	1950
	18		160,000	620	820	1949
Richmond	1		20,000	160	570	1917
	2		20,000	160	570	1919
	15		20,000	160	570	1921
	16	Babcock & Wilcox	20,000	160	570	1920
	17		20,000	160	570	1921
	18		20,000	160	570	1920
	Velox No. 1		165,500	650	850	1953
	Velox No. 2	Brown Boveri	165,500	650	850	1952
Geelong	1		27,000	200	588	1921
	2		27,000	200	588	1921
	3		27,000	200	588	1922
	4	John Thompson	27,000	200	588	1922
	5		27,000	200	588	1924
	6		27,000	200	588	1924
	B1		110,000	625	825	1953
	B2	Westinghouse	110,000	625	825	1954
	B3		110,000	625	825	1954
Ballarat	1		11,000	160	600	1906
	2		11,000	160	600	1906
	3	Stirling	11,000	160	600	1906
	4		11,000	160	600	1913
	5		11,000	160	600	1937
	B1		70,000	430	760	1954
	B2	Westinghouse	70,000	430	760	1954
	B3		70,000	430	760	1953
	B4		70,000	430	760	1953
Spencer Street .... (Melbourne City Council)	6	John Thompson	55,000	160	570	1938
	8	Babcock & Wilcox	55,000	160	570	1934
	10		55,000	160	570	1937
	12		55,000	160	570	1939
	14		55,000	160	570	1940
	16		55,000	160	570	1936
	22	John Thompson	60,000	165	620	1941
	24		60,000	165	620	1941
	B1		150,000	275	775	1954
	B2		150,000	275	775	1955
	C1		300,000	620	820	1953

(ii) Not connected to State System

Mildura	1		14,000	260	650	1939
	2		14,000	260	650	1939
	3		14,000	260	650	1940
	4		30,000	260	700	1951
Redcliffs	A1	Babcock & Wilcox	20,000	215	520	1940
	A2		13,500	215	520	1944
	A3		13,500	215	520	1944
	A4		13,500	215	520	1948
	A5		13,500	215	520	1948
	A6		13,500	215	520	1953
	C1	Westinghouse	70,000	430	760	1954
	C2		70,000	430	760	1954

STATISTICS
ELECTRICITY SUPPLY

APPENDIX No. 9

ELECTRICITY SUPPLY UNDERTAKINGS — STATE OF VICTORIA

STATISTICAL SUMMARY AT 30th JUNE, 1956 — CONSUMERS AND SALES

—	Population Area Served	Consumers		Retail Sales	
		Number	Percentage of Grand Total	kWh	Percentage of Grand Total
State Electricity Commission of Victoria—					
Metropolitan } excl. adjacent rural areas	1,049,520	276,248	36·76	1,544,054,129	44·78
Provincial Cities }	179,586	51,954	6·91	207,337,015	6·01
Country	719,803	233,690	31·10	795,303,282	23·07
Total	1,948,909	561,892	74·77	2,546,694,426	73·86
Other Undertakings—					
Metropolitan (receiving Bulk Supply from State Electricity Commission of Victoria)	526,357	165,471	22·02	866,436,462	25·13
Country (Local Undertakings)	80,218	24,098	3·21	34,852,643	1·01
Total	606,575	189,569	25·23	901,289,105	26·14
Grand Total	2,555,484*	751,461	100·00	3,447,983,531†	100·00

* Total population of Victoria—2,605,088.

† Electricity Sales per head of population—1,324 kWh.

APPENDIX No. 10

STATE ELECTRICITY COMMISSION OF VICTORIA

CONSUMER STATISTICS

(a) AGGREGATES FOR ALL BRANCHES 1937-1956

Year Ended 30th June	Population of Area of Supply	Number of Consumers				Percentage of Consumers to Population	kWh Sold per Consumer (Average)			Motors Connected		Number of Farms Supplied
		Domestic	Industrial	Commercial	Total (all classes except Bulk)		Domestic	Industrial	Commercial	Number	H.P.	
1937	984,000	198,587	4,099	32,984	235,942	24·0	520	47,970	1,509	29,063	213,667	3,200
1938	1,018,000	210,209	4,710	34,185	249,244	24·5	540	45,286	1,611	32,386	227,903	4,030
1939	1,050,000	220,419	5,386	34,781	260,733	24·8	566	42,158	1,734	36,282	245,697	4,985
1940	**1,080,000**	**230,312**	**6,101**	**35,178**	**271,749**	**25·2**	**626**	**43,483**	**1,917**	**41,530**	**275,458**	**5,785**
1941	1,104,000	242,035	6,746	35,428	284,373	25·8	658	47,604	2,081	46,114	299,988	6,410
1942	1,123,000	251,185	7,169	33,840	292,341	26·0	703	53,236	2,245	50,465	322,283	6,785
1943	1,141,000	255,701	7,457	33,408	296,717	26·0	756	56,911	2,626	54,285	345,924	7,032
1944	1,149,000	258,447	8,073	33,781	300,465	26·1	793	51,656	2,769	59,483	365,746	7,467
1945	**1,193,000**	**266,463**	**9,594**	**34,944**	**311,172**	**26·1**	**838**	**43,189**	**2,934**	**65,983**	**401,085**	**8,772**
1946	1,200,000	273,382	11,542	36,529	321,631	26·8	928	35,663	3,104	71,796	430,452	10,209
1947	1,253,000	287,188	13,416	38,496	339,286	27·1	1,015	33,209	2,769	77,735	454,901	11,680
1948	1,300,000	300,671	14,845	39,544	355,258	27·3	1,151	32,813	3,132	84,361	481,408	13,181
1949	1,353,000	315,191	16,200	40,539	372,135	27·5	1,370	33,061	3,400	90,896	505,877	14,419
1950	**1,414,000**	**331,506**	**17,476**	**41,813**	**391,005**	**27·7**	**1,556**	**32,301**	**3,555**	**96,150**	**528,618**	**15,741**
1951	1,496,000	353,239	19,160	43,066	415,682	27·8	1,566	32,171	3,817	101,988	565,298	17,572
1952	1,574,000	376,977	21,285	44,527	443,014	28·1	1,496	29,025	3,736	107,234	590,164	19,953
1953	1,651,000	399,171	23,228	46,334	468,961	28·4	1,600	27,601	3,976	112,173	613,855	22,326
1954	1,753,000	426,461	25,882	49,410	501,994	28·6	1,770	29,844	4,330	121,664	657,970	27,082
1955	1,841,000	451,223	28,218	52,582	532,277	28·9	1,921	31,014	4,654	129,136	702,898	30,131
1956	**1,949,000**	**475,192**	**30,549**	**55,877**	**561,892**	**28·8**	**2,144**	**32,233**	**5,083**	**136,078**	**728,263**	**32,734**

(b) ELECTRICITY SUPPLY BRANCHES — 1955 AND 1956

Branch		Population of Area of Supply	Number of Consumers				Percentage of Consumers to Population	kWh Sold per Consumer (Average)			Motors Connected		Number of Farms Supplied
			Domestic	Industrial	Commercial	Total (all classes except Bulk)		Domestic	Industrial	Commercial	Number	H.P.	
Metropolitan	1956	1,055,071	246,029	6,237	23,574	275,884	26·15	2,329	91,439	5,868	71,515	369,297	1,142
	1955	1,014,467	237,379	6,120	22,507	266,049	26·23	2,053	82,862	5,300	67,820	354,744	1,147
Ballarat	1956	67,589	17,750	1,140	2,622	21,528	31·85	1,246	28,960	4,727	6,037	29,900	1,496
	1955	65,485	17,055	1,063	2,522	20,656	31·54	1,152	27,314	4,064	5,744	28,482	1,325
Eastern Metropolitan	1956	233,629	64,605	3,296	6,242	74,174	31·75	2,395	15,768	4,995	8,152	52,441	4,654
	1955	208,322	58,871	3,073	5,779	67,753	32·52	2,143	12,808	4,585	7,508	48,750	4,387
Geelong	1956	111,472	25,255	996	3,207	29,472	26·44	1,615	75,490	4,448	7,290	51,211	1,198
	1955	82,570	23,669	918	3,027	27,628	33·46	1,420	78,072	4,115	7,222	50,875	1,097
Gippsland (incl. Yallourn)	1956	143,337	32,927	6,275	4,976	44,207	30·84	2,166	12,238	3,894	11,298	60,925	7,167
	1955	137,154	31,329	5,798	4,675	41,829	30·50	1,969	12,506	3,514	10,984	59,367	6,765
Midland	1956	43,249	11,194	1,291	1,996	14,501	33·53	1,327	12,175	3,319	3,260	18,374	1,805
	1955	48,669	10,811	1,153	1,922	13,906	28·57	1,205	12,060	2,923	2,979	17,532	1,586
North Eastern (incl. Kiewa)	1956	124,905	32,941	5,418	5,856	44,254	35·43	1,973	13,842	6,355	14,945	78,025	6,314
	1955	121,741	31,026	4,876	5,491	41,431	34·03	1,819	15,491	5,941	14,203	79,299	5,626
North Western	1956	87,740	23,586	1,586	3,827	29,051	33·11	1,414	22,889	3,781	6,691	45,469	3,643
	1955	81,410	21,499	1,306	3,314	26,158	32·13	1,404	19,179	3,781	6,387	43,286	3,321
South Western	1956	81,917	20,905	4,310	3,577	28,821	35·18	2,076	8,801	2,803	6,890	22,621	5,315
	1955	80,844	19,584	3,911	3,345	26,867	33·23	1,911	7,588	2,520	6,289	20,563	4,877
Total	1956	1,948,909	475,192	30,549	55,877	561,892	28·83	2,144	32,233	5,083	136,078	728,263	32,734
	1955	1,840,662	451,223	28,218	52,582	532,277	28·92	1,921	31,014	4,654	129,136	702,898	30,131

APPENDIX No. 11

STATE ELECTRICITY COMMISSION OF VICTORIA

ELECTRICITY SALES AND REVENUE

(a) AGGREGATES FOR ALL BRANCHES, 1937-1956

Year Ended 30th June	Sales—kWh (Millions)							Revenue			
	Bulk Supplies	Public Lighting	Domestic	Industrial	Traction	Commercial	Total	Total	Per kWh Sold		
									Domestic	Industrial	Commercial
								£	d.	d.	d.
1937	220·031	12·408	100·994	186·415	54·136	49·372	623·356	3,331,561	2·635	0·943	2·915
1938	241·988	12·950	110·597	202·249	56·025	54·080	677·889	3,528,396	2·559	0·929	2·714
1939	257·394	14·282	122·134	215·175	58·197	59·915	727·097	3,685,538	2·420	0·922	2·567
1940	**285·031**	**16·804**	**141·172**	**252·072**	**59·844**	**67·224**	**822·147**	**3,881,022**	**2·165**	**0·883**	**2·338**
1941	311·546	16·516	155·726	307·239	60·199	73·547	924·773	4,241,264	2·059	0·842	2·262
1942	369·236	10·509	173·951	377·439	64·295	78·168	1,073·598	4,657,452	1·973	0·817	2·112
1943	404·121	11·694	192·067	417·220	66·085	87·821	1,179·008	4,935,602	1·869	0·799	1·908
1944	422·287	15·984	203·979	400·129	66·008	92·938	1,201·325	5,101,631	1·822	0·830	1·835
1945	**417·193**	**16·782**	**220·247**	**387·365**	**65·299**	**100·790**	**1,207·676**	**5,259,890**	**1·783**	**0·852**	**1·781**
1946	447·005	17·255	250·245	383·018	66·605	110·413	1,274·541	5,605,333	1·700	0·883	1·814
1947	449·380	17·614	285·596	421·887	65·107	104·539	1,344·123	5,835,194	1·606	0·868	1·900
1948	506·780	18·106	339·025	468·238	66·900	122·448	1,521·497	6,543,089	1·506	0·874	1·905
1949	563·296	18·607	422·681	516·071	68·181	136·179	1,725·015	8,129,973	1·517	0·977	2·070
1950	**613·552**	**14·253**	**504·311**	**546·607**	**54·998**	**146·450**	**1,880·171**	**9,446,008**	**1·554**	**1·057**	**2·148**
1951	656·488	17·982	536·844	592·261	135·548	162·219	2,101·342	11,524,389	1·679	1·141	2·178
1952	679·665	20·451	547·213	590·871	236·265	163·636	2,238·101	15,099,864	2·063	1·415	2·639
1953	729·369	21·228	623·067	617·150	248·115	180·830	2,419·759	19,189,514	2·343	1·697	3·078
1954	844·749	22·508	734·281	739·596	265·443	208·114	2,814·691	22,117,381	2·297	1·685	3·120
1955	955·610	23·832	842·951	844·048	280·117	236·970	3,183·528	24,838,401	2·214	1·679	3·114
1956	**1,058·771**	**25·843**	**994·824**	**952·383**	**297·839**	**275·805**	**3,605·465**	**28,887,195**	**2·221**	**1·759**	**3·291**

Note.—Above figures do not include allowances for unread meters prior to 1941.

(b) ELECTRICITY SUPPLY BRANCHES—1955 AND 1956

Year Ended 30th June		Sales—kWh (Millions)							Revenue			
		Bulk Supplies	Public Lighting	Domestic	Industrial	Traction	Commercial	Total	Total	Per kWh Sold		
										Domestic	Industrial	Commercial
									£	d.	d.	d.
Metropolitan (Incl. Metropolitan Bulk Supplies)	1956	1,008·795	18·256	563·517	566·375	268·215	134·632	2,559·790	18,526,602	1·955	1·697	3·104
	1955	909·068	17·185	480·173	500·654	263·537	117·491	2,288·108	16,270,169	1·958	1·640	2·959
Ballarat	1956	....	0·529	21·737	32·059	....	12·203	66·528	682,212	2·941	1·729	3·420
	1955	....	0·513	19·217	28·133	....	10·135	57·998	573,084	2·887	1·639	3·290
Eastern Metropolitan	1956	....	1·950	148·333	50·253	19·599	30·145	250·280	2,481,853	2·363	1·999	3·410
	1955	....	1·633	121·136	38·231	12·305	25·429	198·734	1,980,575	2·378	1·949	3·212
Geelong	1956	....	0·833	39·695	72·772	....	13·976	127·276	1,170,287	2·731	1·593	3·786
	1955	....	0·730	32·334	69·640	....	12·093	114·797	1,002,269	2·749	1·505	3·591
Gippsland .... (Incl. Yallourn)	1956	....	1·289	69·690	74·331	10·025	18·858	174·193	1,657,484	2·491	1·797	3·409
	1955	....	1·166	59·590	69·011	4·275	16·044	150·086	1,379,438	2·457	1·713	3·224
Midland	1956	....	0·403	14·649	15·000	....	6·511	36·563	411,600	2·995	1·954	3·631
	1955	....	0·382	12·716	13·313	....	5·491	31·902	350,185	3·012	1·853	3·489
North-Eastern (Incl. N.S.W. Bulk Supplies and Kiewa)	1956	45·703	1·119	63·220	71·854	....	36·212	218·108	2,003,997	2·569	1·840	2·923
	1955	42·244	1·030	54·694	72·124	....	31·780	201·872	1,765,657	2·549	1·710	2·741
North Western	1956	4·273	0·926	31·871	33·257	....	13·541	83·868	1,033,151	3·107	2·297	4·274
	1955	4·298	0·689	26·964	24·972	....	10·310	67·233	770,183	2·956	2·011	4·027
South Western	1956	....	0·538	42·112	36·482	....	9·727	88·859	920,009	2·526	1·946	4·169
	1955	....	0·504	36·127	27·970	....	8·197	72·798	746,841	2·498	1·927	3·947
Total	1956	1,058·771	25·843	994·824	952·383	297·839	275·805	3,605·465	28,887,195	2·221	1·759	3·291
	1955	955·610	23·832	842·951	844·048	280·117	236·970	3,183·528	24,838,401	2·214	1·679	3·114

APPENDIX No. 12

STATE ELECTRICITY COMMISSION OF VICTORIA

TRANSMISSION AND DISTRIBUTION SYSTEMS

Description		Increase during Year ended 30th June, 1956		Total at 30th June, 1956	
		Route Miles	Cable Miles	Route Miles	Cable Miles
OVERHEAD LINES					
Kiewa to Brunswick	220 kV.	....	....	153·0	513·6
Yallourn to Malvern	220 kV.	....	222·0	74·0	444·0
Rowville to Thomastown	220 kV.	23·7	71·1	23·7	71·1
†Yallourn to Yarraville	132 kV.	....	....	110·0	660·0
Yallourn to Richmond	132 kV.	....	....	80·5	483·0
Newport to Geelong	66 kV.	....	....	80·6	256·2
Yallourn to Warragul	66 kV.	....	....	24·8	74·4
Sunshine to Ballarat	66 kV.	....	....	55·5	165·5
Kiewa No. 3 P.S. to Eildon	66 kV.	....	....	143·8	605·3
Eildon to Thomastown	66 kV.	....	....	62·0	372·0
Eildon P.S. to Eildon Substation	66 kV.	....	....	0·5	1·5
Kiewa No. 3 P.S. to Howman's Gap	66 kV.	....	....	4·0	12·0
Yallourn to Morwell	66 kV.	9·1	54·6	9·1	54·6
Morwell Area	66 kV.	0·3	1·5	0·3	1·5
Thomastown to Bendigo	66 kV.	....	....	93·4	560·7
Kiewa Area	22 kV.	....	....	7·8	23·4
Morwell Area	22 kV.	0·3	1·5	0·3	1·5
Morwell Substation to Substation "GF"	11 kV.	1·1	6·6	1·1	6·6
Eildon P.S. to Eildon Substation	6.6 kV.	....	....	0·5	1·5
Main Metro. Transmission Lines	66 kV.	3·2	9·5	52·9	114·6
Main Metro. Transmission Lines	22 kV.	9·5	35·9	262·5	902·1
Main Metro. Transmission Lines	6·6 kV.	....	....	5·9	19·5
Branches—					
Metropolitan	22 kV.	12·7	35·9	150·7	439·1
	7.2, 6.6, 4.0 kV.	12·8	40·2	412·3	1,231·4
	Low tension	57·8	238·9	2,316·0	8,944·3
Ballarat	22 kV.	33·3	71·6	496·1	1,221·9
	12.7 kV.	24·2	24·2	24·2	24·2
	6.6 kV.	0·1	—0·5	21·1	62·9
	Low tension	18·8	69·4	467·9	1,589·9
Eastern Metropolitan	66 kV.	....	....	18·8	56·5
	22 kV.	70·0	185·6	949·4	2,447·7
	6.6 kV.	—5·5	—13·8	47·8	124·4
	Low tension	97·7	413·7	1,591·8	5,822·5
Geelong	22 kV.	34·4	77·0	315·4	760·8
	6.6 kV.	—1·9	—4·0	63·7	229·1
	Low tension	26·1	96·6	419·5	1,487·8
Gippsland	66 kV.	10·3	30·9	108·5	325·5
	22 kV.	135·0	290·0	1,802·3	4,221·4
	6.6 kV.	....	....	0·8	1·6
	Low tension	88·0	296·0	1,583·9	5,208·4
Midland	22 kV.	87·5	202·3	783·4	2,057·6
	6.6 kV.	....	....	7·5	16·6
	Low tension	23·8	66·1	443·0	1,389·3
North-Eastern	66 kV.	46·0	138·0	244·9	846·8
	22 kV.	289·9	558·1	2,344·1	5,687·5
	Low tension	53·3	183·9	1,110·2	3,846·0
*North-Western	22 kV.	135·5	388·1	726·9	1,962·7
	19.8 kV.	....	....	10·5	10·5
	12.7 kV.	201·7	201·7	301·6	301·6
	11 kV.	—39·8	—39·8	33·4	33·4
	6.6 kV.	0·4	1·3	31·2	85·0
	Low tension	60·3	209·8	692·4	2,176·8
South-Western	66 kV.	....	....	119·4	628·5
	22 kV.	213·3	571·3	2,026·8	4,435·2
	12.7 kV.	122·5	122·5	165·1	165·1
	6.6 kV.	—108·2	—250·6	....	....
	Low tension	45·0	107·1	739·2	1,997·6
Yallourn	6.6 kV.	0·1	0·3	14·2	42·6
	Low tension	0·4	1·6	26·2	89·4
Kiewa	22 kV.	5·9	17·6	8·3	24·8
	Low tension	—3·0	—9·5	5·8	33·5
Summary	220 kV.	23·7	293·1	250·7	1,028·7
	132 kV.	....	....	190·5	1,143·0
	66 kV.	68·9	234·5	1,018·5	4,075·6
	22 kV.	1,027·3	2,434·9	9,874·0	24,185·7
	19.8 kV.	....	....	10·5	10·5
	12.7 kV.	348·4	348·4	490·9	490·9
	11 kV.	—38·7	—33·2	34·5	40·0
	7.2, 6.6, 4.0 kV.	—102·2	—227·1	605·0	1,814·6
	Low tension	468·2	1,673·6	9,395·9	32,585·5
		1,795·6	4,724·2	21,870·5	65,374·5

† One circuit between Wheeler's Hill and Yarraville operates at 66 kV and is also connected to Thomastown and Ringwood Terminal Stations.

APPENDIX No. 12 *continued*

STATE ELECTRICITY COMMISSION OF VICTORIA

TRANSMISSION AND DISTRIBUTION SYSTEMS

UNDERGROUND CABLES	Cable Miles	Cable Miles
60 kV.	....	0·62
22 and 20 kV.	2·59	168·53
11, 7.2, 6.6, 4.0, 3.3 and 2.2 kV.	1·24	373·30
Pilot, telephone, and supervisory	16·52	244·11
Low tension	3·99	89·27
	24·34	875·83

SUBSTATIONS	Number	Capacity kVA	Number	Capacity kVA
Terminal Stations	1	115,500	10	939,500
Switching Stations	2	7,500	5	70,500
Main Metropolitan Transmission Substations	6	74,000	57	813,500
Branches—				
Metropolitan	64	41,765	1,319	423,005
Ballarat	87	3,560	583	29,615
Eastern Metropolitan	169	47,640	1,438	177,319
Geelong	62	2,413	509	60,325
Gippsland	230	11,745	1,958	102,405
Midland	106	690	810	36,875
North-Eastern	417	39,340	2,823	171,961
*North-Western	226	7,805	990	92,935
South-Western	327	17,330	2,586	96,995
Yallourn	2	250	25	4,430
Kiewa	....	....	10	2,100
	1,699	369,538	13,123	3,021,465

* Includes Bendigo Branch, Mildura and Wimmera Sub-branches.

STATE ELECTRICITY COMMISSION OF VICTORIA

STANDARD TARIFFS AS FROM 1st OCTOBER, 1956

	Tariffs	Residential and Commercial			Farming Farming Operations Only	Industrial Factories and Other Industrial Establishments	Miscellaneous
		Metropolitan	Provincial City and Town. (Ballarat, Bendigo, Geelong and Large Towns)	Country (Smaller Towns and Rural Areas)	All Extra-Metropolitan Areas	All Supply Areas	
		1	2	3	4	5	6
	Residential Tariff (Domestic and Commercial Residential Premises)— Service Charge a month for each assessable room .... Rate a kWh .... Maximum overall rate a kWh	1s. 4d. 2.0d. 7.0d.	1s. 9d. 2.55d. 7.0d.	1s. 11d. 2.7d. 7.0d.			Tariffs for the following centres are the same as shown in Columns 2, 4 and 5, except the Residential Tariff within certain areas:— Croydon Heathmont Kilsyth Montrose Ringwood Details of Residential tariffs for the areas concerned and those in the Mildura and Wimmera areas will be supplied on request.
TARIFFS FOR NON-RESIDENTIAL PREMISES	**Lighting**— Block Tariff—rates a kWh (based on monthly consumption)	First 20 at 8.5d. Balance at 6.8d.	First 100 at 10.7d. Balance at 7.9d.	First 100 at 11.8d. Next 200 at 9.6d. Balance at 7.9d.		First 20 at 8.5d. Balance at 6.8d.	
	Power and Heating— Block Tariff—rates a kWh (based on monthly consumption) .... Rental a month for each two-rate meter	First 200 at 4.5d. Next 4,800 at 2.6d. „ 20,000 at 2.1d. Balance at 2.05d. 11 p.m.-7 a.m.—1.02d. 10s. 0d.	First 200 at 5.2d. Next 4,800 at 3.4d. Balance at 2.25d. 11 p.m.-7 a.m.—1.13d. 10s. 0d.	First 50 at 5.6d. Next 150 at 5.2d. „ 4,800 at 3.4d. Balance at 2.25d. 11 p.m.-7 a.m.—1.13d. 10s. 0d.		First 200 at 4.5d. Next 4,800 at 2.6d. „ 20,000 at 2.1d. Balance at 2.05d. 11 p.m.-7 a.m.—1.02d. 10s. 0d.	
	Power, Heating and Lighting— Block Tariff—rates a kWh (based on monthly consumption) .... Rental a month for each two-rate meter	**Commercial General Service** First 20 at 8.5d. Next 980 at 6.8d. „ 1,000 at 4.5d. „ 3,000 at 4.0d. „ 20,000 at 2.1d. Balance at 2.05d. 11 p.m.-7 a.m.—1.02d. (Power and Heating only) 10s. 0d.	**Commercial General Service** First 100 at 10.7d. Next 900 at 7.9d. „ 4,000 at 5.2d. Balance at 2.25d. 11 p.m.-7 a.m.—1.13d. (Power and Heating only) 10s. 0d.	**Commercial General Service** First 100 at 11.8d. Next 200 at 9.6d. „ 700 at 7.9d. „ 4,000 at 5.2d. Balance at 2.25d. 11 p.m.-7 a.m.—1.13d. (Power and Heating only) 10s. 0d.	**Farming General Service** First 4 at 10.0d. Next 196 at 4.5d. „ 4,800 at 2.8d. Balance at 2.0d. 11 p.m.-7 a.m.—1.05d. 5s. 0d.	**Industrial All-Purpose** First 20 at 8.5d. Next 480 at 6.8d. „ 4,500 at 4.2d. „ 20,000 at 2.1d. „ 100,000 at 2.05d. Balance at 2.0d. 11 p.m.-7 a.m.—1.02d. (See Note 2 below) 10s. 0d.	
	Industrial Maximum Demand (See Note 3 below) **Power, Heating and Lighting**					£1 13s. 4d. a month for each kW of maximum demand plus 0.86d. a kWh (500 kW Minimum demand charge). Reset monthly.	
	Commercial Range (Electric Cooking)—Rate a kWh	2.0d.	2.55d.	2.7d.			
	Water Heating—Night Rate Tariff a kWh } See Note 4 Interim Rate Tariff a kWh } below	0.95d. 1.45d.	1.05d. 1.6d.	1.05d. 1.6d.	1.05d. 1.6d.	1.45d. 0.95d.	
	Minimum Charge—a month	3s. 6d.	4s. 0d.	4s. 6d.	4s. 0d.	3s. 6d.	

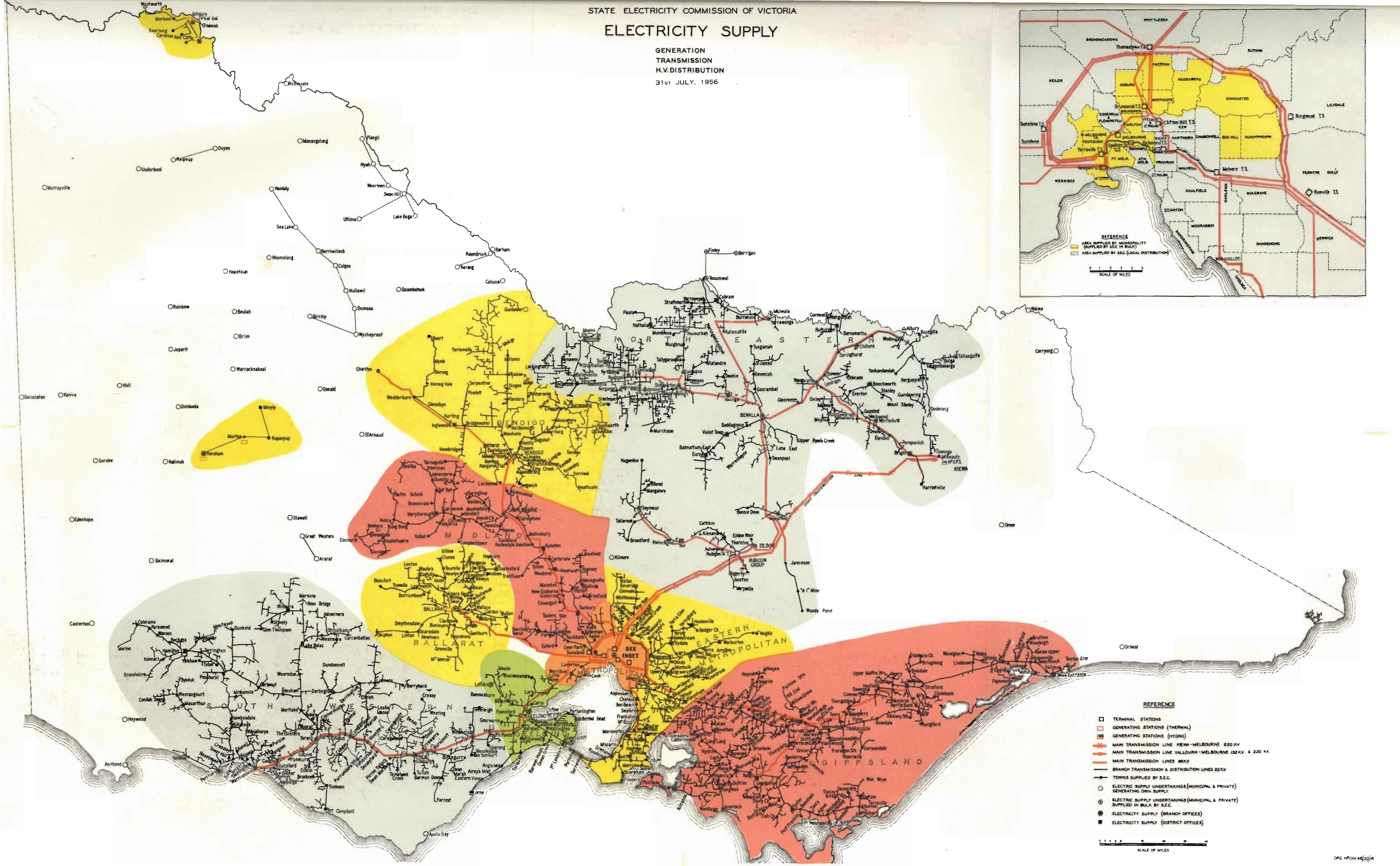
Notes.—1. Details regarding the application of the above tariffs are shown in the Commission's published tariff schedules, which are available on request. 2. A consumer adopting the Industrial All-Purpose Tariff must agree to pay a special minimum charge of £23 1s. 2d. per month. 3. The Industrial Maximum Demand Tariff is available only to consumers entering into a five-year agreement providing for high voltage supply and for monthly payments based on the minimum demand indicated or half the stipulated rate of supply, whichever is the greater. 4. Until additional generating plant (using low cost raw brown coal) is installed, new hot water services connected (excluding dairy water heaters) are charged for a period of eighteen months at the Interim Rate Tariff after which they are transferred automatically to the lower Night Rate Tariff.

STATE ELECTRICITY COMMISSION OF VICTORIA

ELECTRICITY SUPPLY

GENERATION
TRANSMISSION
H.V. DISTRIBUTION

31ST JULY, 1956



STATE OF VICTORIA

STATEMENT

by

The Hon. G. O. Reid, M.L.A.

(Minister of Electrical Undertakings)

on the

STATE ELECTRICITY COMMISSION

[From the "PARLIAMENTARY DEBATES," 24th October, 1956.]

W. M. HOUSTON, Government Printer, Melbourne.

12017/56.

STATE ELECTRICITY COMMISSION

MAIN ACTIVITIES: MINISTERIAL STATEMENT

Mr. REID (Minister of Electrical Understakings) (*By leave*).—You will recall, Sir, that a few week ago, in the course of debate on a Bill concerning the State Electricity Commission, the Premier gave an undertaking that I would within a period of three weeks present a statement concerning the main activities of the Commission. In accordance with that undertaking, I shall now present that statement to the House. I crave the indulgence of members if I read rather more of this speech than it has been my custom to read when addressing myself to other subject matters. Portions of the statement embody statistical and technical information, regarding which I shall seek the indulgence of the House—that I may be excused from reading them but have the information published in *Hansard*.

I shall present this statement under five main headings as follows:—

Part "A"—Present state of development of Victoria's electricity and brown coal resources.

Part "B"—State's electricity needs and the electricity and fuel projects in course of construction or planning.

Part "C"—Future development of State-wide transmission and distribution system.

Part "D"—The capital needs of the State Electricity Commission and the problems created by uncertainty of capital finance.

Part "E"—The administration of the State Electricity Commission.

I should, at the outset, say quite emphatically that the State Electricity Commission as a business undertaking is financially very sound, and has over the last 31 years since 1925 shown a profit in all years except five. In the last few years, particularly, it has also been able to provide from its own resources an increasing amount towards its essential capital needs.

Early this year, with the consent and encouragement of the Government, expressed through my predecessor, the present Minister of Education, the Com-

mission engaged a firm of engineering consultants of world standing—Ebasco Limited, of New York—to review its future plans. The authoritative standing of this firm is demonstrated by the fact that it has recently completed a review of the co-ordinated use of Snowy Mountains hydro-electric power, and last year more than 200,000,000 dollars' worth of facilities constructed or engineered by Ebasco Limited were placed in service throughout the world. This action was taken as it was felt that the Commission's needs of capital funds are so substantial that it would be invaluable—both to the Government and to the Commission—if the estimated requirements of the immediate future, in terms of plant and money, were to have the full support of an eminent engineering authority.

Accordingly, the terms of reference to Ebasco Limited were broadly to examine and report on the forecasts of future loading on the State electricity supply system, the plans for meeting the future electricity needs of the State, and the capital expenditures necessary to carry out the plans. Ebasco Limited's representative is Mr. Murray F. Gill, B.E.E. (Texas), M.I.E.E., who will soon be leaving Australia, and the report of his firm is expected before the end of 1956. The Government has consulted with Mr. Gill from time to time, and reference will be made to his views as appropriate in the course of my statement. I thought it desirable to preface my remarks with the above reference, because, from time to time, I shall refer to the comments of and the advice given by Mr. Gill. It seemed necessary to explain who he was and the position he occupied.

PART "A".

Present State of Development of Victoria's Electricity and Brown Coal Resources.

Victoria's State electricity system, vested in the State Electricity Commission by the State Electricity Commission Act 1928, No. 3776, now serves 95 per cent. of the population of Victoria. The ratio of consumers to population is higher than in any other mainland State. Of the 751,000 consumers of electricity in Victoria, 727,000—or about 97 per cent.—receive supply either directly from the Commission or from metropolitan municipal supply authorities supplied in bulk by the Commission.

Electricity provides 90 per cent. of the horsepower used in Victorian factories. Public supply mains serve about 637,000 homes, over 80,000 commercial premises, and more than 35,000 farms. Electricity also operates an important section of the Victorian Railways system, as well as the tramway systems in Melbourne, Ballarat and Bendigo.

The installed generating capacity of the Victorian State system at 30th June, 1956, was 961,000 kilowatts, of which 939,000 kilowatts formed the interconnected system. The State system generates over 99 per cent. of the electricity produced in Victoria. Production in 1955/56 totalled 4,429 million kilowatt-hours, of which about 10 per cent. was produced in hydro stations, and the balance in thermal stations. On a heat parity basis, nearly 77 per cent. of the total fuel used—including brown coal briquettes—was produced by the Commission from brown coal won at Yallourn and Yallourn North open cuts.

In addition, the Commission in 1955-56 supplied 691,000 tons of brown coal and 194,000 tons of briquettes for industrial use, and 105,000 tons for domestic consumption—including the special release of 70,000 tons during the 1956 winter. With the opening of the Gas and Fuel Corporation's new brown coal gas works at Morwell, brown coal and briquettes supplied by the Commission will become the source of an increasingly greater proportion of the State's supplies of town gas and also a wide range of valuable by-products, notably liquid fuel.

VITAL IMPORTANCE OF BROWN COAL.

Brown coal development in the Latrobe Valley, both for the generation of electricity and the production of high quality solid fuel for all purposes, including domestic use, is of the highest significance, not only in the Victorian economy, but also in the economy of Australia as a whole.

Power and fuel development are closely interwoven activities. At Yallourn the same open cut which supplies all the fuel for the nearby power station also supplies brown coal for processing into briquettes at the Yallourn briquette works. These works, in turn, not only provide fuel for other power stations, but also directly contribute a substantial output of electricity to the State system as a by-product of briquette making.

The Morwell power and fuel project is designed to operate on similar lines, and ultimately on an even larger scale. The Yallourn and Morwell Open Cuts are linked by a 90 centimetres railway so that there can be an interchange of coal, thereby providing some insurance in emergencies affecting either cut.

COMMISSION'S DOUBLE RESPONSIBILITY.

The Commission's double responsibility both for the generation and supply of electricity and the production of solid fuel for industrial and other purposes was recognized by Parliament as early as 1920. By the consolidating Act of 1928, No. 3776, the Commission is vested with authority to erect, own and operate power stations and other electrical plant and installations; supply electricity retail to individual consumers, or in bulk to any corporation or public institution; acquire and operate electricity undertakings; develop, own and operate open cuts and briquetting works, and develop the State's hydro-electric resources.

From its own revenues, 93 per cent. of which are derived from the sale of electricity, the Commission must meet all expenditure in the operation of its power, fuel and subsidiary undertakings, and all interest and other charges in respect of capital commitments. Neither in the day-to-day operation of the Commission's undertakings nor in the service of loan moneys invested in these undertakings is there any charge upon the Consolidated Revenue of the State.

By the same Act, the Commission's basic responsibilities with regard to electricity supply are defined broadly as follows:—

(1) To secure the ultimate co-ordination or unification of electricity generation in Victoria with a view to ensuring safe, economical supply of electricity throughout the State; and

(2) To encourage and promote the use of electricity, especially for industrial and manufacturing purposes.

DEVELOPMENT OF STATE'S FUEL RESOURCES.

With regard to brown coal development for fuel supply, it has been an accepted tenet of Victorian Government policy since 1943 that this State should seek to reduce its dependence on imported fuel by the development of its own brown coal resources. This policy was reinforced by instructions issued by the Government of the day in 1946 that the Commission should indicate "what would be involved in the way of further coal winning and briquette production capacity, and associated measures, to enable Victoria to achieve complete independence from New South Wales black coal for general industrial use within, say, fifteen years, and thereafter to maintain that independence." This policy was subsequently approved by Parliament with the passing of the State Electricity Commission Act 1948, authorizing the Morwell project.

The following table shows the growth of coal production since the commencement of operations:—

Year	*Tons (Millions)*
1925/26	0·865
1935/36	2·988
1945/46	5·498
1955/56	9·502
1965/66	21·000 (estimated)

Electrical Development.

In fulfilment of its responsibilities, the State Electricity Commission during the past 32 years has built up a large interconnected generating system based largely on large-scale utilization of the immense deposits of brown coal in the Latrobe Valley, with supplementary development of Victoria's hydro-electric potential. The whole of the Commission's area of supply, now covering approximately two-thirds of the populated area of the State, is served by this interconnected generating system, with the exception only of the Mildura and Wimmera regional supply areas, both of which are later to be interconnected with the rest of the State system. Within the interconnected system there are at present eighteen steam, hydro and diesel power stations located at convenient centres in many parts of the State and feeding their output into a common power "pool" for distribution through the Commission's extensive supply network.

From its earliest days, the Commission has followed the principle of locating power stations on the brown coal fields of the Latrobe Valley, and Victoria has in consequence been the pioneer State in Australia in the use of high voltage transmission. Progressive development of high voltage transmission has made possible the integration of electricity production and supply into one State-wide system, with the large operating economies which have resulted from this integration. To reinforce the earlier network of high voltage transmission lines, the Commission is now developing a 220,000-volt system which already links Yallourn and Kiewa with metropolitan terminal stations and will ultimately encircle the whole of central Victoria. Transmission lines operating at a still higher pressure —330,000 volts—will be built to feed electricity from the Snowy Mountains into the Victorian State system.

Rural Electrification.

Part "C" will cover the final phase of this work. The present programme is described in a special report to Parliament in 1951. Since that year, supply has been extended to more than 100,000 additional consumers outside the metropolitan area, including 15,000 farms. These results compare most favourably with other States.

Morwell Project.

Detailed reference is made in Part "B" of this report to the works now in progress at Morwell for the further development of Victoria's brown coal resources in accordance with declared State policy. It should be emphasized, however, that this project will eventually contribute substantially to the electricity output of the State system in addition to more than trebling the State's annual output of briquettes. Furthermore, in evaluating the Commission's present expenditure on capital works, it should be borne in mind that construction to date at Morwell—that is, to the 30th June, 1956—has involved an expenditure of £31,000,000 which will not become revenue-earning until the installations now under construction are brought into production.

Survey of Progress—1947-1956.

Since the close of the second world war, the Commission has made steady progress in all spheres of activity, notwithstanding the difficulties imposed by shortages of material and labour in the earlier post-war years and latterly the serious shortage of capital finance. At no period has expansion ceased. Even during the war, more than 73,000 kilowatts of new generating plant were added to the State system. In the survey regarding features of the Commission's operations which has been distributed to honorable members as Appendix I. of Part "A", it will be convenient to take the period 1947-1956, since this covers the Commission's major new developments for power and fuel at Yallourn and Morwell in the Latrobe Valley, and for more hydro power at Kiewa and Eildon.

The survey is as follows:—

Part "A", Appendix 1.

STATE ELECTRICITY COMMISSION OF VICTORIA.

Features of Operations.

——	1955-56.	1946-47.	Increase or Decrease.	Percentage.
Financial.	£	£	£	%
Income—				
Electricity Supply	28,887,195	5,835,194	+ 23,052,001	+ 395·1
Briquetting (after Stock Adjustments and less transfers to Works) ..	1,308,459	321,711	+ 986,748	+ 306·7
Brown Coal (less transfers to Works)	735,051	67,767	+ 667,284	..
Tramways	158,416	142,281	+ 16,135	+ 11·3
Miscellaneous	12,858	32,561	— 19,703	— 60·5
Total Income	31,101,979	6,399,514	+ 24,702,465	+ 386·0
Expenditure (including Appropriations, Writings Off, &c.)	30,739,515	6,310,109	+ 24,429,406	+ 387·1
Net Surplus	362,464	89,405	+ 273,059	+ 305·4
Capital Expenditure—At end of year ..	212,014,706	36,460,148	+ 175,554,558	+ 481·5
Less Provision for Depreciation ..	20,527,232	10,642,598	+ 9,884,634	+ 92·9
	191,487,474	25,817,550	+ 165,669,924	+ 641·7
Reserves—At end of year	8,162,820	5,043,406	+ 3,119,414	+ 61·9
Electricity Production and Sales.				
Maximum Coincident Demand on Power Stations .. .. .. kW	897,190	364,750	+ 532,440	+ 146·0
Electricity Generated kWh mill.	4,429·4	1,870·9	+ 2,558·5	+ 136·8
Number of Consumers (excluding Bulk Supplies)	561,892	339,286	+ 222,606	+ 65·6
Average kWh Sold per Consumer—				
Domestic .. .. .. kWh	2,144	1,015	+ 1,129	+ 111·2
Commercial .. .. „	5,083	2,769	+ 2,314	+ 83·6
All Consumers (excluding Bulk Supplies) .. .. „	4,647	2,696	+ 1,951	+ 72·4
Per Head of Population (Victoria) „	1,324	628	+ 696	+ 110·8
Average Price per kWh Sold—				
Domestic .. .. .. d.	2·221	1·606	+ 0·615	+ 38·3
Commercial .. .. „	3·291	1·900	+ 1·391	+ 73·2
Industrial .. .. „	1·759	0·846	+ 0·913	+ 107·9
All Consumers (excluding Bulk Supplies) .. .. „	2·117	1·238	+ 0·879	+ 71·0
Number of Farms Served	32,734	11,680	+ 21,054	+ 180·3
Briquettes—				
Produced .. .. .. tons.	634,099	490,338	+ 143,761	+ 29·3
Sold and used at P/S .. „	632,263	459,322	+ 172,941	+ 37·7
Brown Coal Produced—				
Yallourn Open Cut .. „	7,937,769	5,617,533	+ 2,320,236	+ 41·3
Yallourn North Open Cut .. „	1,549,946	133,198	+ 1,416,748	..
Morwell Open Cut .. „	14,694	..	+ 14,694	..
Total .. .. „	9,502,409	5,750,731	+ 3,751,678	65·2
Tramways Passengers*	9,710,879	15,682,861	— 5,971,982	— 38·1

* Geelong Tramways ceased operation 25th March, 1956.

A study of the statistical Appendix I., showing features of operations, indicates the tremendous development in the Commission's undertakings between the year 1946-47 and the present time. It is perhaps a coincidence, but nevertheless a fact, that that period of development came broadly within the term of chairmanship of Mr. R. A. Hunt, who recently retired from the Commission, and a debt of gratitude is due to him for his great work during that period of outstanding development.

PART "B."

STATE'S ELECTRICITY NEEDS AND THE ELECTRICITY AND FUEL PROJECTS IN COURSE OF CONSTRUCTION OR PLANNING.

THE STATE ELECTRICITY COMMISSION FORECAST OF STATE'S ELECTRICITY NEEDS.

Before dealing in detail with the various electricity generating projects under construction and envisaged, it is appropriate to show how they fit in with the State Electricity Commission forecast of the future electricity needs of the State. Experience in Australia and overseas shows that in the long term the demand for electricity doubles every nine years—i.e., increases at 8 per cent. per annum compound. This experience is supported by statistical analyses of past trends and by projecting these forward into the future, by examination of population growth, consumer growth, and the growth of electricity demand per consumer. For the shorter terms, forecasts are prepared independently by each supply branch and by each authority supplied in bulk.

Based on the foregoing, the estimates of future loading on the State interconnected generating system are as follows:—

Year.	Estimated Load. MW.
1957	986
1958	1,059
1959	1,139
1960	1,227
1961	1,317
1962	1,416
1963	1,527
1964	1,647
1965	1,773

It must be noted that adverse weather conditions and the like could cause these estimated loadings to be exceeded by 3 per cent.

It is important to compare the estimate of 1,773 megawatts for 1965 with that for 1957, which is only 986 megawatts. Although the Ebasco report will not be available for some little time, it is known that Mr. Murray F. Gill, who made the report, considers that the State Electricity Commission estimates are somewhat on the low side. However, there is very little difference between the Commission's estimate and his.

RESERVE CAPACITY.

A large generating system requires reserve capacity to provide for plant breakdowns, adverse operating conditions, exceptionally large load increases, national emergency, &c. Policy in this regard is to provide reserve capacity to the extent of 10 per cent. of the estimated maximum loading or the capacity of the largest generating unit, whichever is the greater. Mr. Gill regards 10 per cent. reserve capacity as a minimum, and considers that 15 per cent would be more appropriate. Reserve plant is a real operating necessity and not merely an insurance, nor is it provided merely to "play safe."

Over the winter just past, there was no reserve of generating plant whatever. Further, on the day of heaviest load, every generating unit—some 121 boilers and 102 generators—was in service and carried overload. Even so, the full load could not quite be met. While this availability of generating plant is a tribute to the personnel associated with power stations, it is not a condition that can be expected to obtain very often, as, normally, anything up to around 10 per cent. of generating plant could reasonably be expected to be out of service at any time for one reason or another. Not until proper reserve plant is provided will the State be entitled to assume that the generating system has been re-established to the same satisfactory position as when the second world war commenced.

RETIREMENT OF GENERATING PLANT.

Future planning is based on the assumptions that thermal generating plant can be kept in service for 40 years and hydro plant for 50 years.

INTERCONNECTED GENERATING SYSTEM.

For the winter of 1956 the installed capacity of generating plant was 939 megawatts, made up as follows:—

	MW
Steam Power Stations —	
Yallourn	289
Metropolitan (Newport, Spencer-street, and Richmond) ..	449
Geelong and Ballarat ..	66
Diesel Power Stations (Shepparton, Warrnambool, and Hamilton)	19
Hydro Power Stations (Eildon, Rubicon, and Kiewa) ..	116
	939

The normal load carrying capacity of the above generating plant was 912 megawatts, but, as stated above, with every item of plant in service it was overloaded to 943 megawatts during the 1956 winter.

Mr. SHEPHERD.—Presumably, Redcliffs is omitted on purpose because it is not in the grid?

Mr. REID.—Yes. Partly due to wartime and immediate post-war conditions enforcing the installation of generating plant closer to load centres rather than in the Latrobe Valley, and partly due to changed economic conditions over the inflationary period, the proportion of generating plant in the Latrobe Valley based on raw brown coal is too small at 31 per cent. of the total for the best overall generating results. Under present circumstances, the greatest economy of generation will result when approximately two-thirds of the installed plant is in the Latrobe Valley and operating at high load factor, leaving the other thermal power stations with their relatively high fuel costs and the hydro stations to carry peak loads.

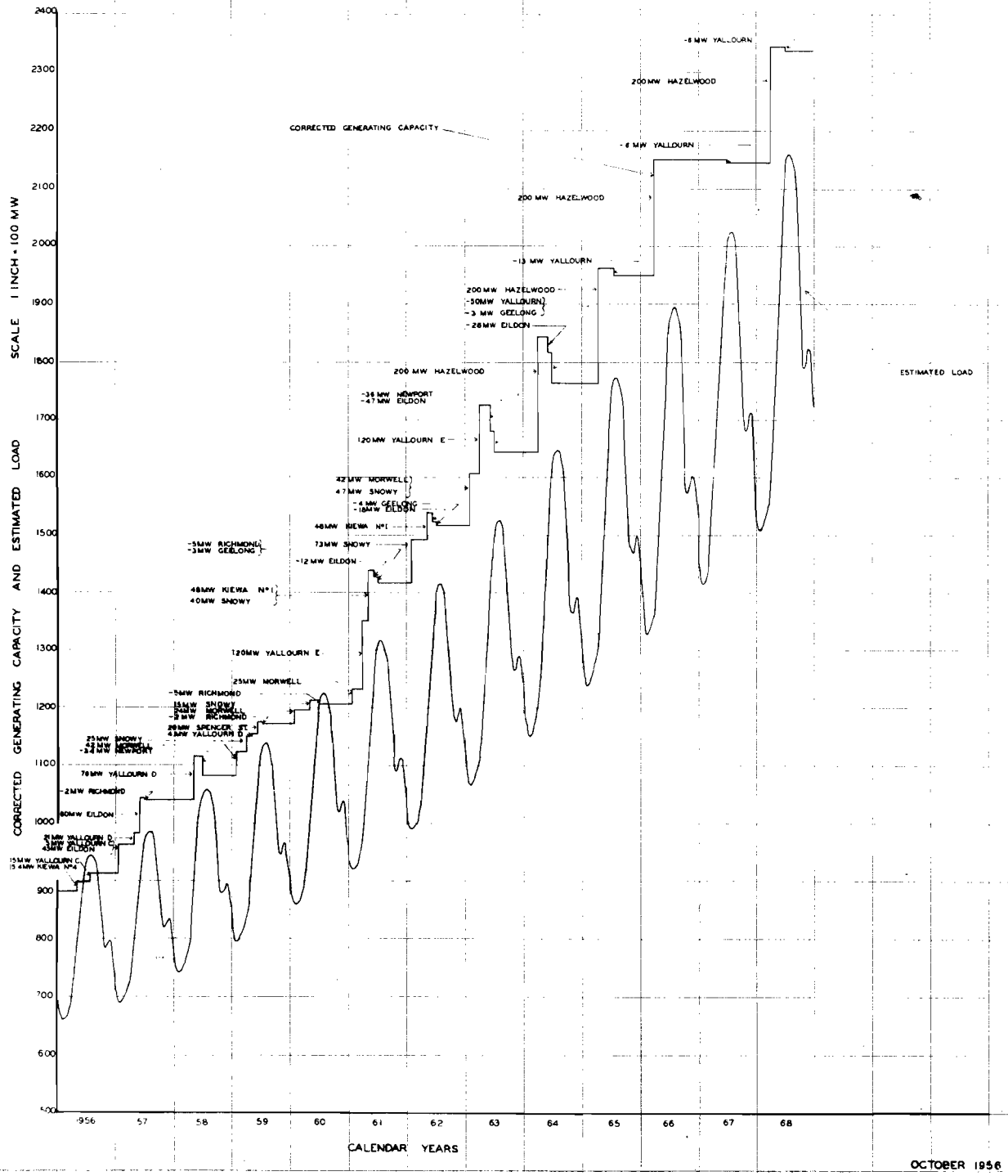
Thus the future pattern of development of the generating system is to install in the Latrobe Valley generating units of as large a size as is reasonably practicable; to take our share of Snowy electricity; and to complete certain projects which are in hand, particularly No. 1 power station at Kiewa, and a small addition of 20 megawatts capacity to the Melbourne City Council's generating plant at Spencer-street. The following of this policy will result in substantial savings in generation, due first to the low fuel cost associated with generating plant in the Latrobe Valley and to the savings in operation and maintenance which will flow from the use of large generating units.

The progressive development of the generating system as compared with the estimated load is shown in the following table—

Year.	Estimated Load (Could be + 3 per cent.) Megawatts	"Minimum" Programme to Meet Estimated Load and Provide some Reserve Plant. Firm Plant Capacity in Megawatts		Margin of Reserve.
1956	922 (See Note I.)	.. ..	912	..
1957	986 (See Note II.)	Yallourn "C" .. .. .. 5 Yallourn "D" .. .. .. 21 Richmond .. .. .. — 2 Eildon 105 129	1,041	5·6%

Year.	Estimated Load (Could be + 3 per cent.) Megawatts	"Minimum" Programme to Meet Estimated Load and Provide some Reserve Plant.			Margin of Reserve.
		Firm Plant Capacity in Megawatts			
		Yallourn "D" 76			
		Newport .. .. .. — 34			
				42	
1958	1,059 (See Note II.)	.. ..		1,083	2·3%
		Yallourn "D" 4			
		Morwell 42			
		Richmond .. .. .. — 2			
		Spencer-street 20			
		Snowy 25			
				89	
1959	1,139	.. ..		1,172	2·9%
		Morwell 24			
		Richmond .. .. .. — 5			
		Snowy 15			
				34	
1960	1,227	.. ..		1,206	— 1·7%
		Morwell 25			
		Kiewa No. 1 48			
		Yallourn "E" 120			
		Snowy 40			
		Richmond .. .. .. — 5			
		Geelong .. .. — 3			
		Eildon .. .. — 12			
				213	
1961	1,317	.. ..		1,419	7·7%
		Kiewa No. 1 48			
		Snowy 73			
		Geelong .. .. — 4			
		Eildon .. .. — 18			
				99	
1962	1,416	.. ..		1,518	7·2%
		Yallourn "E" 120			
		Morwell 42			
		Snowy 47			
		Newport .. .. .. — 36			
		Eildon .. .. — 47			
				126	
1963	1,527	.. ..		1,644	7·7%
		Hazelwood 200			
		Yallourn .. .. .. — 50			
		Geelong .. .. .. — 3			
		Eildon .. .. — 28			
				119	
1964	1,647	.. ..		1,763	7·0%
		Hazelwood 200			
		Yallourn .. .. .. — 13			
				187	
1965	1,773	.. ..		1,950	10·0%

STATE ELECTRICITY COMMISSION OF VICTORIA
MINIMUM REQUIRED SYSTEM GENERATING CAPACITY



OCTOBER 1956

Year	Estimated Load (Could be + 3 per cent.) Megawatts	"Minimum" Programme to Meet Estimated Load and Provide some Reserve Plant.		Margin of Reserve.
		Firm Plant Capacity in Megawatts		
		Hazelwood 200	200	
1966	1,897	.. ..	2,150	13·3%
		Yallourn .. .. .. — 6	— 6	
1967	2,023	.. ..	2,144	6·0%
		Hazelwood 200		
		Yallourn .. .. .. — 6	194	
1968	2,159	.. ..	2,338	8·3%

NOTES.

I. The estimated load for 1956 was 922 megawatts, whereas, in actual fact, the total load carried on generating plant was 943 megawatts, 11 megawatts was carried by private generating plants and 3 megawatts of load was disconnected, making the total potential load 957 megawatts, i.e., 35 megawatts or 3.8 per cent. above the estimate.

II. Over the last four years the increase in demand in Victoria has averaged 15 per cent. as against the 8 per cent. allowed for in the long-term forecast. Hence it is expected that the loads in 1957 and 1958 will exceed the long-term forecast by about the 3 per cent. margin, just as did the 1956 load, and so the margin of reserve is likely to be less than that shown.

Annexed to the statement is a graph which I shall not attempt to explain to the House but which is presented for the perusal of honorable members. A very fine piece of work by officers of the Commission, it shows the demand in a series of curves, and the scheme of planning in what might be termed the rectangular parts of the graph. If honorable members study the graph and remember that in those portions where the apex of the curve is bisected by one of the rectangular portions of the graph, they will realize that those are the danger spots and the places where there is a deficiency of capacity. More detailed comments on the main electricity and fuel projects in course of construction or planned are as follows:—

EILDON.

The new Eildon dam, which has been constructed by the State Rivers and Water Supply Commission, has a storage capacity of 2,750,000 acre feet, and the State Electricity Commission has the related Eildon power station at an advanced stage of construction. The two 7.5 megawatt machines from the old Eildon power station have been reinstalled in the new station, and two 60 megawatt machines are under construction, the first of which is expected to be in service in December, 1956, and the second in May, 1957. During the recent opening of the dam at Eildon honorable members had an opportunity of inspecting the power station in course of erection. As to the operation of the station, all irrigation water releases are available for the generation of electricity, and the irrigation season usually covers the period from September to April inclusive.

When the Eildon project was under consideration, arrangements were made with the State Rivers and Water Supply Commission to provide in the storage an entitlement of 42,000 acre-feet each year to be available to the State Electricity Commission for electricity generation in the non-irrigation months of May to August inclusive. The arrangement provides for this entitlement to be accumulated or overdrawn, depending on the state of the storage. For these arrangements, the State Electricity Commission will pay to the State Rivers and Water Supply Commission the sum of £50,000 per annum, plus 0.05d. per kilowatt-hour generated, and

will carry the capital, operation and maintenance charges of the power station itself.

In addition to the main agreement, the State Rivers and Water Supply Commission has agreed to provide more than the 42,000 acre-feet winter entitlement during the early life of the dam, and until irrigation requirements are fully developed, extra electricity above the entitlement being paid for at 0.1d. per kilowatt-hour. This supplementary agreement extends up to 1960, when it will be reviewed and possibly extended for a further two or three years. The extra water available depends on the storage level at the beginning of the winter and the extent of the irrigation development, and, as irrigation demands grow, these winter releases will gradually decline until, when the ultimate irrigation development is reached in about 1964, only the 42,000 acre-feet winter entitlement will be available.

The average annual output from the Eildon power station will be approximately 225,000,000 kilowatt-hours and the winter peak availability of the station will be 120 megawatts in 1957, declining gradually as the irrigation demand grows to approximately 15 megawatts. It is appropriate here to say that there is very close co-operation between the State Rivers and Water Supply Commission and the State Electricity Commission. The former Commission has, at all times, been most understanding of the electricity needs, and, within the limits of its irrigation responsibility, has done everything possible to assist in electricity generation.

YALLOURN POWER STATION.

The original Yallourn "A" power station, completed in 1928, has a capacity of 75 megawatts in six turbo-generators and twelve boilers. The next extension (Yallourn "B") was of 100 megawatts capacity, comprising four turbo-generators and ten boilers, the last of which was installed by 1938. The Yallourn "C" power station has a capacity of 106 megawatts, consisting of six boilers and two 50 megawatt turbo-generators and a small 6 megawatt back pressure turbo-generator to enable steam from the new boiler plant to be transferred to Yallourn "A" and "B" stations. "C" station is now virtually completed, only the last boiler having to be brought into service within the next three months.

Yallourn "D" station, which is a replica of Yallourn "C" station, except for the omission of the 6 megawatt back pressure turbo-generator, is now under construction, and will be of 100 megawatts capacity in six boilers and two turbo-generators. The programme is to have the first turbo-generator in service by the winter of 1957, using steam from "C" station, and to have both turbo-generators available for service, together with four boilers, by the winter of 1958, so that—with the help of steam from "C" station—full output will be obtainable for the 1958 winter. The remaining two boilers will be completed later in 1958.

The State Electricity Commission's original proposals for the Yallourn "E" station were to install two 75 megawatt turbo-generators and four boilers, to give a total station capacity of 150 megawatts. The advice of Ebasco is strongly in favour of increasing the size of the generating units to 120 megawatts each, to give a station capacity of 240 megawatts. The State Electricity Commission is in accord with this view, providing the question of finance can be settled. These new turbo-generator units should come into service not later than 1961 for the first machine, and for the second machine not later than 1963 if the units are each of 120 megawatts capacity, but not later than 1962 if the size of the units is 75 megawatts capacity. In this context it is worthy of note that the Central Electricity Authority of Britain, as a result of a review of the generating plant programme, has decided to replace in the programme twenty-six 60 megawatt units with thirteen 120 megawatt units, the changes being made on the score of savings in capital costs and of operational economies. The question of finance for Yallourn "E" power station is dealt with in another section of the report.

MORWELL PROJECT.

In 1940, the Victorian Government appointed an investigatory committee on the utilization of brown coal for essential services. The committee comprised representatives of the State Electricity Commission, the Railway Department and the Metropolitan Gas Company — now the Gas and Fuel Corporation. The committee recommended the erection of three briquette factories, each with a capacity of not less than 450,000 tons per year. In view of the many technical problems involved in making such an extension at Yallourn, the Commission, in 1941, recommended a survey of brown coal areas to determine the best location for a new open cut and the proposed new briquette factories; and itself began to make such a survey.

Two years later, in 1943, the Victorian Government formally accepted the Commission's recommendations, and adopted as the declared policy of the State, that Victoria should seek to reduce its dependence on imported fuel by the development of its own brown coal resources. As the result of further detailed investigations, followed by an instruction from the Government, the Commission submitted, in 1946, a long-term plan for a major briquette project at Morwell, and this plan was approved by Act of Parliament in 1948. In the 1946 report, the Commission proposed the establishment at Morwell of an open cut with an output of about 4,000,000 tons per annum, and two briquette factories having a combined capacity of 1,300,000 tons of briquettes per annum, together with ancillary services.

In the report it was indicated that the general layout of the works was being designed to permit of further expansion, so that if ultimately found desirable, the output from the open cut could be increased in stages to at least 8,000,000 tons of raw brown coal per annum, which would be sufficient to supply four briquette factories, giving a total production of about 2,600,000 tons of briquettes per annum. Confidential information in 1950 from authorities abroad, and in Australia, as to the then deteriorating international situation, and the Commonwealth's expressed anxiety for a progressively greater concentration on defence and its related utility services, led the Commission to advise the Government in September, 1950, that, unless the third and fourth factories, and related boiler and turbo-generator plant, were ordered quickly, the full development of the Morwell project would be threatened. There was also the thought that orders may not be accepted later. A statement on this matter was given to Parliament by the then Minister in October, 1950. The orders for the plant were placed on 8th February, 1951.

The Morwell project came virtually to a standstill in 1952 owing to shortage of capital funds, and, at this stage, certain features of the project were re-examined having regard to the fact that there were in Australia, and paid for, certain boiler and turbo-generator plant associated with the project and inescapable contract commitments in respect of further similar plant. Early in 1954, the State Electricity Commission reported to the then Minister on a proposed modified method of development of the Morwell project so as to use the power-generating section of the Morwell plant as soon as possible, and so defer the need of power generation extensions elsewhere, and recommended that Morwell should be developed with priority for power generation. This meant ordering an additional 20-megawatt generating unit, and a four-stage programme was put forward as follows:—

Stage 1—42 megawatts—January, 1958.
Stage 2—66 megawatts and one briquette factory with an output of 714,000 tons per annum—January, 1959.
Stage 3—91 megawatts and two briquette factories with an output of 1,564,000 tons per annum—January, 1960.
Stage 4—133 megawatts and two briquette factories as above—January, 1961.

The Government's acceptance of the revised Morwell project was reported to Parliament on 5th May, 1954. However, development subsequent to stage 3 depends, to some extent, on whether the third and fourth briquette factories

will be proceeded with, and, accordingly, no commitment in respect of stage 4 was made, and it was left for further report in 1956. Limitations of capital funds have necessitated the setting back of the above-mentioned programme by approximately one year, and on this amended programme, construction work is proceeding at the site, as regards both development of the open cut and erection of the buildings, boilers, turbo-generator plant, and so on, mainly by contract, in a very satisfactory manner.

As regards the third and fourth factories, it was possible early in 1953 to cancel certain plant not then in manufacture, and efforts are now being made to dispose of the plant in respect of which manufacture had to proceed, as it is now evident that, because of the capital funds position, no steps can be taken to erect the third and fourth factories for several years, and retention of these factories with their mounting interest charges, storage costs, and so on, is not justified. As part of the Morwell project—four-factory basis—there were ordered in all eight boilers, five 30 megawatt back-pressure turbo-generators, and four briquette factories. The manufacture of all eight boilers is to be completed as no cancellation action was practicable. However, two of the back-pressure turbo-generators are in abeyance and can be cancelled.

In carrying the project to stage 3, six boilers and three 30 megawatt back pressure turbo-generators, one 20 megawatt low pressure turbo-generator, which was the additional plant ordered to give priority to electricity generation, and two briquette factories, will be installed. Should the third and fourth briquette factories be indefinitely deferred, stage 4 would comprehend the installation of the remaining two boilers and a 50 megawatt condensing turbo-generator.

KIEWA.

Kiewa was originally conceived as a development to 117 megawatts capacity with an output of 440,000,000 kilowatt-hours, as set out in the 1937 State Electricity Commission report on the "Extension of the State Electricity Commission Generating System for Requirements of System Load after 1940." In a report of 1947, it was proposed that the Kiewa project be extended in capacity from 117 megawatts to 289 megawatts, with an increase in the average electricity output to 986,000,000 kilowatt-hours per annum. This later proposal was approved by Parliament in Act No. 5272 of 1948.

The principal factor influencing development of Kiewa was that at the time of the report, it would provide lower cost, low load factor electricity than thermal generation at Yallourn or elsewhere. Also, the choice of the Kiewa hydro resources provided a dispersal of the State's generating resources, which would be advantageous in any national emergency. Work on the Kiewa project was commenced in 1938, and No. 3 power station of 26 megawatts capacity was completed in 1945, work on the project having been retarded because of war conditions. In the 1947 report, the construction programme was to complete the project by 1956, with No. 4 power station coming into service in 1951, No. 1 power station in 1953, and No. 2 power station in 1956.

Work on the project had to be seriously curtailed in 1952 owing to the lack of capital funds, so that No. 4 power station was not completed until early in 1956, except for a small amount of work on the diversion of the West Kiewa river, which will be completed early in 1957. Work on No. 1 power station is proceeding, but at a relatively slow tempo, the present programme being to complete the power station and Rocky Valley dam, but not the associated racelines by 1962.

At the present time no commitments whatever have been made in respect of No. 2 development at Kiewa, or as regards further work on Pretty Valley dam. Since the 1947 report, economic conditions have altered considerably, and the Snowy Mountains project has been started. On the economic side, the costs have approximately trebled, and the interest rate has gone up by about

two-thirds. These changes are particularly important, as capital charges form the bulk of the total operating costs of a hydro-electric project. Low load factor electricity from the Snowy Mountains project will be available in Victoria before No. 2 development can, under the present financial outlook, be started, and hence, before any decision was made to proceed with No. 2 development, the claims for providing similar generating capacity, with higher load factor capabilities in the Latrobe Valley, would need to be seriously considered.

HAZELWOOD.

Probably members representing the Gippsland constituencies will be particularly interested in this section of the report. With the completion of the Yallourn "D" and "E" power station extensions, the total generating capacity at Yallourn will be 621 megawatts, assuming two 120 megawatt units are installed in "E" station. This is regarded as completing the Yallourn power generation development, except for the replacing of the old Yallourn "A" and "B" stations with one generating unit of about 200 megawatts capacity.

As the development of a new open cut is a lengthy and costly undertaking, State Electricity Commission thought has been directed towards making the best use of the open cut at Morwell. This has led to the conclusion that the next most suitable development in the Latrobe Valley is to base a large modern power station on the Morwell open cut, and a power station of 800 to 1,000 megawatts capacity, in units of 200 megawatts each or larger, is envisaged to the south east of the cut, and the name "Hazelwood" has been adopted to designate this proposal. The first unit of this station should be available for service not later than 1964, and it will be the next major power generation project to be given consideration after satisfactory financial arrangements for the Yallourn "E" power station extension are completed.

SNOWY MOUNTAINS HYDRO-ELECTRIC SCHEME.

In order to bring the House up to date, the following statement—with which is associated a locality plan as distributed to honorable members—is submitted, but it is intended to report to Parliament in more comprehensive form regarding the relationship of Snowy to Victorian electricity supply when ratifying legislation is presented, probably in the first session of 1957. Incidentally, a Parliamentary visit to the Snowy mountains will be made early in 1957, and members are indebted to the honorable member for Benambra for his invitation to partake of hospitaliy in his electorate during that trip.

At a conference of Commonwealth and State Ministers held in Canberra in July, 1949, it was agreed that Victoria should participate in the Snowy mountains scheme to the extent of receiving one-third of the electricity generated after the Commonwealth had taken its requirements, together with about 100,000 acre-feet per annum of additional water in the River Murray. The formal agreement between the Commonwealth and States of New South Wales and Victoria, setting out detailed terms and conditions, has been under negotiation for some considerable time and is now in a form generally satisfactory to the three parties, except for a few minor drafting details yet to be settled.

The principal terms of the agreement as they affect electricity supply to Victoria may be briefly summarized as follows:—

(*a*) The Governments of the Commonwealth and the States are to submit the agreement for approval to their respective Parliaments as soon as practicable after the date of its acceptance and shall include in the legislation provision to enable the Snowy Mountains Authority to carry out the provisions of the agreement.

(*b*) The Snowy Mountains Authority is to construct the scheme within the Snowy mountains area, and there is provision for ensuring, as far as reasonably

practicable, that construction of any stage of the works shall not be stopped once the State has firmly based its planning on receiving electricity from that stage.

(*c*) In carrying on its work in the Snowy mountains area, the Authority is required to take adequate precautions for the protection of the catchment areas which supply the scheme.

(*d*) The Authority has to give the Commission full information regarding the electricity to be available from each stage of the works, not less than five years prior to the estimated date of production. In the case of the first power stations T.1 and T.2, which commence production in 1959, the information is to be given within a reasonable time after the signing of the agreement.

(*e*) The Commonwealth use of electricity from the scheme, which is not expected to be large, is confined to use in the Australian Capital Territory and within or near the Snowy mountains area, and will be supplied through the transmission system either of the Electricity Commission of New South Wales, the State Electricity Commission of Victoria, or through both in proportions as may be arranged, with the Commonwealth paying the cost of transmission, including electrical losses.

(*f*) The Electricity Commission of New South Wales and the State Electricity Commission of Victoria shall be entitled to share surplus electricity in the proportions of two-thirds and one-third, but the Commissions may agree between themselves to take different proportions if they so desire.

(*g*) The two Electricity Commissions may as far as is practicable take their respective shares of electricity at any time during the day, month or year as may best suit their needs, and may even accumulate or draw in advance their entitlements, if such does not adversely affect the interests of other parties.

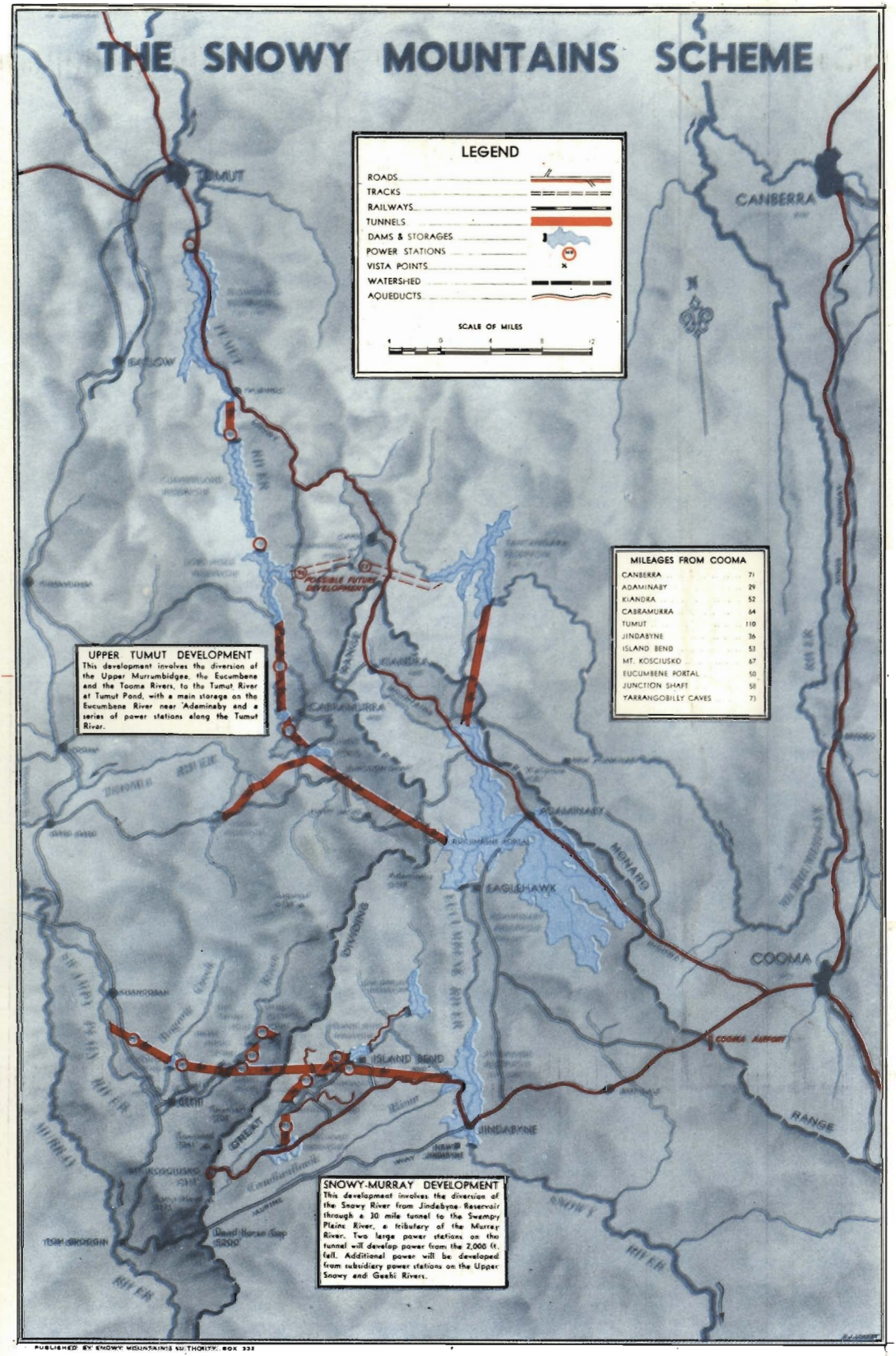
(*h*) The Commonwealth and the two Commissions will together meet the net cost of production of the Authority for each financial year by contributing in proportion to their respective entitlements.

(*i*) A Commission shall not be required to pay to the Authority for a financial year an amount such that the Commission is at a financial disadvantage insofar as the cost of electricity is concerned, as compared with the position which would have resulted if additional generating plant had from time to time been installed by that Commission in lieu of the equivalent stages of plant installed by the Authority.

(*j*) A Snowy Mountains Council shall be set up, comprising representatives of the Commonwealth, the Authority and the States of New South Wales and Victoria, which shall make reports to and advise the Governments on matters pertaining to the rate of construction of the works, the diversion, storage and release of waters, the generation and use of electricity, and other matters, and shall—subject to any directions from the Commonwealth Minister—direct and control the operation and maintenance of the permanent works of the Authority. The present chairman of the Commission—Mr. W. H. Connolly—and the chairman of the State Rivers and Water Supply Commission—Mr. L. R. East—represent Victoria on this council.

Construction of the Snowy mountains scheme was begun in August, 1949, in anticipation of execution of the agree-

THE SNOWY MOUNTAINS SCHEME



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ment, and the scheme is planned for completion by 1982-83. Victoria's share in the complete scheme would amount to approximately 920 megawatts and 1,900 million kilowatt-hours per annum. By 1965, the first two main power stations—T.1 and T.2, on the Tumut river—of the Snowy scheme are scheduled for completion, Victoria's share of the output having been assessed as follows:—

Year.	Firm Capacity (megawatts).	Output (Millions of kilowatt-hours per annum).
1958-59	25	72
1959-60	40	135
1960-61	80	174
1961-62	153	174
1962-63	200	533
1963-64	200	533
1964-65	200	533
1965-66	200	533

The principal advantage to the Commission of participating in the Snowy scheme at this early stage of the scheme's development is in the securing of 200 megawatts of firm power without having to bear the capital cost—approximately £30,000,000—that would be involved in installing 200 megawatts of thermal plant, with its related coal production. Capital expenditure by the Commission in taking power from these Snowy power stations would be needed only for transmission to load centres from a point in the Snowy mountains area. This is estimated at some £3,500,000, which will need to be spent progressively by 1962 and is included in the Commission's estimates of capital needs. The cost of electricity from the Snowy scheme, delivered to load centres after the completion of the T.1 and T.2 power stations, is expected to amount to approximately 1d. per kilowatt-hour.

Comparisons of total annual costs of satisfying the estimated system demand up to the year 1965-66 show a slight saving in favour of a system which includes the Snowy scheme. However, Victoria's interests are safeguarded by a ceiling price clause included in the agreement with the Commonwealth. The load factor of the Snowy scheme is relatively low—30 per cent. for T.1 and T.2 power stations and 24 per cent. for the scheme as a whole. Consequently, Snowy power requires to be supplemented by thermal base load plant operating at a load factor of approximately 80 per cent. to satisfy a total system load factor of 55 per cent. to 60 per cent. This means that Snowy as a power project does not stand alone; at all times its effective place in the generating systems of New South Wales and Victoria depends upon large thermal installations being provided by these States.

Coal Production.

Yallourn Open Cut.

The first coal from Yallourn open cut was produced in 1924 since when the output from the cut has steadily increased and last year it amounted to 8,000,000 tons, of which 2,500,000 tons went to the briquette factory and 5,500,000 tons went to the power station. By the time when Yallourn "D" power station extension is in full operation in 1958, the output of coal will need to be increased to approximately 9,500,000 tons per annum. The Yallourn "E" power station extension requires a still further increase in the output of coal from the Yallourn open cut, and on the basis of two 120-megawatt units going in this station, the annual output from the cut will need to be increased to about 11,000,000 tons per annum by not later than 1963.

The amount of coal available from the Yallourn open cut as at present planned is about 500,000,000 tons, so that there is approximately 50 years' life ahead of it. However, other developments under consideration could extend this life quite considerably. Since the war, new overburden and coal-dredging equipment has been placed in service to cope with the increased output and additions have been made to the overburden and coal transport systems and to the plant for delivering coal to the power station. All this plant will, of course, need to be augmented as the output is increased in the years up to 1963.

YALLOURN NORTH OPEN CUT.

The Yallourn North open cut, with the extension thereto now under development, contains about 80,000,000 tons of brown coal of approximately 50 per cent. moisture content. At this open cut rapid development has taken place in the post-war years, the annual output for 1955-56 being 1,500,000 tons, of which approximately one-half is used at Newport power station and one-half supplied to industrial consumers. Recently this open cut has been completely re-equipped with modern plant and in particular with belt conveyor transportation of coal. This rapid development of the Yallourn North open cut was brought about by the general shortage of fuel in this State in the immediate post-war years, and it has been necessary to still further increase the output to meet the gap in fuel production caused by the delay of the Morwell project.

MORWELL OPEN CUT.

Morwell open cut preliminary excavations were carried out before the cessation of work, in 1952, on the project. Overburden removal was commenced on a regular basis in October, 1955, and at present the rate of removal exceeds 1,000,000 cubic yards per annum. Two dredgers are now installed in the open cut and overburden is being handled by electric railway to the dump which is equipped with an overburden spreader. The open cut must be developed to produce about 2,000,000 tons of coal per annum in 1959-60, the output increasing rapidly in succeeding years with the progressive installation of power and briquetting plant to a rate of about 10,000,000 tons in 1964-65. When the Hazelwood power station is fully developed to 800 megawatts, the total requirements from the Morwell open cut will approximate 15 million tons per annum. The reserve of coal at Morwell is about 1,000 million tons. As the output is progressively increased, additional overburden and coal-digging plant, together with transportation and handling equipment, will be required.

GENERAL.

In this section are given some comments of a general nature in relation particularly to the over-all overburden removal and coal-winning operations, to give some idea of the magnitude of this task. The importance of coal production at Yallourn is emphasized by comparison with New South Wales. This year the Commission will produce 10,000,000 tons of coal compared to a total production in New South Wales last year of 14,500,000 tons. Admittedly, the heat value of Yallourn coal is much lower, but the quantities have to be handled.

Yallourn North open cut, which is a minor adjunct to the main Yallourn open cut, will produce over 1,600,000 tons of low-moisture coal. The largest mine in New South Wales produces less than 600,000 tons of coal, but even more interesting is the fact that the heat units contained in the Yallourn North output are 25 per cent. greater than those available from the next largest coal mine in Australia. The known reserves of brown coal in the Latrobe Valley that can be won by methods similar to those in use at Yallourn to-day are some 22,000 million tons.

Mr. STONEHAM.—Does the Commission envisage the use of atomic energy ultimately?

Mr. REID.—A little later, I intend to indicate that I will arrange a conference for the discussion of any matters that are not covered by this statement.

BRIQUETTE MANUFACTURE.

YALLOURN.

Briquette manufacture commenced at Yallourn in 1924 in a relatively small plant. The briquette factory has been extended from time to time since then until, at the present time, an output of 630,000 tons per year is being achieved. This output is distributed to power stations, to industry and for household use, and from now on the Gas and Fuel Corporation will require gradually increasing supplies, and that demand must be met by reducing the usage of briquettes for power generation.

MORWELL.

The Morwell project has already been referred to in some detail. The present plans are for the first Morwell briquette factory to come into service with an output of 714,000 tons per annum in 1960 and for the second factory to come into service in 1961, bringing the total output up to 1,564,000 tons per annum—seven-day-per-week operation. The total quantity of briquettes to be disposed of when the first and second Morwell briquette factories are completed is 2,194,000 tons per annum and the present estimate of the distribution is as follows:—

	Tons.
Industry	711,500
Domestic	250,000
Gas and Fuel Corporation	300,000
Power Stations ..	932,500
Total	2,194,000

It will be noted that about 42 per cent. of the output only would be used for generation of electricity. In addition to meeting public demand—44 per cent.—the Gas and Fuel Corporation will receive about 14 per cent. The capital outlay in respect of coal-winning and briquetting for this Corporation will fall upon the Commission.

PART "C".

FUTURE DEVELOPMENT OF THE STATE-WIDE TRANSMISSION AND DISTRIBUTION SYSTEM.

The present transmission system of the State Electricity Commission consists, briefly, of the following:—

(*a*) 220-kilovolt system.

A single circuit line on double circuit steel towers from Kiewa to the metropolitan area via Eildon.

A double circuit line on steel towers from Yallourn to the metropolitan area.

Certain interconnecting lines in the metropolitan area.

(*b*) 132-kilovolt system.

Four circuits on steel towers from Yallourn to the metropolitan area.

(*c*) 66-kilovolt system.

There is an extensive 66-kilovolt transmission system from the metropolitan area and from the Yallourn area to load centres in different parts of the State, together with interconnecting lines in the metropolitan area.

(*d*) 22-kilovolt system.

The general high voltage distribution of electricity within supply branches is carried out with an extensive network of 22-kilovolt lines.

Broadly, future development will be as follows:—

(*a*) 330-kilovolt system.

Electricity from the Snowy project will be brought from the Snowy mountain area by 330-kilovolt transmission lines, firstly with one circuit to the Kiewa area, where it will be tied in to the 220-kilovolt system; later, the 330-kilovolt system will be extended to the metropolitan area, and additional circuits will be required.

As further generating plant is installed in the Latrobe Valley, 330-kilovolt circuits will be used to bring electricity from there to the metropolitan area.

(*b*) 220-kilovolt system.

The principal extensions to the 220-kilovolt system contemplated are as follows:—

A single circuit line from the Kiewa area to Shepparton, and thence via Bendigo and Ballarat to either Geelong or Camperdown, where it will join with a line from the metropolitan area.

The erection of the second circuit from Kiewa via Eildon to the metropolitan area—the section from Eildon being near completion.

From Shepparton, the 220-kilovolt line is planned to be taken via Kerang to the Mildura area.

(*c*) 132 kilovolt system.

No further 132-kilovolt lines are contemplated.

(*d*) 66-kilovolt system.

The principal extensions at present planned for the 66-kilovolt system are—

(i) Terang to Hamilton;

(ii) Ballarat to Ararat and Horsham.

(*e*) 22-kilovolt system.

The 22-kilovolt system is being continually extended to meet the needs of new areas of supply and new consumers.

EXTENSIONS TO NEW CONSUMERS.

The extent of the expansion of the Commission's branch distribution systems, particularly outside the metropolitan area, is evident from the following table. During the last nine years, 223,000 new consumers have been connected, 70 per cent. of these being outside the metropolitan area. Over the same period, 21,000 farms were linked to the supply system: the total at date exceeds 33,000.

Financial Year.	Total Consumers Served by Commission.	Extra-metropolitan Consumers.	Farms Supplied by Commission.
1935–36 ..	225,534	64,626	2,540
1940–41 ..	284,373	93,226	6,410
1945–46 ..	321,631	119,424	10,209
1950–51 ..	415,682	182,382	17,572
1955–56 ..	561,892	286,008	32,734

The extent to which the Commission used its resources in constructing overhead lines, and so on, in country districts during 1955-56 is emphasized by the following comparison—

—	Outside Metropolitan Area.	Metropolitan Area.
Poles erected ..	16,871	2,369
High voltage lines erected ..	1,254·7 miles	25·5 miles
Low voltage lines erected ..	410·4 miles	57·8 miles
Sub-stations erected	1,626	64

At 30th June, 1956, approximately 637,000 dwellings in Victoria were supplied with electricity, leaving 60,000 yet to be served by the public transmitted supply. There is now a dual task of reducing this number within practicable limits as quickly as possible—at the same time extending supply to as many as possible of the 22,000 new homes being erected each year. The influence of this latter group on the Commission's distribution work is very great.

ELECTRIFICATION OF THE STATE.

The principal works planned for the extension of the State network are—

MURRAY VALLEY SCHEME.

This provides for the construction of regional power stations; already a station generating 12,000 kilowatts has been installed at Red Cliffs, where an additional 5,500 kilowatts are to be installed by April, 1957. Ultimately, there will be transmitted supply throughout the Murray valley region, including the far north-west.

An order has been placed for a 220-kilovolt transmission line from Mount Beauty to Shepparton, and through to Bendigo, for construction during 1958-59.

WIMMERA REGION.

As part of the first stage, the Horsham undertaking has been acquired and linked to Murtoa, Rupanyup and Minyip. Natimuk will receive transmitted supply this year, and the following main towns will be progressively linked to Horsham:—Dimboola, Nhill, Warracknabeal, Kaniva, Brim, Beulah, Hopetoun, Jeparit, Rainbow and Goroke.

The State transmission system will be extended to link with the Wimmera, from Ballarat to Horsham, in 1957.

GEELONG AND SOUTH-WESTERN REGION.

Orders have been placed for the erection of a 220-kilovolt transmission line between Keilor, Geelong and Colac by 1958 to meet load development.

NORTH-WESTERN REGION.

The following towns have already been linked to the interconnected power system:—Wedderburn, Korong Vale, Boort, Charlton, Pyramid Hill, Leitchville and Heathcote, and arrangements

have been made for Wycheproof, Birchip, and 70 miles to the north-west—Sea Lake and Nandaly—also to be linked up before the end of 1956.

The following main towns will be progressively supplied from the Red Cliffs power station, and a preliminary survey has been made of the prospective load:—Ouyen, Walpeup, Underbool, Murrayville and Robinvale. The proposed 66-kilovolt line from Red Cliffs to Robinvale via the Sturt Highway will not be used to supply wayside consumers. Rural extensions will be by lines of lower voltage from Red Cliffs or Robinvale as appropriate.

Portland-Glenelg Region.

A detailed survey of the proposed transmission line is to proceed immediately. £50,000 has already been subscribed to a local loan, and scrip for a further £125,000 is being made available this financial year: also, there are prospects of substantial support from local residents prepared to make advances against their future consumption of electricity.

East Gippsland.

It is planned to extend supply to this region, but it would first be necessary to reinforce the main transmission system at Bairnsdale. The next step to supply the region would be the construction of a 66-kilovolt line from Bairnsdale to Orbost.

Otway Region.

The principal proposal at present is for a three-stage project, namely, from Colac to Gellibrand, Gellibrand to Beech Forest, and Beech Forest to Apollo Bay, at which centre transmitted supply will take the place of the local supply undertaking. The first stage is at present under construction, and supply will be available to Gellibrand about the end of 1956; local finance has been obtained for the remaining two stages.

Towong District.

A general survey has been made of the district with a view to completing arrangements by stages over an extensive area embracing some 400 consumers. Negotiations are proceeding with regard to the first stage of this extension.

These works will be constructed under the "self help" plan as negotiations are completed. Also, as these extensions proceed and transmitted supply becomes available in the various regions, the practicability of extending supply to small centres and rural communities will be investigated.

Throughout the regions where transmitted supply is already available, numerous small extensions are being constructed month by month, and the outcome of connexions from these is reflected in the foregoing figures.

"Self Help".

The "self-help" principle was introduced in 1951 when the Commission was faced with the choice of either drastically reducing its programme of rural electrification or finding some source of finance other than general loan funds. The plan was designed to give as many rural consumers as possible the opportunity to obtain supply. An important aspect also was the retention in the Commission's service of trained personnel working in its construction gangs which otherwise would have had to be disbanded, and the benefit of their training lost to the State. The results achieved have been possible only by the strong support which has been given this plan throughout the State.

Prospective consumers under the Commission's "self-help" arrangements make advance payments for electricity which are applied towards the capital cost of construction, and quarterly accounts for electricity consumed are set off against each advance; interest is credited on advances. Within the limits of its available funds, the Commission has undertaken extensions on a "fifty-fifty" basis. However, some prospective consumers who have been eager to expedite their extensions have offered to advance the full capital cost, and this has enabled the Commission to maintain a consistent rate of progress which otherwise would have had to be curtailed.

In addition to the advances by prospective consumers, the Commission has received approval from the Loan Council to raise, by way of local area loans, money for rural extensions. These loans are used to supplement the finance for work in specific areas where prospective consumers are unable themselves to support sufficiently the proposed extension. They are open for investment by any persons interested in electricity supply in those areas, and interest at present is paid at the rate of £5 5s. per annum for seven to twelve-year periods, varying from time to time as related to the Commonwealth loan interest rate. These area loans are deducted from the annual loan-raising authority granted to the Commission, which, therefore, reduces the amount that could be spent on the main generating system.

Without the "self-help" scheme, large numbers of prospective consumers would be denied the benefits of electricity for many years, and the present rate of connexions could not be maintained. A deep debt of gratitude is owed to those officers of the State Electricity Commission who originally devised the "self-help" plan, which materially assisted to develop this State at a time when finance was difficult to obtain.

Sir ALBERT LIND.—A debt is owed also to the country people who responded so generously.

Mr. REID.—That is so. However, the scheme had its beginnings as a result of the initiative of Commission officers, and the country people responded well at a time when it would have been easy to abandon the whole system of development.

At June, 1956, £7,000,000—including Commission contributions—had been spent on "self-help" supply schemes. The plan has proved so popular that the Commission's resources in matching the contributions to the 50/50 scheme are fully committed for the time being, and it has, therefore, temporarily had to defer conducting further canvasses of groups awaiting supply, or entering into any new obligations, until it has cleared up some of the work outstanding.

The total number now receiving supply through "self help" is 20,000. Total contributions to date are: 50 per cent.—£3,400,000; 100 per cent.—£2,700,000. The amount of "self-help" advances and loans held and yet to be expended is £1,800,000. Of these sums, £642,000 has already been refunded by credits for electricity consumed.

The Commission's engineering staff is constantly investigating new methods of reducing the capital cost of these extensions. One method which resulted in considerable savings, in both material and labour, is the single-wire earth-return high voltage line. This is now being used extensively where the country is suitable for its erection.

AVOIDANCE OF NON-PAYING EXTENSIONS.

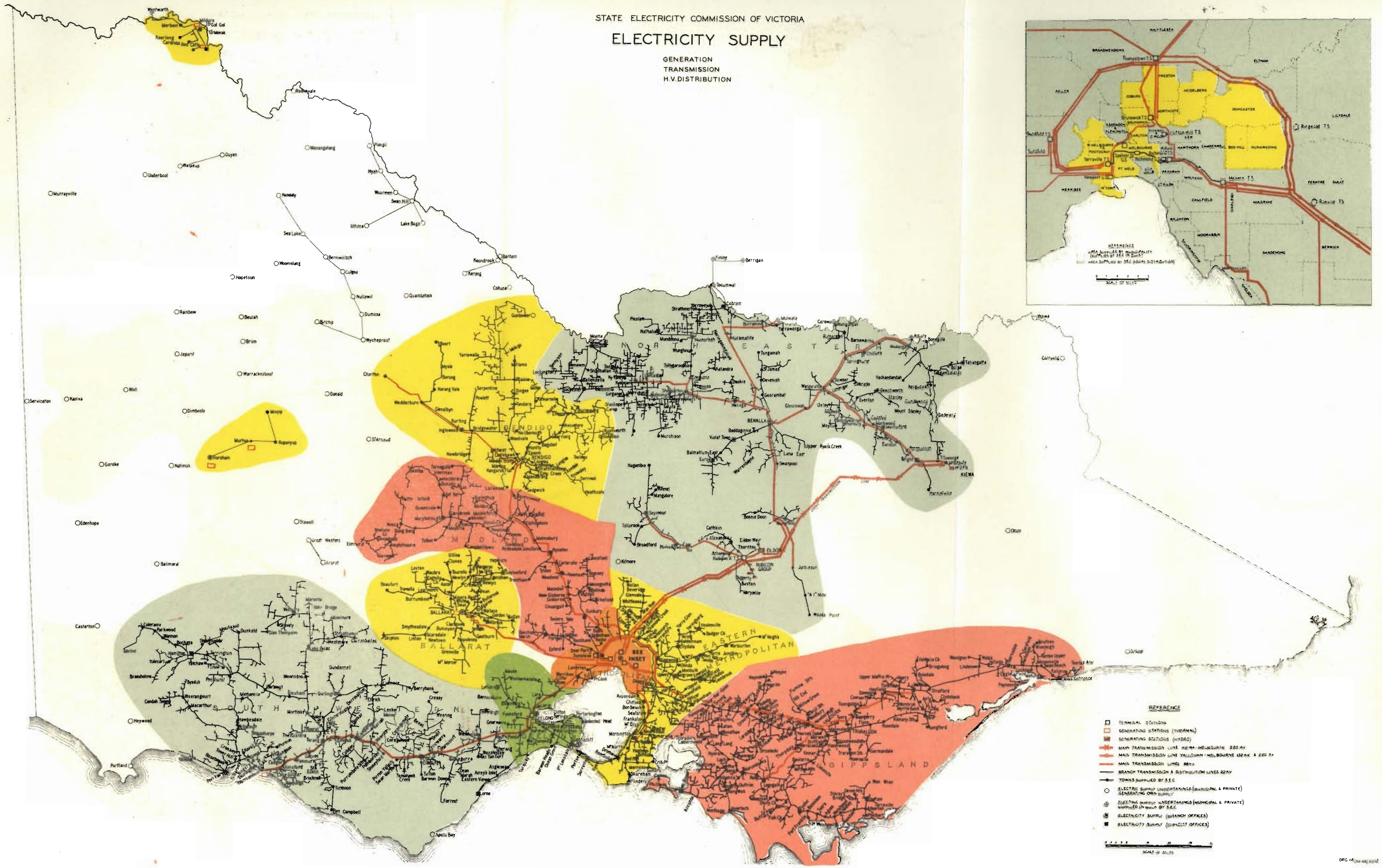
The requirement governing the installation of appliances is related directly to the need for the Commission to meet, from its own revenues, all the costs of supply. Consequently, the economics of each proposal must be closely examined, with a view to ensuring a reasonable return on the capital outlay.

Accordingly, prospective consumers are asked to install one major appliance where the capital expenditure per consumer to serve them is £150 or over, two where it is £250 or over, and three where it is £350 or over. Consumers are given one, two or three years respectively in which to install the appliances, and, if the consumer wishes, the Commission can arrange for appliances to be made available on very generous hire-purchase terms to those desiring the facility, on the basis of no deposit and repayment extending over a period of five years, the hire purchase being carried by traders and not involving any use of Commission moneys.

The annual interest charge alone on £350 would be £17 10s. at 5 per cent., and the annual revenue from lighting and radio only, for example, would be approximately half this.

DECENTRALIZED BRANCH CONTROL.

Of the twelve supply branches, eleven are located and controlled under managers outside the metropolitan area.


STATE ELECTRICITY COMMISSION OF VICTORIA
ELECTRICITY SUPPLY
GENERATION
TRANSMISSION
H.V. DISTRIBUTION
NORTH EASTERN
BENDIGO
MIDLAND
BALLARAT
SOUTH WESTERN
GEELONG
METROPOLITAN
EASTERN METROPOLITAN
GIPPSLAND
SEE INSET
KIEWA
EILDON
RUBICON GROUP
BENALLA
TRARALGON
Mildura
Wentworth
Merbein
Red Cliffs
Robinvale
Ouyen
Walpeup
Underbool
Murrayville
Nandaly
Sea Lake
Berriwillock
Culgoa
Nullawil
Dumosa
Wycheproof
Birchip
Woomelang
Hopetoun
Rainbow
Beulah
Brim
Jeparit
Warracknabeal
Nhill
Kaniva
Serviceton
Dimboola
Minyip
Murtoa
Rupanyup
Horsham
Natimuk
Goroke
Edenhope
Balmoral
Casterton
Stawell
Great Western
Ararat
St Arnaud
Donald
Charlton
Wedderburn
Swan Hill
Nyah
Woorinen
Lake Boga
Ultima
Manangatang
Piangil
Kerang
Koondrook
Barham
Cohuna
Quambatook
Gunbower
Finley
Berrigan
Tocumwal
Cobram
Mulwala
Yarrawonga
Corowa
Albury
Bonegilla
Tallangatta
Corryong
Orbost
Portland
Heywood
Hamilton
Coleraine
Dunkeld
Port Fairy
Warrnambool
Timboon
Port Campbell
Apollo Bay
Lorne
Anglesea
Torquay
Colac
Beaufort
Seymour
Nagambie
Kilmore
Broadford
Alexandra
Eildon Weir
Thornton
Jamieson
Woods Point
Healesville
Warburton
Mt Vieghis
Frankston
Mornington
Sorrento
Portsea
Flinders
Shoreham
Wonthaggi
Lakes Entrance
Sale
Maffra
Bairnsdale
Yarram
Foster
Port Welshpool
Mount Beauty
Bright
Harrietville
Wangaratta
Beechworth
Myrtleford
Shepparton
Echuca
Rochester
Tatura
Kyabram
Mooroopna
Nathalia
Numurkah
Picola
Strathmerton
Heathcote
Castlemaine
Maryborough
Daylesford
Kyneton
Woodend
Gisborne
Sunbury
Melton
Bacchus Marsh
Werribee
REFERENCE
TERMINAL STATIONS
GENERATING STATIONS (THERMAL)
GENERATING STATIONS (HYDRO)
MAIN TRANSMISSION LINE KIEWA - MELBOURNE 220 KV
MAIN TRANSMISSION LINE YALLOURN - MELBOURNE 132 KV & 220 KV
MAIN TRANSMISSION LINES 66 KV
BRANCH TRANSMISSION & DISTRIBUTION LINES 22 KV
TOWNS SUPPLIED BY S.E.C.
ELECTRIC SUPPLY UNDERTAKINGS (MUNICIPAL & PRIVATE) GENERATING OWN SUPPLY
ELECTRIC SUPPLY UNDERTAKINGS (MUNICIPAL & PRIVATE) SUPPLIED IN BULK BY S.E.C.
ELECTRICITY SUPPLY (BRANCH OFFICES)
ELECTRICITY SUPPLY (DISTRICT OFFICES)
SCALE OF MILES
WHITTLESEA
BROADMEADOWS
Thomastown T.S.
ELTHAM
PRESTON
HEIDELBERG
COBURG
KEILOR
DONCASTER
NORTHCOTE
Brunswick T.S.
BRUNSWICK
LILYDALE
Ringwood T.S.
ESSENDON & FLEMINGTON
CARLTON
Clifton Hill T.S.
KEW
Sunshine T.S.
W. MELBOURNE
FOOTSCRAY
MELBOURNE
HAWTHORN
CAMBERWELL
BOX HILL
NUNAWADING
Yarraville T.S.
Spencer St. G.S.
Richmond T.S.
Richmond G.S.
PT. MELB.
STH. MELB.
PRAHRAN
Newport G.S.
MALVERN
Malvern T.S.
ST KILDA
WERRIBEE
W'TOWN
FERNTREE GULLY
CAULFIELD
OAKLEIGH
MULGRAVE
Rowville T.S.
BRIGHTON
MOORABBIN
SANDRINGHAM
DANDENONG
BERWICK
MORDIALLOC
CHELSEA
REFERENCE
AREA SUPPLIED BY MUNICIPALITY (SUPPLIED BY S.E.C. IN BULK)
AREA SUPPLIED BY S.E.C. (LOCAL DISTRIBUTION)
SCALE OF MILES
DRG. No. OM 46/3010

This decentralized organization ensures that the claims of no part of the State are overlooked by the central administration. Under these managers, there are 68 district officers. Members have in their possession a map of Victoria indicating the generating stations and high voltage transmission and distribution lines.

PART "D."

THE CAPITAL NEEDS OF THE STATE ELECTRICITY COMMISSION AND THE PROBLEMS CREATED BY UNCERTAINTY OF CAPITAL FINANCE.

As a prelude to my comments under this part, I wish to make it clear that the Government has for some time now had under close examination this particular aspect. In March last, the Commission presented to me a survey of the electric power situation in Victoria, which survey covered such matters as the growth of load on the State's electrical system, the plant installations required to meet such needs, the capital moneys required in this and the next few financial years, the difficulties of raising the necessary capital funds and the related general problem of long-term capital finance, and the effects which would arise from an insufficiency of capital.

Before proceeding further with this part of my statement, I should here like to quote from an interim report of Mr. Murray Gill, the authority to whom I referred earlier, on matters which are particularly pertinent. Mr. Gill stated on 13th August, 1956—

The maximum load on the system of the State Electricity Commission in 1955 was 836 megawatts. I estimate that this demand will increase to 1,840 megawatts in 1965. This is an increase of 1,000 megawatts in ten years, or an average rate of 100 megawatts per year. This amount of capacity should be installed even though 200 megawatts of Snowy electricity will be available by then, since there is no reserve capacity on the system of the State Electricity Commission and such capacity should be provided in a reasonable amount to ensure reliability of service and to cover the inevitable scrapping of some very old generating units.

The State Electricity Commission plans to install practically all of this generating capacity in the Latrobe Valley, to be accompanied by an appropriate increase in coal-winning operations there. This is certainly the only sound programme to be followed.

The Eildon hydro-electric project and the Yallourn "D" generating station offer the best opportunity for providing this amount of generating capacity at the earliest dates, and therefore should be given first priority. The Kiewa No. 1 development, together with the Rocky Valley reservoir, is at a stage where some £12,000,000 will be required to complete them. If this project is to be completed, it should be completed at as early a date as is possible, as the annual interest on work in progress on this project is quite heavy.

A minimum construction programme for the State Electricity Commission, including country development, for the next several years, should be of the following order:—

1956-57	.. ..	£24.3 million
1957-58	.. ..	£25.9 million
1958-59	.. ..	£29.8 million

The amount of annual construction costs will continue to increase throughout the ten-year period as the volume of use of electricity in Victoria increases.

The State Electricity Commission has no reserves whatever of generating plant and none are in sight for the next few years. Also, its transmission and distribution systems are loaded to such an extent that both quality and continuity of supply are in jeopardy. Failing adequate funds to provide sufficient generating plant with its related coal winning, and to reinforce and extend the transmission and distribution systems, the State Electricity Commission should take measures to restrict the growth of load by existing consumers and slow down the connexion of new consumers to keep load within the capacity of the facilities likely to be available.

The greatest handicaps under which the State Electricity Commission is working are insufficiency and uncertainty of capital funds. Under the prevailing conditions of not planning capital funds for three to five years ahead, it is quite impracticable to plan economic construction programmes or to avoid extremely costly stopping and starting of construction works in progress. Some procedure whereby construction programmes which have received all requisite Governmental approvals could be carried through to completion on schedule is most urgently needed.

For the present financial year and for the next succeeding eight financial years, the Commission will require additional capital works amounting for the

nine-year period to approximately £300,000,000. Investigations of Mr. Gill corroborate this estimate, and I quote his statement as recently as the 17th October:—

I would recommend that, in planning the Yallourn "E" plant, you give very serious consideration to the advisability of installing two 120-megawatt generating units instead of the two 75-megawatt units originally planned. This change will result in a lower cost per kilowatt of installed capacity and in lower operating costs per kilowatt-hour generated. Also, it will provide an additional 90 megawatts of sorely-needed generating capacity.

In connexion with your construction programme for the years 1956-57 through 1964-65, several plans have been suggested for consideration. However, regardless of which one of these plans is selected, the overall cost of your construction programme for this period will be approximately £300,000,000. The actual cost will, of course, depend on the plan selected, but the cost will be somewhere between £282,000,000 and £313,000,000, these costs being based upon to-day's costs of labour and material.

This amount of approximately £300,000,000 may seem a very large figure, but it has to be realized that the Commission's fixed capital at the 30th June last was £212,000,000 and that this amount restated in present-day £'s—that is, present-day values—would be approximately £320,000,000. The capacity of the State Electricity Commission will be doubled in 1965, which shows in a simple way the reasonableness of this estimate of future capital needs of approximately £300,000,000.

This expenditure would, of course, be on a gradually increasing scale, starting with £24,000,000 in the current financial year and rising gradually to a little over £40,000,000 in the year 1964-65. These figures exclude interest during construction, which is being met out of revenue.

The average expenditure on fixed capital by the State Electricity Commission over this and the last three financial years has been of the order of £22,000,000. At this rate of expenditure, no commitment can be made for Yallourn "E" power station for this and the next two years. If the normal source of capital funds continues to yield no more than this average, the gap between needs and available funds up to 1965 will be over £100,000,000 and the problem is—how will this gap be bridged? A principal reason for this gap is that the State Electricity Commission—like other statutory corporations—is endeavouring to obtain capital funds in a restricted and controlled money market in competition with private industry and commerce operating in an uncontrolled money market.

Accepting the proposition which has been confirmed by the authoritative finding of Mr. Murray Gill that the Commission's requirements during the next nine years will be £300,000,000, the Government then has to answer two further questions. Firstly, how can the State Electricity Commission be assured of annual capital requirements of from £24,000,000, rising to £40,000,000 in about nine years' time?

The Government considers that one substantial means of answering this question is to look for private capital as a means of finding capital funds. As I have mentioned previously, one major installation requiring construction in the near future is the Yallourn "E" power station. This is a project which will come before this House at an appropriate time and which will cost about £24,000,000 spread over the next seven financial years. The Commission, with the approval of the Government, in calling for new tenders for this power station, will invite offers from tenderers who are prepared to receive payment for the work of construction by instalments over an extended period, and also from financial interests in Australia and overseas who may, on proper security supported by appropriate legislation, lend money to plant contractors to finance the task.

The second question is by what governmental processes can the semi-Governmental organizations, including the State Electricity Commission, be assured as to the future that, having made commitments in respect of a large-scale project, the capital will be available as required until the project is fully revenue-earning?

It is a feature of all large construction projects that planning must be thought of in terms extending over several years and not of a single year. It follows therefore that, in providing for finance, plans must be made on something more than a year to year basis. On the other hand, it is a feature of Government finance, according to established conventions of public administration and budgeting, that provision is made for finance from year to year. It is significant that every other State has listed this very problem for discussion at the next annual conference of the Electricity Supply Association of Australia —the principal undertakings of which are all State owned.

In Great Britain, the Central Electricity Authority adopts a system of budgeting for its capital works over five year periods and makes commitments accordingly, all this having support of the British Government.

As far as the Commonwealth Government itself is concerned, the obligations accepted by the Commonwealth for the supplying of electricity from the Snowy mountains scheme to New South Wales and Victoria already involve by their very nature long-term assurances of finance.

There is, however, a consideration peculiar to the State of Victoria, and indeed to the other States, which is a bar to the making of long-range commitments for the Commission. This arises from the fact that under the terms of the constitution of the Commonwealth, as amended in 1928, Victoria for purposes of borrowing is a member of the Loan Council and is dependent on Loan Council administration. Although, according to the strict interpretation of the Constitution and the financial agreement, the machinery of the Loan Council does not apply to semi-Government institutions, such as the State Electricity Commission, the fact has been that—according to the so-called "gentlemen's agreement"—the semi-Government authorities are bound by Loan Council administration.

The effect of this dependence of the Commission on the Loan Council is as follows:—The Commission—like other authorities—must obtain from the Loan Council approval of—

(1) the amount to be raised, whether large or small;

(2) the rate of interest;

(3) the terms to be offered; and

(4) when and for how long the loan is to be open for subscription.

It is noted also that on several occasions the Commission has had to return money when loans have been over-subscribed.

I have prepared a summary of the history of the five State Electricity Commission loans in the year 1955-56, which, I trust, will be of interest to honorable members.

The summary is as follows:—

PART "D," APPENDIX I.

HISTORY OF STATE ELECTRICITY COMMISSION PUBLIC LOAN RAISINGS IN 1955-56.

The Loan Council prescribes the maximum limit for interest rates for semi-Governmental loan raisings. Normally, a margin of up to 7s. 6d. per cent. over the current Commonwealth loan rate is permitted. In Victoria and New South Wales at present it is only 5s. per cent. Nor is the path of the semi-Governmental borrower made easy; the current State Electricity Commission of Victoria loan is carried on against an announcement of readiness by the Commonwealth Government to accept advance subscriptions. Another disability is the 2s. in £1 income tax rebate allowed on Commonwealth loans but not to the loans of State authorities.

As an example, the setbacks encountered by the Commission in raising its public loans in 1955-56 can be summarized:—

(*a*) Although the authorized interest rates for semi-Governmental loans were increased, moving first from £4 15s. per cent. to £4 17s. 6d. per cent., and then from £4 17s. 6d. per cent. to £5 5s. per cent., this was done in circumstances which precluded underwriting houses from making maximum raising offers.

(*b*) £750,000 in underwriting was lost to the State Electricity Commission because a loan planned for February, 1956, had to be switched to January, 1956.

(*c*) Nearly £400,000 of oversubscriptions was actually returned; had the loans run the full time, this amount would have been very much greater. The Commonwealth Government is the only Governmental borrower which retains oversubscriptions.

(*d*) Prior to June, 1956, only one underwriter quoted at the approved rates. Apart from this lack of underwriting competition, one firm felt an obligation to point out to its clients that market purchases in semi-Governmental bonds gave a better return than current loans.

HISTORY OF FIVE STATE ELECTRICITY COMMISSION LOANS—1955-56 LOAN AUTHORITY.

First Loan—August, 1955.

Ian Potter and Company. £2,000,000—£4. 15s. per cent.—10-20 years.

Loan Result—Deficiency £566,650.

Reason apart from interest rate—

(i) Flotation period reduced from three weeks to two weeks.

(ii) Commonwealth announced its next flotation during currency of this loan.

Second Loan—October, 1955.

Ian Potter and Company (£2,000,000—£4. 15s per cent.—10-20 years.

Loan Result—Deficiency £936,400.

Reason—Semi-Governmental interest rate obviously out of step with bond market conditions.

Third Loan—16th January, 1956—three weeks.

Ian Potter and Company, £1,000,000—offer raised by negotiation from £750,000—£4. 15s. per cent.—5-10 years.

Underwriter stipulated three weeks instead of the two weeks customary for loans below £1,500,000. Also desired review of offer if any variation of interest rate announced, or Loan Council meeting called to discuss this matter prior to loan opening. In fact, on 9th January, 1956, a Loan Council meeting was announced—with clear inference that interest rate would be discussed.

Potter and Company were prepared to go on with contract, but said that if loan postponed until early February—that is, until after Loan Council—they would be prepared to underwrite for £1,750,000.

State unable to transfer loan date because it is understood that the financial needs of a sister semi-Governmental authority were more urgent than those of the State Electricity Commission.

Loan Result—Over-subscribed four and a half days in advance of scheduled date. Excess subscriptions of £97,250 returned.

NOTE:—Immediately after this loan, the semi-Governmental public rate was increased to £4. 17s. 6d. per cent.

Fourth Loan—3rd April, 1956—three weeks. £2,250,000—£5. 5s. per cent.—5-7-15 years.

First scheduled 16th-29th March, 1956. Underwriting £1,500,000 at £4. 17s. 6d. per cent. arranged with Potter and Company.

On 8th March, under Potter and Company's advice, and in line with Brisbane City Council and Sydney Water Board, the State Electricity Commission withdrew from this loan. This was the direct result of the now well-known serious bond market uncertainty; this also extended to bank deposit, overdraft and Commonwealth bond rates. The month of March was lost as a loan raising period.

This fourth loan underwriting was finally arranged for early April, but still subject to possible increase in Commonwealth rates.

Loan Result—Over-subscribed ten days in advance of scheduled time. Excess subscriptions of £245,450 returned.

Fifth Loan—29th June, 1956—three weeks. Ian Potter and Company £2,000,000—£5. 5s. per cent.—5-10-15 years.

Loan Result—Over-subscribed four days in advance of scheduled time. Excess subscriptions of £49,750 returned.

It will be seen, therefore, that the major disability under which the Commission has suffered is that it is obliged to carry on a works programme which involves commitments for years ahead, while finance is assured for twelve months only. The Government proposes to approach the Commonwealth Government with a view to having the Commonwealth Co-ordinator of Works state a case relative to long-term finance for major construction projects, for consideration at the next Loan Council meeting.

A statement has been prepared—based on present outlook—showing the fixed capital expenditures for the next three years and the anticipated method of financing these expenditures.

The statement is as follows:—

1. FIXED CAPITAL EXPENDITURE.

(Exclusive of Interest during Construction and without any Provision for Yallourn "E").

	1956–57.		1957–58.		1958–59.	
	£m.	£m.	£m.	£m.	£m.	£m.
Yallourn Area—						
Coal and Briquette Production..	1·110		1·000		0·600	
Power Production ("C" and "D")	4·520		4·000		2·400	
		5·630		5·000		3·000
Transmission and Transformation (including from Snowy Scheme)		2·610		3·750		3·750
Kiewa Project		2·140		2·250		2·250
Morwell Project (Power and Fuel)		3·980		5·000		7·250
Electricity Supply		3·670		4·500		4·500
Eildon, Newport, and Regional Power Stations ..		1·150		0·250		..
General		0·920		0·750		0·750
Total Fixed Capital Assets		20·100		21·500		21·500
Expenditure on Self-Help Extensions (contributed by consumers)		2·150		2·000		2·000
Total Capital Outlay for Year		22·250		23·500		23·500

2. METHOD OF FINANCE.

	1956–57.		1957–58.		1958–59.	
	£m.	£m.	£m.	£m.	£m.	£m.
(*a*) Moneys from Own Resources—						
Operating Surplus (Revised Tariffs) ..	4·50		5·50		6·00	
Depreciation and other moneys not used for loan amortisation	3·00		2·90		3·10	
		7·50		8·40		9·10
Deduct—						
Liquidation of Bank Overdraft	1·80		1·50		1·50	
Loan Redemption	0·10		..		..	
Interest during Construction, Working Capital Increases, &c.	2·35		3·20		3·20	
"Self-Help" Refunds on termination of existing Agreements	0·10	4·35	0·40	5·10	0·80	5·50
		3·15		3·30		3·60
(*b*) Loans		16·95		18·20		17·90
Total Fixed Capital Programme ..		20·10		21·50		21·50

3. MATURING LOANS WHICH IT IS ASSUMED WILL BE CONVERTED AND THEREFORE NOT REQUIRE NEW FINANCE.

—	1956–57.	1957–58.	1958–59.
	£m.	£m.	£m.
State Savings Bank of Victoria	2·250	2·440	4·490
Commonwealth Savings Bank	1·950	..	..
Public Loan No. 9 (excluding £0·1 m. estimated redemption)	0·140	..	..
	4·340	2·440	4·490

The capital expenditures set down in the statement are those which, in the Commission's expectation, could be financed on the present outlook. Properly to provide for the growing needs of the State, this expenditure should be of the order of £24,000,000 for 1956-57, £26,000,000 for 1957-58, and £30,000,000 for 1958-59.

It is of fundamental importance to Victoria and all States of the Commonwealth that this principle of long-term national finance—conceded in respect of the Snowy—should, in fact, be accepted as a primary obligation for power and fuel development throughout Australia.

PART "E".

THE ADMINISTRATION OF THE STATE ELECTRICITY COMMISSION OF VICTORIA.

It is appropriate to conclude this statement with some reference to the organization and administration of the Commission and its relation to the Government of the day. The Commission is the product of that school of political thinking which considers that the interests of the State can best be served if a particular instrumentality is guided by an incorporated organization rather than by an individual departmental head.

The advantage of such incorporation is that the particular administration gains an increased independence of political interference. This independence is particularly necessary if the organization concerned has to carry out plans which must survive the changing political complexions of Governments and the pressures of interested groups. It is inevitable that a large organization such as the State Electricity Commission must, in just on 40 years of its existence, have made some mistakes. This is inseparable from any human organization. But the greatest vindication of the workings of the Commission has been the splendid record of achievement to which I have already referred in great detail and which has made possible a tremendous advance in the industrial and rural development of Victoria and in the prosperity and comfort of its citizens.

The successful results of the Commission's activities must be in part attributed to the forethought of the Government of Victoria which, in 1918, laid the foundations of the Commission in establishing it as an incorporated authority. Such incorporation, as I have pointed out, has assured to the Commission a certain independence of outlook and freedom from political interference, which has been, I believe, advantageous to the people of Victoria. It is inevitable, of course, that that very independence of outlook has, at times, given rise to conflicts between the Commission and the Minister of Electrical Undertakings for the time being to whatever party he has belonged.

Mr. SHEPHERD.—Did you write this statement, or was it prepared by the Commission?

Mr. REID.—Although of necessity I had to rely on the Commission for details of a technical nature, the wording of the statement is mine and was not inspired by the Commission. There is no point in my dealing with situations which have arisen in the past, but I approach this aspect of my statement by first seeking a definition of the respective functions of the Minister and of the Commission. Conflicting legal opinions have been given concerning the purport of those sections of the State Electricity Commission Act which refer to the powers of the Minister. I shall not go into these matters in detail, except to say, firstly, that in my opinion Parliament has given to the Minister by statute a substantial degree of control and, secondly, that the solution of this problem is not to be found so much in a consideration of the terms of the statute as in a practical and co-operative approach by both the Minister and the Commission.

Observations were made in a recent debate to the effect that over the years the Commission has encroached on the powers of successive Ministers. I shall not enter into this controversy beyond suggesting that if this has been the case the situation may well have arisen for reasons beyond the control of the Commission. In the first place, since the commencement of the Commission

37 years ago, there have been 27 Ministers, that is to say the average Ministerial life of the holder of the portfolio is less than eighteen months; some have held office only for a matter of weeks, and even for days only. In the same period, there have been six chairmen of the Commission, that is an average official life of six years. It is not to be wondered at that, in the past, some Ministers have, in a highly technical department of public affairs, become accustomed to lean perhaps too heavily on chairmen who enjoy a relative permanence of tenure and who are reinforced by the knowledge that the Commission has a perpetual corporate personality.

In the second place, it has been the custom for successive Governments to allot the portfolio of electrical undertakings as an adjunct to some other portfolio. The Leader of the Opposition made reference to the fact that when he was Premier he gave attenion to the importance of the portfolio. I regret that the Leader of the Opposition is not present to-night. We all regret that he is ill and hope that he will soon be restored to health. However, if he were present I would remind him that what he did was to continue to link the portfolio with another portfolio and to provide the Minister with an assistant Minister—the honorable member for Richmond. In my opinion, it is becoming increasingly evident that the Ministry of Electrical Undertakings should be separated from any other major portfolio in view of the increasing importance of the electrical undertakings of the State, and the fact that the financial aspects of the Commission's projects involve the constant and intimate attention of a Minister. In Great Britain, the Central Electricity Authority comes under the control of the Minister of Fuel and Power, who is, of course, also responsible for the overall co-ordinated development of fuel and power supplies in Great Britain and of promoting economy and efficiency in their distribution and consumption.

Assuming that the Minister has a substantial measure of authority under the State Electricity Commission Act and that the portfolio is not linked with a major portfolio, it is desirable to remember that a Minister should not interfere unduly with the day to day administration of the Commission.

Recently, the Solicitor-General of the Commonwealth, Professor K. H. Bailey, wrote an opinion in regard to the respective spheres of responsibility of the Australian Aluminium Production Commission and its responsible members. In the course of that opinion, he enunciated the following principle which, I suggest, may be applied generally and which may be used as a guide in defining the relationship between the Minister of Electrical Undertakings and the State Electricity Commission. Professor Bailey's statement is as follows:—

> I think constitutional practice may with fair confidence be summed up in the following propositions:—
>
> (i) that the establishment by Parliament of a public corporation rather than a Department of State as the chosen instrument for the conduct of a business undertaking implies an intention that the corporation should enjoy a substantial measure of freedom from political direction and control;
>
> (ii) that Ministerial control over the public corporation should be restricted to matters of general policy and principle, and should not extend to the details of management;
>
> (iii) that in order to promote business efficiency and flexibility it is necessary to accept some derogation from the complete measure of Ministerial accountability to Parliament which is insisted on, in the constitutional systems of the British Commonwealth, in relation to the Departments of State.

It is opportune for me to say something concerning the constitution of the Commission itself. As honorable members are aware, there is a full-time chairman of Commissioners, who is the principal executive officer and general manager of the Commission, and three part-time Commissioners. The present chairman and general manager of the Commission, Mr. W. H. Connolly, was recently appointed by the Government to the post of chairman from about 40 applicants from Australia and overseas. Mr. Connolly has attained this post after a long and meritorious career in the

service of the Commission. I am sure that I voice the opinion of all members in wishing the new chairman great success in his new responsibilities. The three part-time Commissioners, in order of seniority are—

Sir Andrew W. Fairley, K.B.E., C.M.G., a pre-eminent leader in rural activities, who was appointed by the Dunstan Government in 1937;

Mr. A. W. Henderson, Victorian Secretary of the Electrical Trades Union, and an eminent leader in trade union affairs, who was appointed by the Cain Government in 1945; and

Sir Alexander Fitzgerald, O.B.E., B.Com., F.A.S.A., F.C.I.S., F.C.A.A., the chairman of the Commonwealth Grants Commission and head of the Accountancy Department in the Faculty of Economics and Commerce at the Melbourne University, who was appointed by the present Government in 1955.

Each of the part-time Commissioners has, it will be seen, a particular breadth of experience in some phase of Victoria's economic life and brings to the work of the Commission the benefit of his judgment founded on such experience. There are in the Commission's employment 6,500 personnel, classified as salaried staff, and nearly 12,000 employees working under various wages awards. To these men and women, I take this opportunity of paying a tribute for their loyal and devoted service.

Having touched on the question of the organization and administration of the Commission and the powers of the Minister, I turn now to the matter of Parliamentary control of the Commission. It is true that whereas other Departments and instrumentalities which receive appropriations in the Budget may come under criticism by members of Parliament when the Budget is under discussion, the Commission's finances are outside budgetary provision, and therefore this opportunity of discussion is not open to members. I would point out, however, that the following methods of Parliamentary inquiry and criticism are available:—

(1) By asking questions of the Minister in the House.

Mr. SHEPHERD.—If he is a member of this House. That has not always been the case.

Mr. REID.—In answer to the interjection of the honorable member for Ascot Vale, I point out that if the Minister of Electrical Undertakings is not a member of this House, a satisfactory liaison is preserved with the other place.

(2) By speaking on the motion for the adjournment of the House.

(3) By speaking on the periodical Bill for the raising of the Commission's borrowing limit.

It will be seen, therefore, that the Commission has never been immune from the shafts of Parliamentary criticism. In Great Britain, a practice has grown up in the House of Commons that the Minister concerned has declined on the authority of the House to answer questions concerning the administration of certain Government corporations. That has never applied in this House in the case of the State Electricity Commission of Victoria.

In addition to their rights in Parliament, members write to and communicate with the Minister privately in regard to problems affecting the Commission. I may say that since I have been Minister I have always endeavoured to ensure that all members receive adequate and prompt replies to their inquiries, as I appreciate that members are exercising a right which is one of the foundations of our democratic system. The Commission has for many years adopted the practice of inviting members to visit the Commission's main works. Therefore, there is ample opportunity for members of this Parliament to obtain first-hand knowledge of the Commission's undertakings.

I may say further that, in regard to this statement, if any members wish to confer with me as to particular aspects in which they are interested, or on any

matters which may have been overlooked, I shall be pleased to arrange a conference at which the chairman of the Commission and senior officers will be present. I am informed by the chairman that he would welcome any such conference. Finally, I would say that the successful working of the State's electrical undertakings depends on three things—the management and efficiency of the State Electricity Commission and those in its employment, the support of the Government through its Minister, and the constructive criticisms of Parliament representing the people. I conclude by thanking the House for its indulgence in having listened attentively to what must necessarily have been a long and detailed statement. In order to afford honorable members an opportunity of debating its contents in accordance with the undertaking given by the Premier, I formally move—

That the statement be printed.

By Authority: W. M. HOUSTON, Government Printer, Melbourne