1929.

VICTORIA.

STATE ELECTRICITY COMMISSION OF VICTORIA.

TENTH ANNUAL REPORT

FOR THE

FINANCIAL YEAR ENDED 30TH JUNE, 1929;

TOGETHER WITH

APPENDICES.

PRESENTED TO PARLIAMENT PURSUANT TO SECTION 25 (*b*) OF STATE ELECTRICITY COMMISSION ACT No. 2996.

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TENTH ANNUAL REPORT.

The Minister in Charge of Electrical Undertakings,
Melbourne.

SIR,

As directed by section 25 (*b*) of the *State Electricity Commission Act* 1918, No. 2996, we have the honour to present our Tenth Annual Report, covering the financial year ended the 30th June, 1929, with Profit and Loss Accounts and Balance-sheet.

A RETROSPECT.

As this Report marks a decade in the history of the operations of the Victorian State scheme of electricity supply, it is appropriate that it should commence with a brief review of the work which has been accomplished during that period in giving effect to the will of Parliament, as expressed in the Statutes defining the powers and duties of the Commission.

Such a review would not be complete without a reference to the events which immediately preceded the inauguration of the national scheme. Moreover, it is essential, in order that the scheme and its achievements may be studied in their proper perspective, that the conditions which obtained at its inauguration should be compared with those which exist to-day, as the direct result of its operations.

Several disquieting factors intruded themselves in 1916 with regard to electricity supply in Victoria. These factors became more pronounced as time went on, and in 1917 it became apparent that the existing power houses in the metropolis had reached a stage where any extension of plant to meet the rapidly-growing demand for electricity was economically impracticable, and a shortage of electrical energy, involving a serious check to industrial development, was imminent. Aggravating the situation was the uncertainty with regard to coal supplies from New South Wales, upon which the power houses were dependent for their operation. Frequent interruptions of supply of coal, owing to industrial troubles at the mines and on the waterfront, combined with rising prices to cause continual anxiety, and the attention of Parliament was accordingly directed to the advisability of making Victoria independent of outside sources of fuel supply by the utilization of the State's own natural resources, at any rate as far as the generation of electricity was concerned. Evidence that an extensive area of clean brown coal, adapted for cheap open-cut mining, was available adjacent to the Latrobe River, a few miles from Morwell, had been established by field work and concurrent laboratory investigations which were conducted by the Geological Survey Branch of the Mines Department.

In 1917, the Government appointed an Advisory Committee of four engineers to report on the commercial utilization of brown coal, particularly for the purpose of generating electrical energy. The conclusion of the Committee was that the brown coal fields of the State offered a much more certain and economical fuel supply than black coal for the production of electrical energy, and that a power house should be established on the Morwell deposit. In the following year the *Electricity Commissioners' Act* 1918 was passed. This Act received the Royal Assent on the 7th January, 1919. The duties it imposed upon the Electricity Commissioners may be divided into three broad sections, viz. :—

(1) The control of the generation, supply and use of electrical energy throughout the State, embracing the administration of the *Electric Light and Power Act* 1915.
(2) (*a*) The investigation of possible sources of power ;
(*b*) The exploitation and development of any such sources of power selected.
(3) The encouragement and promotion of the use of electrical energy, particularly for industrial purposes.

In 1920, the constitution of the State Electricity Commission was altered by the State Electricity Commission Act, which increased the number of Commissioners from three to four, including a full-time Chairman, and authorized the operation of open-cut workings and experimental briquetting works, and the establishment of a housing scheme for the Commission's employees at Yallourn. Important policy provisons in the 1920 Act included the power given to the Commission (1) to acquire and operate individual undertakings, and (2) to control the tariffs of those undertakers whom it supplies with electricity in bulk.

The policy emphasized by Parliament in the 1920 Act was the elimination of individual undertakings, in order to standardize electricity supply and facilitate the extension thereof by the Commission under a scheme for the transmission and distribution to all parts of Victoria of energy generated at large, inter-connected State power houses.

The initial steps in this direction were taken under the 1918 Act, which prescribed as the Commission's first duty the " submission of a scheme for a coal-winning and electrical undertaking in the neighbourhood of Morwell, and the distribution of energy therefrom, and also a report setting forth the results of an inquiry into the relative practicability of utilizing water power for electrical undertakings."

The Commissioners laid down certain main essential requirements of any scheme selected as the basis of a comprehensive transmission system, viz. :—

(1) Certainty and continuity of supply.
(2) Capability of expansion.
(3) Economic soundness.
(4) Independence of sources outside Victoria.

The normal output of any scheme sufficient for initial requirements was set down as 50,000 kilowatts.

As alternatives to Morwell, the Commissioners, whose report was presented to Parliament on the 26th November, 1919, considered the Altona brown coal deposits and the establishment of a hydro-electric scheme on the Kiewa River. As meeting all the essentials laid down, the Morwell scheme was selected and received Parliamentary approval. Events since that time have amply vindicated the wisdom of the choice.

Turning the First Sod, Yallourn Power Station Site, 5th February, 1921.

Reading from Right to Left .—Commissioner Sir Robert Gibson, Sir John Monash (Chairman), Commissioner the late Hon. Geo. Swinburne, Mr. R. Liddelow (then Secretary), Commissioner Sir Thomas Lyle, Mr. A. H. Merrin (Secretary for Mines), Mr. C. H. Kernot (Construction Engineer).

In considering the scheme and its progress, it needs to be remembered that it was not only undertaken for the purpose of meeting a situation of extreme urgency, but that it represents a great national experiment. The legislation governing its operations is among the first of its kind introduced any where in the world, hence Parliament had little, if any, precedent to follow in its creation. Yet the main structure of the original Act has remained unaltered, and serves as a firm basis for the scheme as it exists to-day and for its further development.

The open-cut workings at Yallourn were also initiated at a time when the details of practices followed elsewhere were not available, the war being too recent a memory to permit or suggest anything in the nature of an intimate investigation or interchange of ideas in relation to the

methods adopted by the only other country in the world where open-cut winning of brown coal is carried on ; consequently Yallourn, in its initial stages, was a pure pioneering proposition, conducted in accordance with methods designed and executed by Australian engineers. These methods have proved successful, and, when modifications became necessary to meet the growing demand for coal, the original lay-out of the field has permitted such modifications to be progressively introduced without disorganization of operations.

The preparation of plans, the arrangements for purchase of the necessary plant, and the mobilization of the Commission's forces having been completed, the vast constructional work was put in hand, the first sod being turned at Yallourn on the 5th February, 1921. The works at Yallourn were, of course, only part of the plan, because synchronizing therewith were the erection of the main 132,000-volt transmission line from Yallourn to Yarraville, the building of a receiving station at the latter place and a peak load station at Newport (known as Newport " B "), and the provision of the necessary distribution network throughout the metropolis. The whole of the Yallourn and associated electrical works occupied about three and a half years, the first of the original set of five 12,500 kw. turbo-generators at the Yallourn power station coming into operation on the 15th June, 1924, thereby placing the scheme on a practical revenue-earning basis.

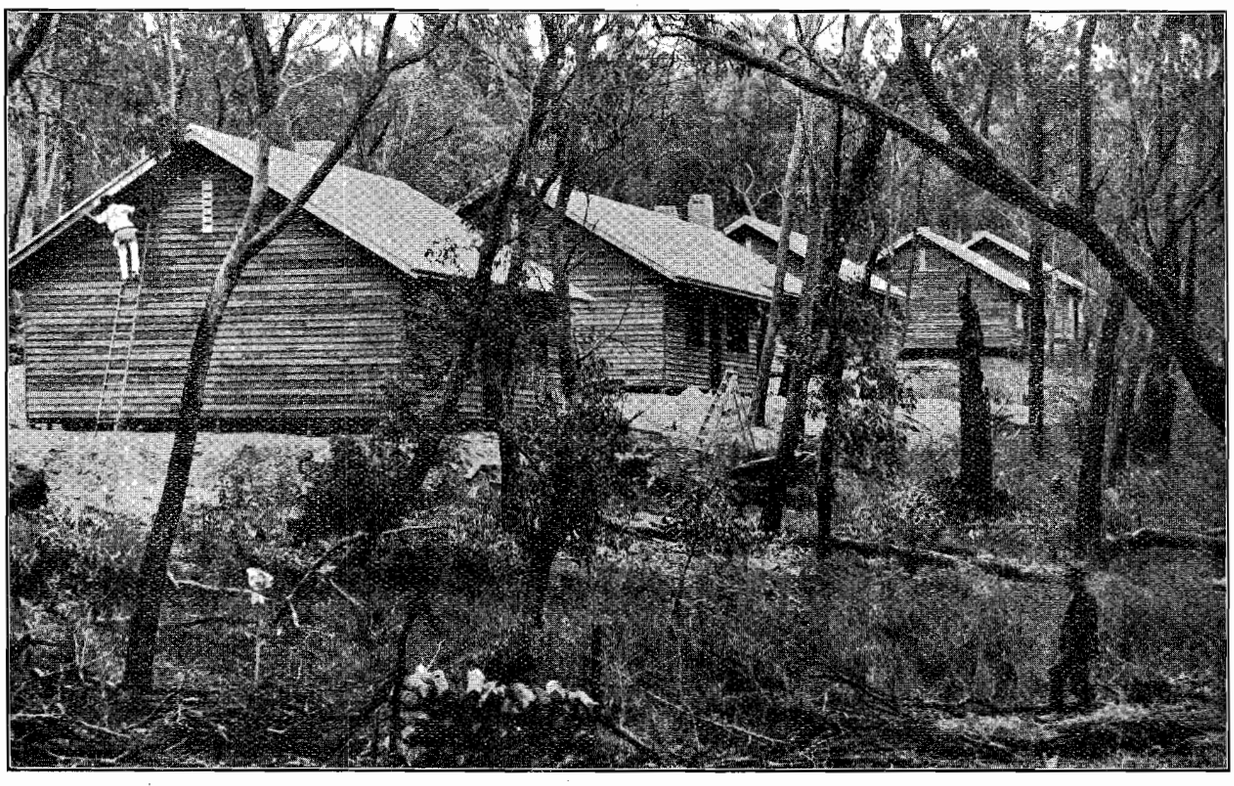
The completion of the " half " or experimental briquetting factory followed six months later, and briquettes were placed on the market in December, 1924. They had a popular reception, their value as industrial and domestic fuel being quickly realized, and the advisability of placing the factory on a commercial basis by trebling the output was stressed by the Commission, from the points of view of making this section of the undertaking self-supporting, cheapening the cost of production, and further safeguarding the State in the matter of fuel supplies. The soundness of these contentions became emphasized as time went on, and finally the money was made available for the completion of the factory as a full commercial unit. This work is now proceeding.

The works at Yallourn were those which principally engrossed the attention of the public at the time, but considerable progress had also been made in other directions in building up a power system comprehending the immediate and future electrical requirements of the State. Rural supplies engaged the immediate attention of the Commission, and Melbourne was not the first to receive transmitted energy. Early in 1922 plans had been laid for serving Gippsland concurrently with the availability of energy from the main power station at Yallourn, and when the first section of the high tension transmission line which was ultimately to extend to the eastern portion of Gippsland had been erected, Morwell received energy therefrom, generated at the temporary plant erected at Yallourn to facilitate the constructional works in progress there. When, in 1924, the main station at Yallourn began to function, everything was in readiness to link up several important towns in Gippsland. These were followed in quick succession by many others in the various sections of that district, whose geographical and other advantages made it a convenient field for rapid electrical development. To-day Gippsland is served with transmitted energy from Dandenong to the Lakes Entrance, the lines radiating north, south, east and west throughout that fertile region.

In June, 1923, the 44,000-volt transmission line, which now extends from Geelong to Port Fairy, was completed as far as Colac, the energy therefor being obtained by the Commission in bulk from the Geelong power house of the Melbourne Electric Supply Co. Ltd. In the same month 22,000-volt transmission lines for supplying the Mornington Peninsula and the Yarra Valley also came into operation, with energy generated at Newport, and, in September, 1923, arrangements were made for completely encircling with a 22,000-volt feeder line the northern and eastern outer suburban areas, from Thomastown in the north, to Dandenong in the east. This was shortly followed by a branch line from Ringwood to the Ferntree Gully District, and which now extends as far as Olinda.

The requirements of the North-Eastern District were also being provided for, and the Sugarloaf–Rubicon hydro-electric scheme was presented to the Government and approved, in September, 1922. This work, with the erection of the 66,000-volt transmission line, and the building of a receiving station at Thomastown, was put in hand in August, 1924. The transmission line was completed in January, 1926, and service to the North-East was commenced, the energy being supplied from Yallourn, pending the completion, in March, 1928, of the mountain streams section of the Sugarloaf–Rubicon group of stations. The North-Eastern transmission line traverses some of the most difficult and inaccessible country in the State, and involved the use of all possible means of transport, from bullock teams to caterpillar tractors. Its terminus, at the border, is nearly 300 miles from Yallourn, from which it received its energy for over two years. Albury and Corowa take supplies of bulk energy therefrom, at sub-stations on the Victorian side of the border, there being a 22,000-volt line from Wangaratta to the former place, and a similar line from Springhurst to the latter.

By the time (June, 1924) the heavy initial constructional work at Yallourn was completed, the model town there had also taken shape, and about 150 houses for the accommodation of the Commission's employees had been erected, together with administrative offices there. In addition to the main 132,000 volt transmission line between Yallourn and the Yarraville terminal station, 410 miles of high-tension transmission lines in the Western District (including the Bellarine Peninsula), the Gippsland district and the metropolitan and outer-metropolitan areas were functioning. The distribution system of the metropolis was well-advanced, 80 miles of underground cables having been laid. The briquetting factory was nearing completion, and there were various other capital works of a major and minor character either completed or in hand, amongst the major completed works being the nine-storied head office building of the Commission at the corner of William-street and Flinders-lane.



Yallourn's First Street, 1922.

A Street in Yallourn, 1929.

The capital expenditure of the Commission at the time exceeded £6,000,000, and it was only then that the great bulk of this expenditure became revenue-producing. During the barren constructional period, heavy expenses necessarily accumulated, added to which was the burden of interest on all capital expenditure from the date on which any of it was incurred, and which, not being anticipated in connexion with a State undertaking, added £500,000 to the original estimates of the cost of setting up the scheme. Succeeding the barren constructional period was the more or less lean developmental period through which all electrical undertakings, large or small, have to pass. Further heavy losses accrued, because a reasonable time had to elapse before the huge capital expenditure could be made to provide a return sufficient to balance outgoings, especially as tariffs had to be kept at a level which would promote and encourage the use of electricity.

Adverse criticism of the scheme in some quarters was persistent, and not unmixed with predictions of failure, especially as there were some who despaired of the possibility of turning to commercial account the coal of the Yallourn open cut, with its high percentage of moisture. Fortified by the researches of its own engineers, and a knowledge of the conditions obtaining with regard to similar deposits in Germany, the Commission has never entertained any apprehensions in that regard, and to-day this coal is enabling a far greater degree of boiler efficiency to be attained than was guaranteed from coal at least 15 per cent. drier, upon which the original calculations were based, taking the coal mined at Yallourn up to that time as a guide.

Having made the facilities available, the essential upon which the Commission concentrated was the extended use of electricity for all purposes. Favorable industrial tariffs, and the two-part domestic tariff ,which was introduced at the beginning of 1925, and which makes the extended use of energy in the house economical to the householder, were the means whereby this object was achieved. As extensions of transmitted service were made, and provision of additional generating plant proceeded, the capital expenditure on development increased every year, but in three years from the date on which the scheme came into commercial operation the Commission had turned the financial corner. In the fourth year of its commercial operation, viz., 1927–28, when the capital expenditure had grown to over £11,000,000, the financial returns commenced to show an excess of incomings over outgoings, after making provision for depreciation on the whole capital investment and paying interest, including interest on past accumulations of interest and losses.

At the present time, the scheme serves practically the whole of the metropolitan area (a small amount of energy being still generated at the power station of the Melbourne City Council), 141 rural centres (95 of which had no supply previously), and hundreds of farmers in various parts of the State, including several farming groups. It has erected about 1,500 miles of high tension transmission lines throughout Victoria, and laid nearly 200 miles of underground cable, mostly for the distribution system of the metropolis. It has nearly 400 sub-stations in various parts of the State, aggregating approximately 300,000 k.v.a. The briquetting factory is producing about 500 tons of industrial and domestic briquettes a day, and Yallourn itself is a self-contained town of over 400 houses.

The Commission already controls one metropolitan undertaking, that at Essendon-Flemington, which was acquired in 1922 from the North Melbourne Electric Tramways and Lighting Company. In 1930 it will take possession of the undertakings in Melbourne and Geelong of the Melbourne Electric Supply Co. Ltd. under an agreement ratified by Parliament in 1924. Agreements for the acquisition of the private undertakings in Ballarat and Bendigo having been concluded, the extension of transmitted supply to the districts of which those cities are the chief centres is now proceeding, and, with the linking together of Melbourne, Bendigo, Ballarat and Geelong by means of a ring main, the State scheme will be consummated as a complete power system.

The domestic activities of the Commission embrace the administration of the *Electric Light and Power Act* 1915, and the regulation of tariffs of all the undertakings in the metropolitan area which receive their energy in bulk from the State power houses. To-day, standardized tariffs are in operation throughout the entire metropolitan area.

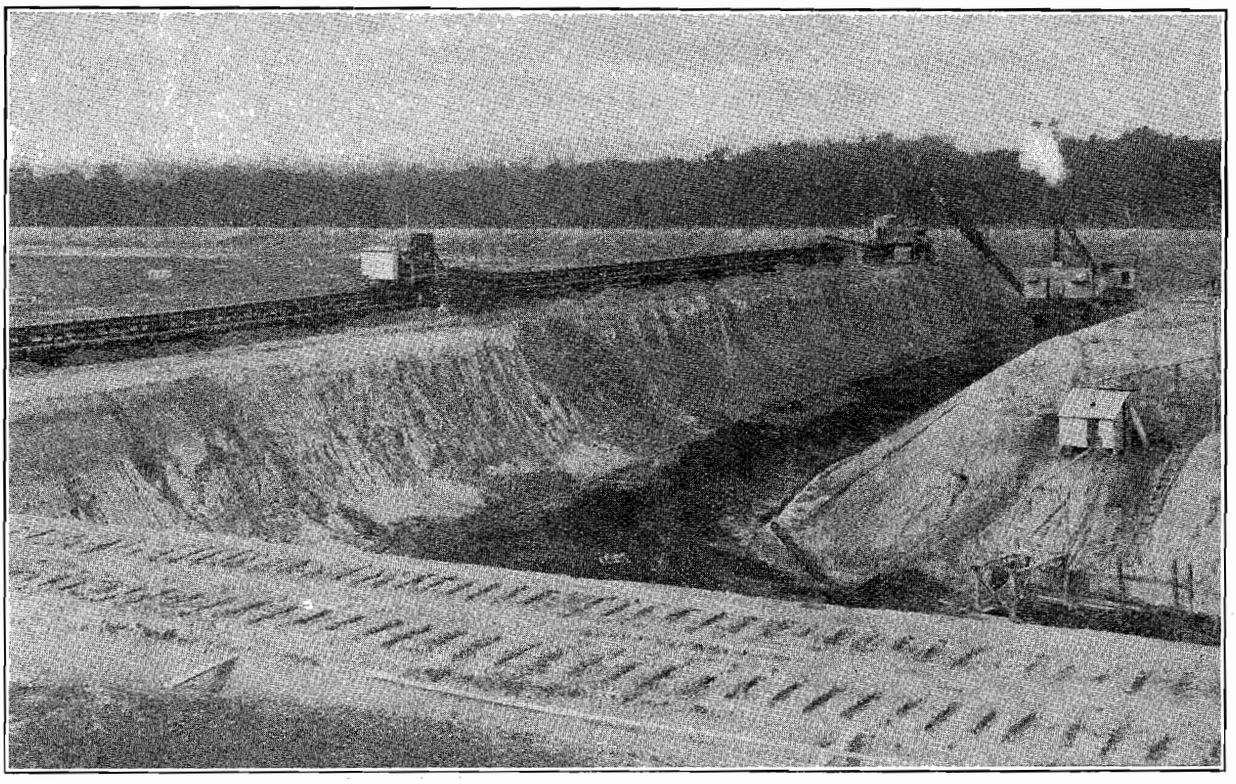
The whole system has functioned most reliably since its inception, and continuity of supply has been one of its features. The scheme has been unaffected by external influences, and general industrial development in Victoria has proceeded free from the interruptions to electricity supply which, prior to its advent, were a frequent occurrence and an ever-present contingency.

The extent to which the use of electricity has increased since the establishment of the scheme on a commercial basis is proved by the following official consumption figures for five calendar years, from 1925 to 1929 (inclusive, the total for 1929 being estimated), viz. :—

1925	.. ..	266,014,035 kWh.
1926	.. ..	315,553,509 „
1927	.. ..	360,333,241 „
1928	.. ..	393,846,329 „
1929	.. ..	414,226,456 „

Admittedly, Victoria is only on the threshold of electrical development. Still, it is very firmly on the threshold, and the facilities are now available for that intensive use of electricity which goes in hand with industrial progress and domestic comfort.

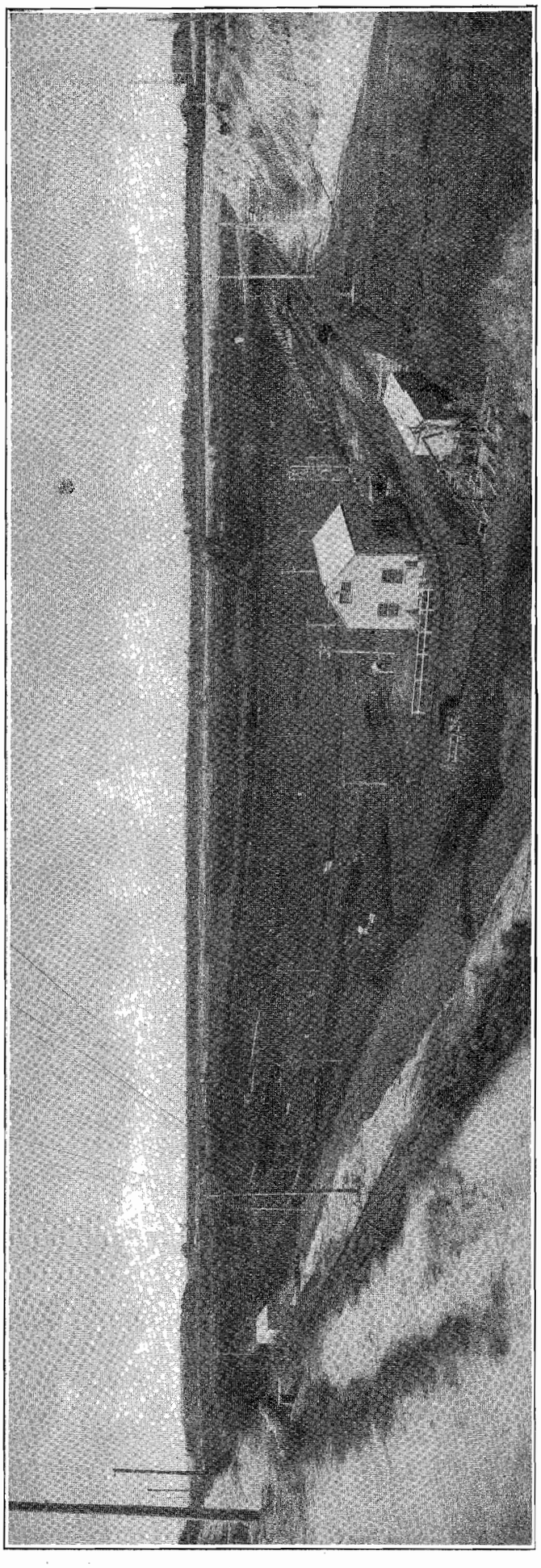
One of the most important duties of the Commission is to anticipate and keep abreast of the growing demand for electrical energy. It is also one of the most important advantages of an organized system of supply, comprehending, as it does, not only the increasing needs of centres already supplied, but also the general electrical development of the State. Every year, therefore, the Commission is enabled to take a comprehensive survey of requirements, and to consider the most economical means of providing for them, either by the extension of existing generating plants, or by the exploitation of fresh sources of supply. It is interesting to note in this connexion



Yallourn Open Cut, 1922.

that in no single year has the demand been less than that estimated, and that this demand has been catered for by progressive installations of new generating plant. An additional 12,500 kilowatts at Yallourn and the mountain streams section of the Sugarloaf-Rubicon hydro-electric scheme enabled the 1928 increment of demand to be met. The Sugarloaf station was completed in January, 1929, followed by the Richmond station, so that care was taken of the 1929 increment of demand. With a minimum normal capacity of 102,500 kilowatts, the scheme will be able to meet requirements up to and including the winter of 1931, when the first of the three units of 25,000 kilowatts each to be installed at Yallourn is designed to come into operation. The full new installation at Yallourn is estimated to meet requirements up to and including the winter of 1934, and the Commission has already to consider its plans for the progressive provision of new generating facilities thereafter.

The new plant at Yallourn, and the extended briquetting factory (which is to come into operation towards the end of 1930) will require an output of coal from the new cut of 10,000 tons a day in 1931, rising to approximately 13,000 tons a day in 1934. The commercial utilization of the high-moisture brown coal at Yallourn necessitates low costs of production, and to insure that these costs shall be as low as possible, important modifications in the original coal-winning methods employed at Yallourn have been adopted. These modifications, which are already in operation or in course of being introduced, include dredges, in place of power shovels for excavating coal



Yallourn Open Cut, 1929.

and overburden, electric locomotives (hauling rakes of 20-ton trucks), in place of rope haulages for coal and steam trains for overburden, and an electric steep haulage direct from the open-cut to the bunkers. A dredge has been at work on overburden for some time, and a coal dredge, digging to a depth of 100 feet, commenced operation this year. A second coal dredge, which is on order, will be placed on the 100 feet level, and, between them, the two dredges will excavate all the coal from the top to the bottom of the deposit, while the steep haulage will deliver it direct to the bunkers. The operations at Yallourn will thus be completely modernized, coal will cost less delivered to both the power house and briquetting works, and the value of the unlimited brown coal deposits to the State will be still further emphasized, especially when the ultimate potentialities of the coal for purposes other than electrical generation and briquetting are considered. As scientific knowledge grows, and new processes are developed, the Commission's practical experience of the best coal-winning methods will be of the utmost value with regard to any secondary industries, based on brown coal, which may be established in this State. It is not the desire of the Commission to exaggerate the possibilities of brown coal for other than the purposes for which it is at present utilized. In fact, it has been considered necessary from time to time to sound notes of warning against the acceptance of projects put forward by interested parties who have painted the immediate prospects in too glowing colours. At the same time, there are undoubted possibilities of expansion of use of brown coal in various directions as both the processes and markets develop, and special care is being taken by the Commission to keep abreast of all movements here and abroad which may tend to the ultimate realization of sound commercial projects.

Since its inception, the Commission has been systematically investigating the water power resources of the State. The actual field work which has been done now covers practically all sites which offer favourable prospects of economic development of power of any magnitude, and, although much detail and river gaugings remain to be completed, the Commission is in possession of sufficient data to enable it to assess the value of all of these resources and to formulate a correct policy for their development.

At the outset, the investigations were centred in the Kiewa river scheme, which, at the time, was receiving serious consideration as a possible alternative to the establishment of a fuel-burning station at Yallourn. The Kiewa scheme was not adopted for reasons which were fully explained at the time, the principal ones being that it did not fulfil initial requirements as the basis of the national scheme of supply, and did not offer the capacity for expansion which Yallourn afforded, and which, as was estimated, has now become necessary.

Although the main Kiewa scheme was not proceeded with, investigations were continued with regard to the auxiliary and more economical sections of it, viz., the Sugarloaf dam and the Rubicon and Royston rivers. This modified scheme, which is now in operation, supplies the North-Eastern District and provides a surplus of energy for the growing metropolitan requirements. It affords a striking example of the value of co-operation between the irrigation and power authorities of the State. The Sugarloaf power station is located immediately below the Eildon weir, which had been constructed by the State Rivers and Water Supply Commission to store the winter flow of the Goulburn river for irrigation use during the other seasons of the year. The energy of the water issuing from the reservoir under pressure is converted to electrical energy by two turbo-alternators, aggregating 18,700 horse-power, in the power station. The stored water thus performs a dual service for the benefit of the State. Unfortunately, from the point of view of power supply, no irrigation water is required in the winter, when the outflow from the reservoir is stopped to permit re-filling. The supply of power from this station is thus interrupted for a period averaging two months per year. The disadvantage arising from this gap in the power output has been overcome by combining with the Sugarloaf station a group of stations in the same district—on the Rubicon river and its tributary, the Royston. Here four stations, aggregating 17,450 horse-power, are located. The flow in the mountain streams referred to is greatest during the winter and least during the summer, when power is available from Sugarloaf. The two sections of the scheme are thus complementary to each other, and together provide a much more uniform output of power than could be obtained from either section separately.

The main Kiewa river scheme has also received constant attention since its first presentation in 1920, and very comprehensive surveys have been carried out, in conjunction with river gaugings. As a result of these more complete investigations, the original lay-out has been greatly modified to advantage, and the modified scheme is at present receiving serious consideration. The results obtained by the later investigations of this main scheme have emphasized in a very striking manner the necessity for very full research when dealing with hydro-electric schemes of such a complicated nature. Moreover, the conditions of the electric supply system in this State are now much more favorable for the development of hydro-electric schemes than was the case in 1920, when the Kiewa scheme was originally under consideration. At that time

any large hydro-electric scheme would have required to be capable of supplying the whole of the demand, with little assistance from any steam stations. Now, however, any future hydro-electric scheme will operate in conjunction with the large-capacity steam stations of Yallourn and Newport, and this will enable much more economic and favorable development than would otherwise be possible.

A further instance of possible collaboration between the irrigation and power authorities is afforded by the Hume dam, now under construction on the Murray river by the River Murray Water Commission for irrigation purposes. The question of power development at this site is receiving preliminary consideration, in conjunction with other possible sources of hydro-electric energy in the northern part of the State.

Although Victoria is, on the whole, not richly endowed with water power resources, investigations have located a few sites at which there appear to be possibilities of economic power development in large capacity stations. It is not unlikely, therefore, that hydro-electric stations will occupy a larger place in the national scheme in the future, the combination of steam stations and hydro-electric stations providing a power system with considerable elasticity and a fair degree of immunity from industrial troubles.

PART I.—ADMINISTRATION.

MAJOR EXTENSION OF PLANT AFTER 1930.

References were made in the Eighth and Ninth Annual Reports to the necessity of making provision for a major installation of generating plant, capable of meeting the increase in the demand for electricity for a period of four years, from and including the winter of 1931. These proposals were embodied in a comprehensive report, which was presented to both Houses of Parliament before the close of the last financial year, and provided for the installation of 75,000 kilowatts of new generating plant at Yallourn, based on the exclusive use of brown coal from the new open cut.

The estimated cost of the scheme, which includes the duplication of the main transmission line from Yallourn to Melbourne, and the provision of a new terminal station at Richmond, is £2,806,000.

The scheme received Parliamentary approval during the financial period now under review, and, in order that full effect should be given to it, authority was issued for the preparation of detailed designs and specifications and the invitation of the necessary tenders.

During the year, work was commenced on all sections of the scheme, and up to the date of this Report the following tenders were accepted, viz. :—

Yallourn Power House.	£	£
4—17,000 k.v.a. transformers—Metropolitan Vickers Ltd. ..	13,598	
8 water-tube boilers and accessories—John Thompson (Aust.) Ltd. ..	227,038	
8 sets mechanical step grates—Howden-Ljungstrom Preheaters (Land) Ltd.	60,403	
11,000 volt switchgear—Australian General Electric Co. Ltd. ..	14,503	
Galvanized structural steelwork for switchyard structures—Forman and Co. Ltd.	1,380	
Steelwork, roof covering, &c., power station buildings—G. E. Kelly and Lewis Pty. Ltd.	135,972	
1—30-ton electrically operated crane for turbine room—Marfleet and Weight Pty. Ltd.	2,752	
Steel chimneys—John Thompson (Aust.) Ltd.	11,298	
2—25,000 kw. turbo-generators complete with condensing plant—Metropolitan Vickers Electrical Co. Ltd.	148,375	
		615,319
Richmond Terminal Station.		
2—37,000 k.v.a. transformers—Gibson Battle (Melb.) Pty. Ltd. ..	19,356	
22,000-volt switchgear and accessories—Australian General Electric Co. Ltd.	15,426	
11,000-volt switchgear and accessories—Australian General Electric Co. Ltd.	12,378	
132,000-volt pillar insulators—Kendall, Knight and Co. Ltd. ..	3,098	
Structural steelwork for machine room and control room—Australian Iron and Steel Ltd.	5,724	
Structural steelwork for 120 k.v. switchgear structure—Forman and Co. Ltd.	3,825	
Steelwork for 22 k.v. structure—Johns and Waygood Ltd. ..	3,098	
11 k.v. internal power cable—Metropolitan Vickers Electrical Co. Ltd.	1,274	
Brickwork, plastering, &c.—W. J. Charlesworth	8,794	
		72,973
Yallourn-Richmond 132,000-*volt Transmission Line.*		
Suspension insulators—Kendall, Knight and Co. Ltd.	7,989	
360 miles aluminium steel-cored cable—British Insulated Cables Ltd.	67,432	
Galvanized steel transmission line towers—Johns and Waygood Ltd. (Melb.)	56,606	
		132,027
		820,319

The amount of Australian expenditure included in the above tenders is £616,636, or over 75 per cent.

METROPOLITAN STANDARD TARIFFS.

The Advisory Committee on Metropolitan Standard Tariffs, consisting of representatives of the various supply authorities in the metropolitan area, held a number of meetings during the year, and much helpful discussion ensued, with the object of ensuring uniform practice and interpretation in the application of the several classes of tariffs included in the schedule. In addition, the Committee submitted a recommendation to the Commission concerning the standard two-part domestic tariff. This recommendation was approved by the Commission, and in accordance therewith the following modifications now govern the operation of the tariff in question, viz. :—

(1) The service charge for outside lighting has been abolished, excepting in the case of lighting for tennis courts, bowling rinks and croquet lawns, the service charge for which shall be 5s. per month for each electrically-lighted tennis court, bowling rink and croquet lawn.

(2) The exemptions under the two-part domestic tariff shall be as follows :—Passages, pantries, cupboards, bathrooms, lavatories, cellars, entrance halls and porches, cloak rooms, sculleries, workshops, motor garages and wash-houses, and also vestibules and verandahs, whether lighted or not, unless such vestibules and verandahs be used as living rooms.

(3) The maximum service charge per room under the two-part domestic tariff shall be 3s., notwithstanding that, on the basis of 350 square feet of floor constituting one room, any one room may equal more than three single rooms. The charge per room is, therefore, made subject to the following definition, viz. :—" Each room is assessed on the basis that every 350 square feet of floor area or part thereof constitute one room, but in no case shall the service charge per month in respect of any one room exceed 3s."

The Standard Metropolitan Tariffs are set out on page 58 of this Report.

The Committee is performing a very useful function, and may be called together at any time that questions of uniformity arise. While this is so, it is apparent that, taking the metropolitan area as a whole, the principle of uniformity is not fully achieved either by standardized tariffs, or by their common interpretation and application, because the compact and densely-populated nature of some metropolitan municipal districts gives the supply authorities therein advantages which do not accrue in the more scattered and thinly-populated sections.

GEELONG TARIFFS.

Following upon discussions with the Melbourne Electric Supply Company Ltd., regarding the Geelong undertaking, the Commission authorized reductions of tariffs in that area, as from the 1st September, 1928. The appreciable nature of the reductions made is to be measured by the fact that on the consumption figures at the time of their introduction they represented a saving of £10,000 a year to Geelong consumers.

Included in the new tariffs is the two-part domestic tariff, in which the service charge is 1s. 3d. per room per month, and the energy charge 1½d. per kwh., as against the existing domestic flat rate of 8d. per kwh. for lighting and 2½d. per kwh. for power and heating.

The following is a comparison of the old and new tariffs :—

Old Rates.	New Rates.
Commercial and Industrial Lighting.	
8½d. per kwh., or 10d. per kwh. for first 50 hours use of M.D. and 4d. per kwh. beyond this amount in same period.	6½d. per kwh. up to and including 500 kwh. ; 4d. per kwh. for all over.
Industrial Power and Heating.	
From 4½d. per kwh. down to 2½d. per kwh. up to 600 kwh. All beyond 600 kwh. on a flat rate of 2d. per kwh., with option of being charged 8s. 4d. per month per kw. of M.D., plus 0·7d. per kwh. for all in excess of 1,000 kwh. during the month.	2½d. per kwh. up to and including 500 kwh. ; 1¾d. for next 1,000 kwh., with option thereafter of continuing on 1¾d. or being charged 8s. 4d. per month per kw. of M.D., plus 0·6d. per kwh. for energy.
Coal surcharge, 0·0135d. per kwh. for each shilling increase on 30s. ton, with a corresponding decrease for each 1s. below 30s. ton.	Coal surcharge, 0·01d. per kwh., for each shilling increase on 30s. ton, with a corresponding decrease for each 1s. below 30s. ton.

Old Rates.	New Rates.
Restricted Hour Rates.	
1½d. per kwh. for all consumption between 11.30 p.m. and 7.30 a.m., and for any consumption during other periods of the day of 24 hours the ordinary rates for industrial power and and heating.	¾d. per kwh. for all energy consumed between 10 p.m. and 7 a.m., for any consumption during other periods of the day of 24 hours, 2½d. per kwh.
Continuous Water Heating.	
6s. per month for each 100 watts of demand or part thereof.	4s. 6d. per month for each 100 watts of demand or part thereof, payable quarterly in advance.

An entirely new tariff has also been introduced for commercial cooking, viz., 1½d. per kwh.

DEVELOPMENT OF THE USE OF ELECTRICITY.

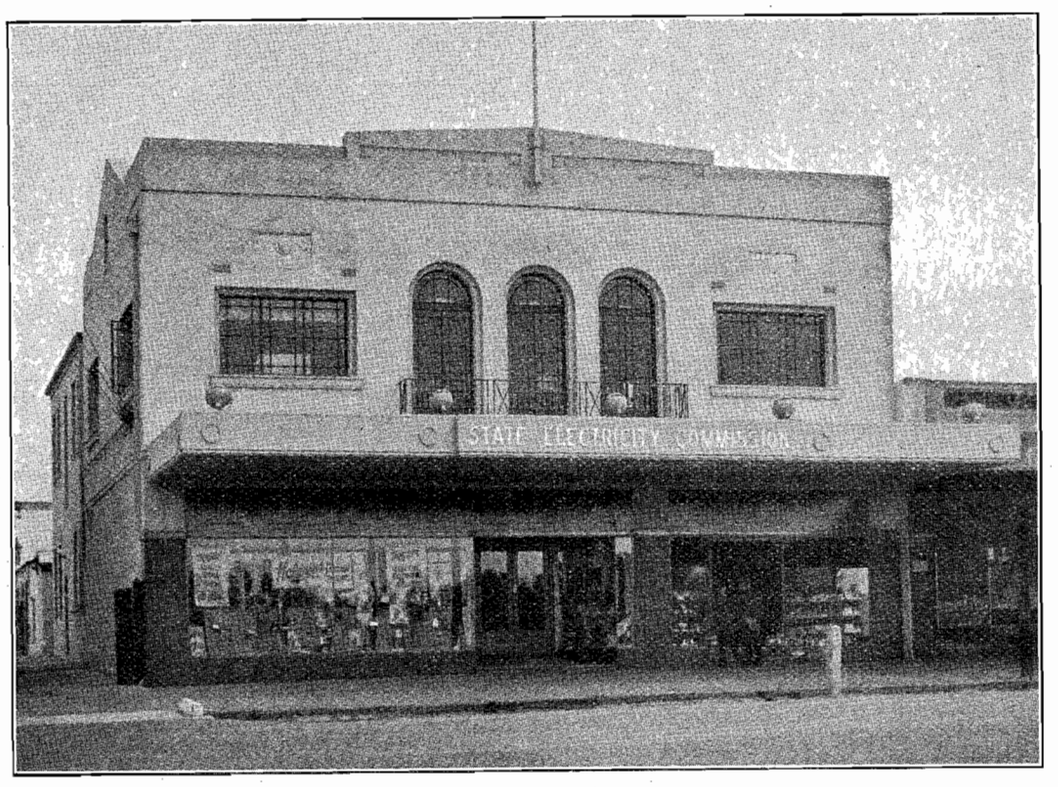
Having established an efficient supply system, the complementary duty rests upon the Commission of securing the maximum load on that system. The matter has a dual importance, because any increase in the load obtained from a given expenditure will result in the generation of electricity at a lower unit cost, and consequently enable the adoption of lower rates to consumers.

In order to secure from its capital the greatest possible investment efficiency, and to ensure that the national scheme shall confer the utmost benefits upon the public, the Commission has entered upon a scheme of intensive development of the use of electricity. During the year, therefore, the Electrical Sales Manager, Mr. D. E. Williams, was sent to Canada and the United States, to investigate at first hand the methods followed by large electrical undertakings in building the industrial load, in advancing means of rural electrification, and in fully developing the domestic use of electricity. Mr. Williams was absent from Melbourne for nearly five months, and returned just before the close of the financial year. Following upon his visit, action is being taken to further the use of electrical energy in the directions named. It is hoped at an early date to organize a Rural Service Section, the particular function of which will be to investigate and propagate the most practical and economical application of electrical power to farm service. From the point of view of decentralization, it is interesting to note that to-day no less than 100 rural towns which hitherto lacked supply are connected to the Commission's system, and that all the energy necessary to supply such towns is generated at power stations situated in country districts. Nevertheless, the Commission does not regard its task as completed with the connexion of its lines to farm houses, and hopes that with the aid and co-operation of interests more directly connected with agricultural science it will be able to give to the Victorian farmer, not merely supply at cost, but also a sympathetic service which will enable him to utilize in the most productive manner the low-priced horse-power available from its lines.

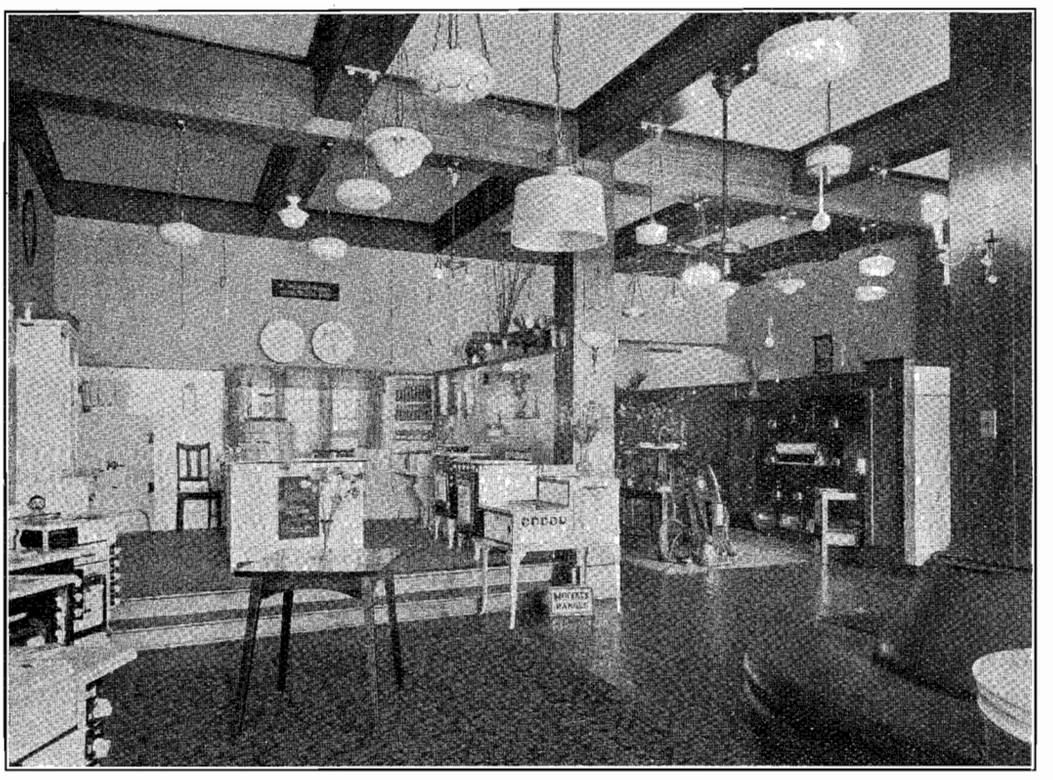
In the domestic field, Victoria is as yet far behind America and Canada in the intensive use of electricity, the consumption per family in this State being but half that of the United States, and about one-quarter of that in some Canadian centres. However, there is a growing desire on the part of the people of Victoria to take fuller advantage of the many domestic labour-saving devices which are now available, and the systematic dissemination of knowledge of the value of such appliances, together with the opportunity to purchase them on reasonable terms, will undoubtedly lead to that extended use of electricity which goes hand in hand with health, comfort and economy in the home.

Already the Commission is operating some seven show-rooms. It is now intended to embark upon an extended and active selling campaign throughout the State, as a logical and integral part of the power supply undertaking, because by its opportunities to supply suitable apparatus, and effectively to service it after sale, the Commission's full responsibility to its customers can only be discharged.

During the year new show-rooms were opened at Shepparton, Frankston and Castlemaine. After the close of the year, new offices and show-rooms were also opened at Dandenong, and, largely owing to the merchandizing activities there and at the other show-rooms operating, the number



Offices and Showroom, Dandenong.



Interior of Showroom.

of domestic appliances connected showed an appreciable increase in the various districts which are under the control of the Commission. A comparison of the relevant figures is as follows :—

Appliances.	Total Connected at 30th June, 1929.	Increase for Twelve Months ended 30th June, 1929.	Percentage Increase.
Electric stoves	850	344	68
Fans	1,091	205	23·13
Grillers	911	225	32·8
Irons	16,038	2,747	20·66
Kettles	1,696	488	40·4
Radiators	7,413	1,479	24·9
Toasters	309	85	37·9
Vacuum cleaners	738	231	45·56

NORTHERN EXTENSION OF ELECTRICITY SUPPLY.

Early in 1929 the question of the ultimate linking up of Ballarat and Bendigo with the State scheme of electricity supply was placed on a definite basis, the Commission, with the approval of the Government, entering into an agreement with the Electric Supply Company of Victoria Ltd. for the acquisition of the whole of the latter's assets and undertakings in both centres.

The principal provisions of the agreement, and the action which will devolve upon the Commission, as consequential thereon, are as follows, viz. :—

(1) The purchase price, as agreed upon, is £272,000, which is to be paid to the Company on the 30th June, 1934.

(2) The Company will be reimbursed all approved capital expenditure between 31st March, 1927, and the date of signing the agreement.

(3) All additions or extensions which may be required or approved by the Commission subsequent to the date of the agreement, and until 30th June, 1934, will be paid for out of moneys advanced by the Commission, for which interest will be charged.

(4) All new and unused stores on hand will, if suitable to the undertakings, be taken over by the Commission at book value.

(5) The several franchises of the Company, both for electric supply and tramways, are to be extended, so that all shall expire simultaneously on 30th June, 1934.

(6) During the last three years of the extended franchise the operations of the Company will be under the absolute control and supervision of the Commission, to which will be paid all surplus profit remaining from the operations of the Company after allowing 7 per cent. interest on ordinary shares, 6 per cent. interest on preference shares, 6 per cent. interest on debentures, and Liverpool office expenses, the annual payment to the Company out of profits aggregating £30,250.

(7) In consideration of the foregoing payments, the Company undertakes :—

- (*a*) To hand over all of its undertakings, as going concerns, to the Commission on 30th June, 1934.
- (*b*) To maintain all of its undertakings to the satisfaction of the Commission for the whole period up to that date.
- (*c*) To purchase bulk supplies of electricity from the Commission as soon as such supplies can be made available.
- (*d*) To carry out all works of extending supply, and developing and reconditioning the undertakings as required by the Commission, and to its satisfaction ; and
- (*e*) To facilitate all action by the Commission to develop and accelerate the supply of electricity to the districts of which Ballarat and Bendigo form the centres.

The control and supervision which will vest in the Commission after 30th June, 1931, will embrace maintenance, extensions, tariffs, rates and charges. It is the intention of the Commission to exercise this control in the best interests of consumers, as far as the finances of the undertakings will permit. The Commission will accelerate the construction of transmission lines in order to give transmitted supply to both cities and to enable extensions to be made within their municipal areas and to neighbouring communities. The fact that the company will take transmitted supply as soon as it can be made available will enable the Commission to expedite the construction of the proposed ring main connecting Melbourne, Bendigo, Ballarat, and Geelong.

The agreement will, therefore, have a beneficial effect upon hastening supply to a wide area, and, although the Commission will not actually take possession of the Bendigo and Ballarat undertakings until 1934, it will be able, in the meantime, to direct their development and administration, so that they may conform to the standards which will be reached in 1934 by all large undertakings in the Commission's own areas.

As a corollary to the extension of supply to the north-western area of the State, the Commission has also acquired the municipal undertakings at Kyneton, Woodend and Gisborne, and the private undertaking at Castlemaine. These represent the only centres in the first section of the ring main which had their own local services. A greater number of centres *en route* to Castlemaine had no supply at all, and already the Commission has been able to initiate services in Riddell, Romsey, Lancefield, Monegeetta, Diggers' Rest, Macedon and Upper Macedon, all of which now enjoy the fullest facilities for the use of electricity. As the main extends beyond Castlemaine, similar centres, both inside and outside the ring, will come within economic range of supply, and share in the electrical development of the State.

It is expected that the ring main will be completed in about two years' time. With its subsidiary lines, it will mark the consummation of the State scheme as a complete power system.

Tramways.—Tramways are associated with the electrical undertakings in Ballarat and Bendigo, and, although the Commission has acquired such tramways as part of the private company's undertakings, it is not authorized by statute to operate them. A similar position exists in Geelong, where the assets of the Melbourne Electric Supply Company Ltd. will pass to the Commission in September, 1930, under an agreement ratified by Parliament.

Early in 1928, therefore, consideration was given to the question of the continuance and administration of all of such tramways when the electrical undertakings associated therewith would pass to the ownership of the Commission, and the Ninth Annual Report contains an account of discussions on the matter which took place between the Government, the Commission and the three city councils concerned, as representing all the municipal councils in their areas.

The three councils having at a joint conference approved the principle that the authority in control of the electric light and power in their cities should also be responsible for the operation of the tramways, and the Commission having agreed to undertake the duty on certain express conditions, the point was reached at which the Government of the day promised to introduce the necessary legislation to enable the Commission to operate the tramways, and an agreement, drafted by the Commission, and designed to have uniform application to the tramways in each district concerned, was under the consideration of all who might be made parties thereto.

The intention was that the draft agreement should first of all be considered by a sub-committee of the three councils, with a view of collective negotiation with the Commission. Circumstances prevented the sub-committee from being called together, and it became necessary for the Commission to confer with each group of councils in turn.

The conference with the Geelong group was held at the Geelong Town Hall on the 6th June last; that with the Bendigo group at the Bendigo Town Hall on the 15th July last, and that with the Ballarat group at the Ballarat Town Hall on the 25th October last. The agreement drafted by the Commission was adopted *in toto* by all groups, who, in turn, requested the Government to introduce the legislation necessary to enable the Commission to operate the tramways in their respective areas.

Mildura.

The work of extending supply from the power station of the Mildura Town Council to Red Cliffs, Merbein and Irymple, in the municipal district of the Mildura Shire Council, had been completed at the date of this Report. This is in accordance with the arrangement arrived at between the two municipal councils concerned, whereby each shall share equally in any losses which may accrue during the initial operations of the scheme; such losses to be made good when the load reaches the payable stage. The extensions are designed to conform to a major scheme for supplying the whole of the Mildura district, to be undertaken when such is warranted by the development of the territory concerned.

NEW REGULATIONS.

An amendment of the Wiring Regulations (Regulation 84) was gazetted on the 29th August, 1928, prescribing the method by which electric stoves should be connected to the supply mains, the colouring to be used for conductors forming portions of stove circuits, and the protection of conductors liable to be damaged by heat from stove elements.

11679.—2

DEMAND FOR ELECTRICAL ENERGY WITHIN RANGE OF THE STATE SCHEME AS AT PRESENT DEVELOPED.

The growth and nature of the demand within range of the present development of the State scheme as at 30th June, 1929, are summarized hereunder :—

Electric Supply Requirements for All Purposes.

Interesting data are contained in the graphs appearing herein, showing the generation and distribution of energy and the growth of the demand for all purposes since 1923.

Graph No. 1 depicts a typical winter daily load curve during 1929. The peak periods occurred at 9 a.m. and 6 p.m. daily, corresponding to the times when the industrial, railway and lighting loads overlap. This graph is interesting as showing the fluctuations in the demand for electricity during the 24 hours. In regard to the industrial and domestic demand, the average winter peak load rose during the year from 84,000 kw. to 91,000 kw. and the yearly load factor from 49·05 per cent. to 50·3 per cent.

Graph No. 2 shows the energy sent out from the Commission's terminal stations and district supply stations. The Yarraville terminal station receives the energy from Yallourn, and Thomastown that from the Sugarloaf-Rubicon hydro-electric stations. Energy generated at the hydro stations is also fed to the North-Eastern district direct from the Sugarloaf power station and through the Rubicon "A" terminal station. Belmont terminal station is fed from the Melbourne Electric Supply Company's power station at Geelong. The graph indicates that the net energy sent out from the metropolitan terminal stations increased during the year from approximately 325,000,000 kwh. to approximately 356,000,000 kwh., and that increases also took place in the cases of the various rural terminal and district supply stations.

Graph No. 3 shows the energy delivered in bulk to distributing authorities and other consumers in the metropolitan area. Marked increases are shown in the cases of supply to the Melbourne Electric Supply Company Ltd., the Melbourne City Council, and the Melbourne and Metropolitan Tramways Board.

Graph No. 4 shows the total energy made available from all sources for distribution in the metropolitan area for all purposes. Excluding the railways, it will be seen that the Commission supplies almost the whole of the electrical requirements of the metropolis.

Appendix No. 2 is a tabulation showing the actual growth in distribution and demand in the ten years from 1919 to 1929.

Appendix No. 3 gives details of overhead transmission lines erected, &c.

Appendix No. 4 gives details of the number and capacity of sub-stations installed, &c.

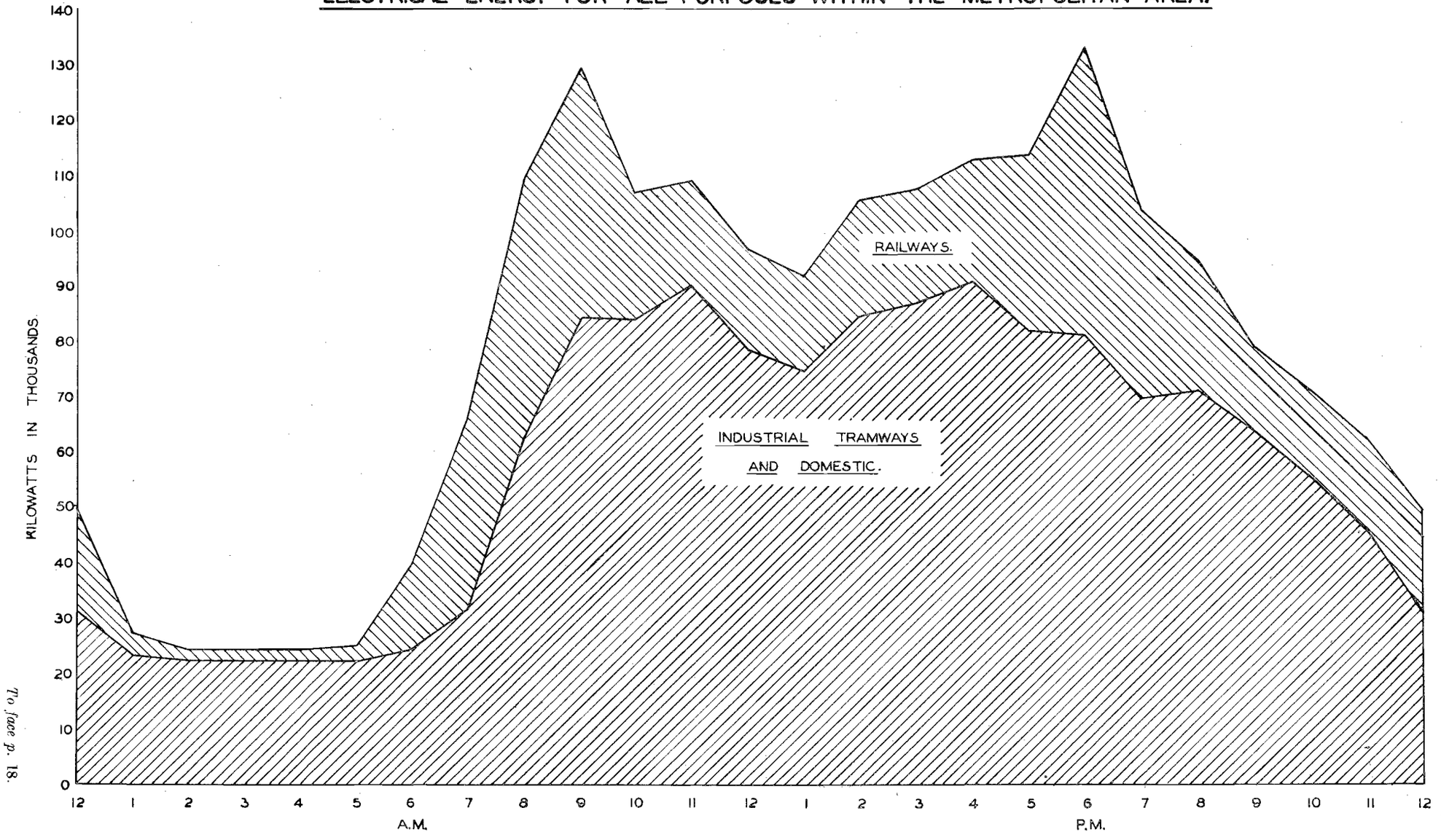
Metropolitan Area.

Generation of Electricity in Financial Year 1928–29 *and Comparison with Year* 1927–28.

—	Year 1928–29.	Year 1927–28.
	kwh.	kwh.
(*a*) Railway purposes (Newport "A")	154,500,000	155,500,000
(*b*) General and tramways	401,000,000	393,000,000
Total	555,500,000	548,500,000

Details of Energy for General and Tramway Purposes.	Year 1928–29.	Year 1927–28.
	kwh.	kwh.
Melbourne City Council—		
Generated	16,500,000	15,000,000
Purchased from S.E.C.	81,500,000	77,500,000
Melbourne Electric Supply Co.—		
Generated	..	4,500,000
Purchased from S.E.C.	117,500,000	105,000,000
State Electricity Commission (other than that purchased by Melbourne City Council and Melbourne Electric Supply Company)—		
Generated	167,000,000	170,000,000
Railways Department (Newport "A")—		
Generated	18,500,000	21,000,000
Total	401,000,000	393,000,000

TYPICAL WINTER DAILY LOAD CURVE SHOWING TOTAL REQUIREMENTS OF ELECTRICAL ENERGY FOR ALL PURPOSES WITHIN THE METROPOLITAN AREA.



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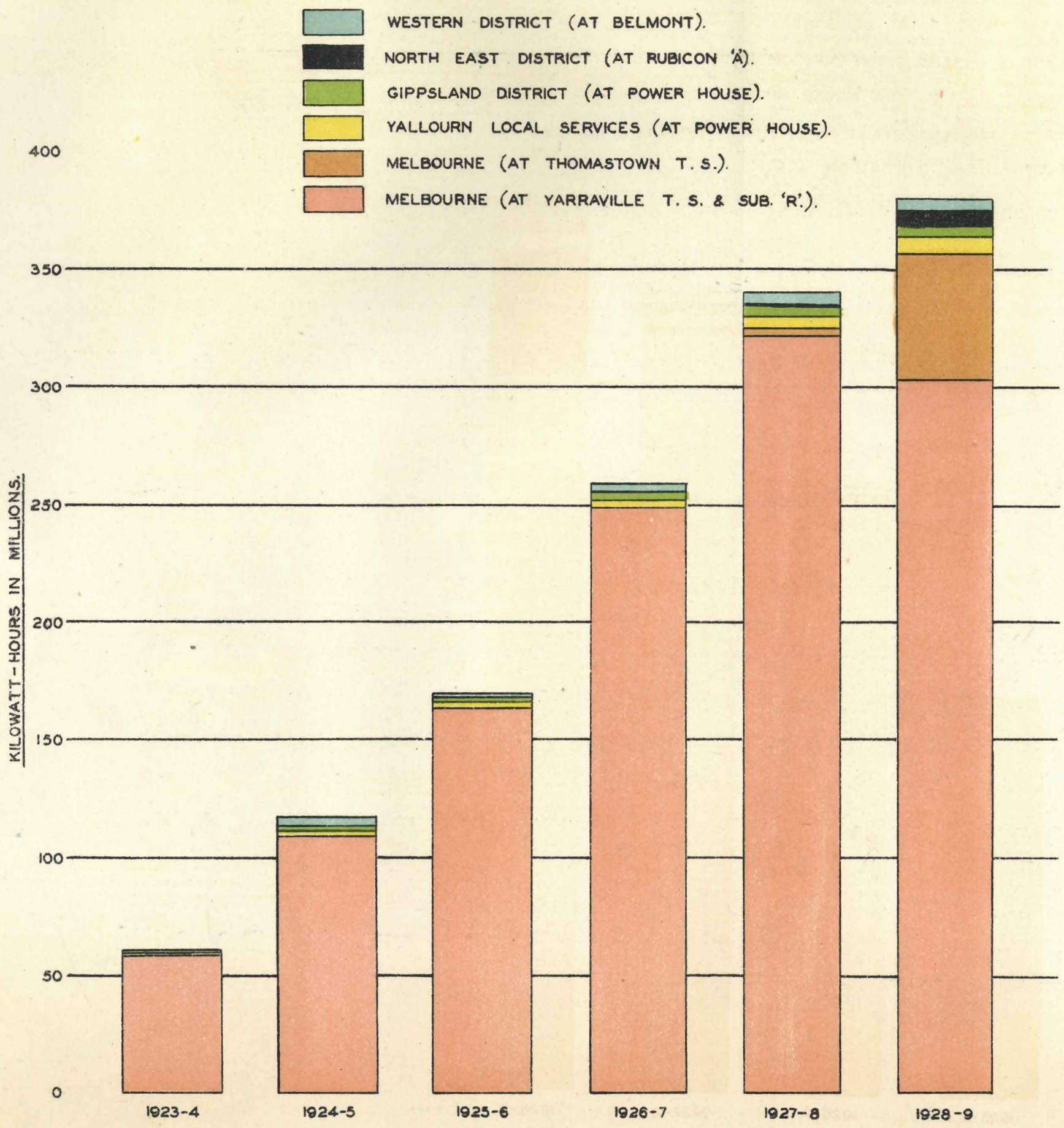
Graph No. 2.

STATE ELECTRICITY COMMISSION OF VICTORIA.

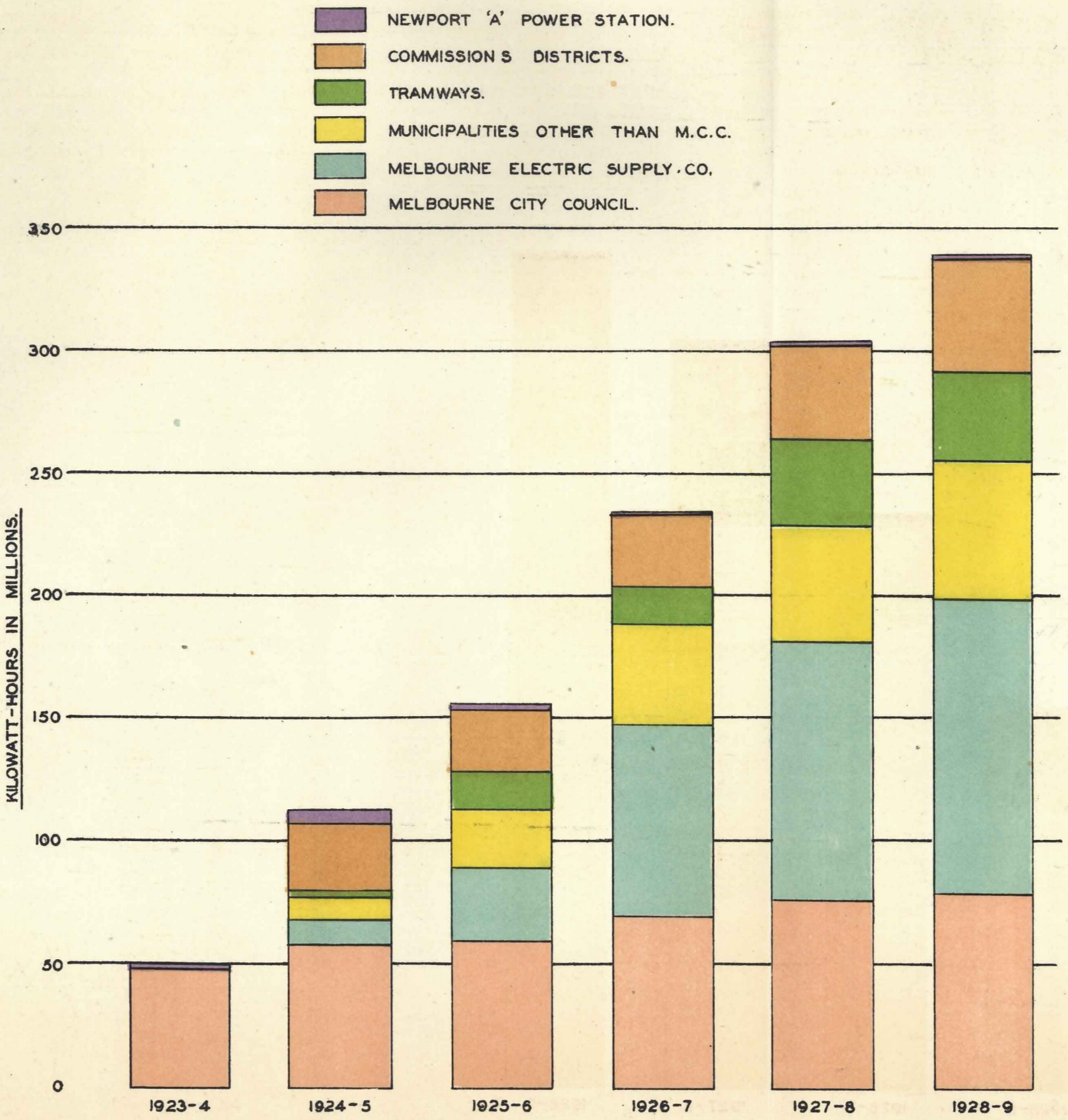
ENERGY SENT OUT FROM TERMINAL STATIONS AND DISTRICT SUPPLY STATIONS.



Graph No 3.

STATE ELECTRICITY COMMISSION OF VICTORIA.

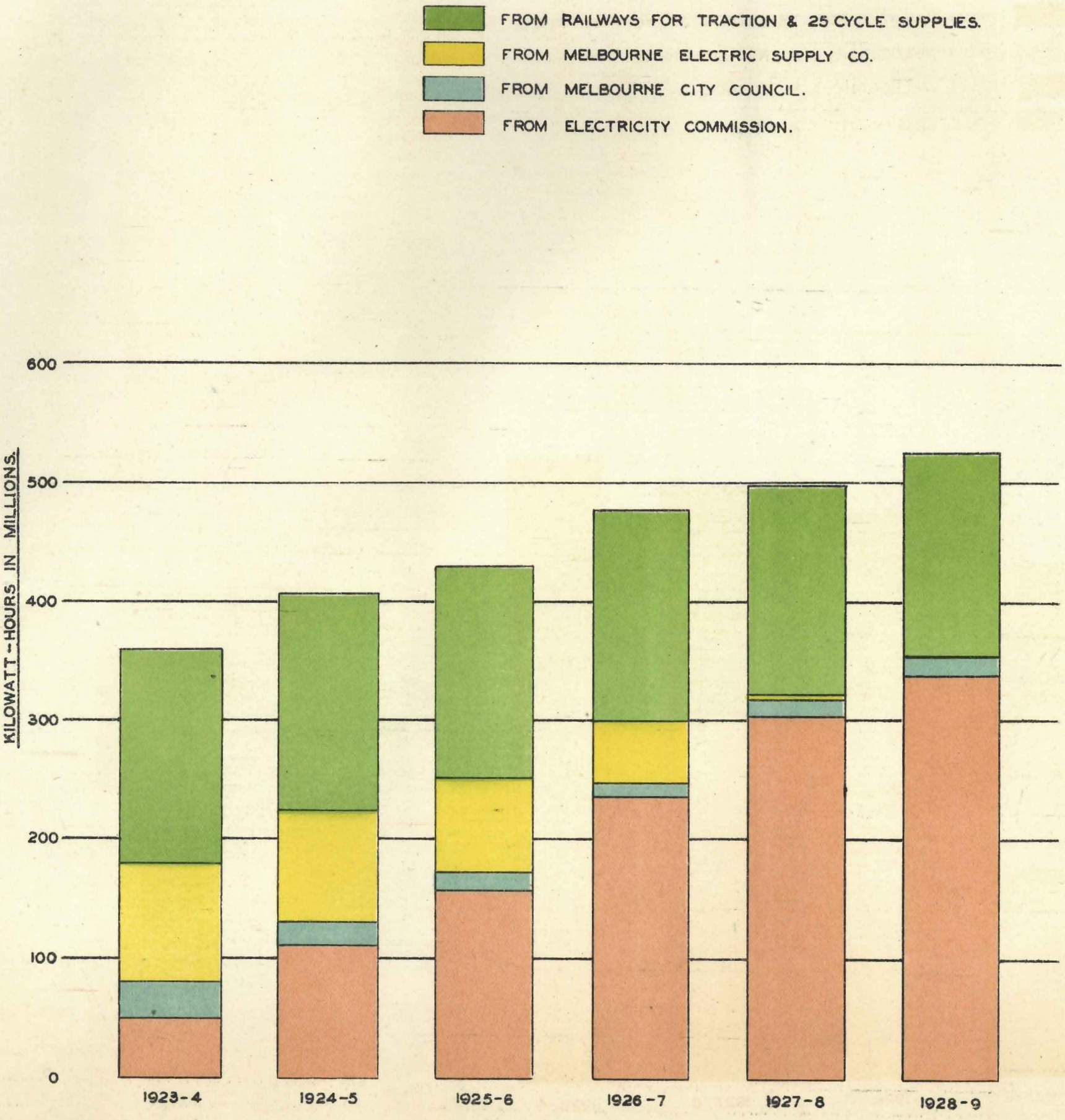
ENERGY DELIVERED TO DISTRIBUTING AUTHORITIES AND OTHER CONSUMERS IN METROPOLITAN AREA.



Graph No. 4.

STATE ELECTRICITY COMMISSION OF VICTORIA.

ENERGY MADE AVAILABLE FROM ALL SOURCES FOR USE IN THE METROPOLITAN AREA FOR ALL PURPOSES.



Consumption per Capita of Energy sent out from Terminal Stations, Metropolitan Area.

	Population.		Maximum Demand.		Consumption per Capita.	
	1928–29.	1927–28.	1928–29.	1927–28.	1928–29.	1927–28.
			kw.	kw.	kwh.	kwh.
Inclusive railway traction and tramways	975,000	970,000	138,000	131,000	540	513
Exclusive railway traction, but including tramways			96,600	91,500	362	332

Distribution of Energy.—Within the metropolis the following undertakings are supplied in bulk from the State scheme, viz. :—The City Councils of Box Hill, Brunswick, Coburg, Footscray, Melbourne, Northcote, Port Melbourne, Preston, and Williamstown, Borough of Carrum, the Shires of Heidelberg and Doncaster, and (through the Melbourne Electric Supply Company Ltd.) the municipalities of Fitzroy, Collingwood, Camberwell, Kew, Hawthorn, Richmond, South Melbourne, Prahran, Malvern, St. Kilda, Caulfield, Oakleigh, Brighton, Sandringham, Moorabbin and Mordialloc.

The Melbourne City Council does not receive the whole of its supplies from the Commission, as it derives a small proportion of its requirements from generating plant which it still has in operation.

The Commission directs and controls the local distribution of electricity in the City of Essendon and the Hopetoun Ward of the City of Melbourne, these areas being included in the Commission's Essendon-Flemington district. The results of the operations of this district are dealt with in the relative portions of this Report.

The Commission also supplies a number of industrial consumers with 25-cycle energy generated at the Newport "A" station of the Victorian railways.

Extensions of Supply.—Twenty-one extensions of supply from the State scheme were made during the year, viz., Deer Park (Western Metropolitan district), Cranbourne, Diamond Creek, Narre Warren (Eastern Metropolitan district), Gisborne, Diggers' Rest, Lancefield, Romsey, Riddell, Monegeetta (Castlemaine district), Toongabbie, Tynong, Lakes Entrance, Glengarry, Bunyip, Longwarry (Gippsland district), Dennington, Koroit, Port Fairy (South-Western district), Cobram and Dookie (North-Eastern district). With three exceptions, in which local undertakings were transferred to the Commission, these centres did not enjoy a service previously. The number of centres (apart from the metropolitan area) served by the Commission at the end of the financial period under review was 141. Of these, 95 did not previously have a supply of electricity.

CONTINUITY OF SUPPLY.

Continuity of supply was maintained in a marked manner during the year. There was again no interruption on the main 132,000 volt transmission line from Yallourn to Yarraville, and only two or three minor interruptions of short duration on the whole of the branch transmission lines throughout the State.

TOWN OF YALLOURN.

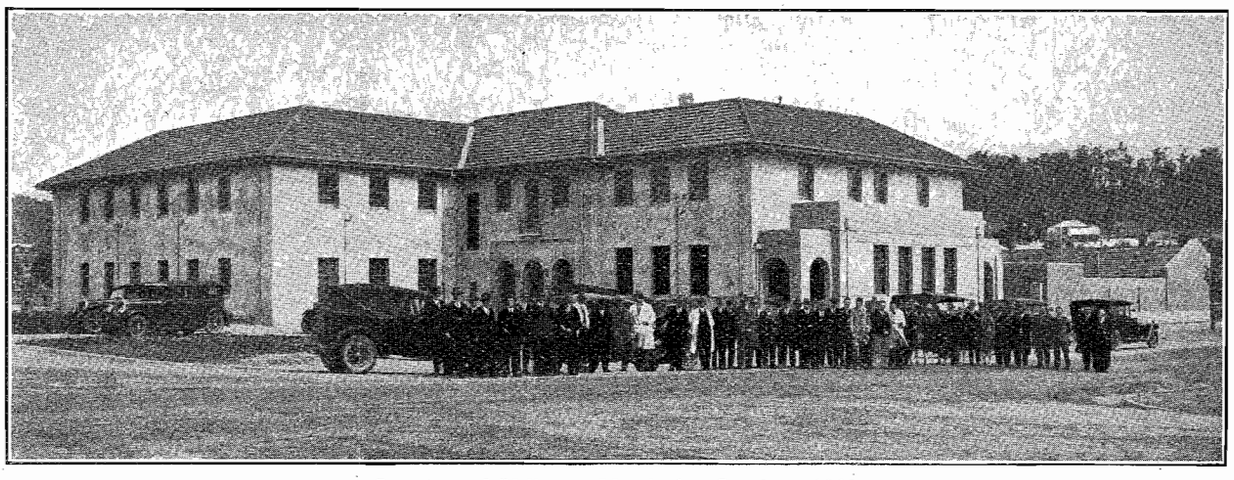
Town Development.—During the earlier part of the year the Hospital, Health Centre and Hotel were completed and occupied. Each supplies a long-felt want, and represents a marked advance in the development of the town as a self-contained community. Together they add appreciably to the appearance of the town and its distinctive architectural features.

During the later part of the year the dispute in the timber industry unfortunately interfered with the provision of new houses, which are urgently needed to keep pace with the ever-increasing demand for residential accommodation for the Commission's employees and their families, and an almost complete suspension of building operations, extending over more than four months, was caused at a time when conditions are usually most favorable for this class of work at Yallourn. In the circumstances, the housing programme, which embraced the erection of 100 new residences, suffered severely, and the acuteness of the housing problem was greatly aggravated in consequence. The population of the territory, as at 30th June, 1929, was as follows :—

Yallourn Town	1,930
Western Camp	414
South Camp	208
Old Brown Coal Mine	740
Outlying Areas	35
Total	3,327

The progressive improvement of reserves and open spaces, combined with tree-planting in streets as they are constructed, make for uniformity in the beautification of the town and its environs. As yet, many of the plantations are immature, but they are well-graded and grassed, and their beauty will increase with each succeeding year.

Housing, &c.—The number of houses actually completed during the financial period under review was 44, mostly of wooden construction. At the end of the period, work was proceeding on 43 other dwellings included in the housing programme. Since that time contracts have been let for a further 38 houses, which will bring the total number of dwellings at Yallourn to 498 of all classes. The necessity for further provision will remain, and plans for the extension of the residential area towards the higher ground west and north of the town have been prepared, in anticipation of a progressive increase of houses to 1,500, serving an ultimate population of approximately 7,500.



Opening of Yallourn Hotel, 1st October, 1928.

Following upon the erection of the hotel, the Commission's accommodation house was converted into a private boarding house, as an adjunct to that existing on the opposite side of the street. There is a pressing need for another boarding house, to cater mainly for single men.

The hotel was opened on the 1st October, 1928, and is proving a boon to the travelling public, especially as the number of visitors to Yallourn is very large and tends to greatly increase. Its all-electrical equipment is a distinguishing feature. This, and the general excellence of the accommodation provided, have been commented upon in laudatory terms by visitors and others. The hotel is also fulfilling a most important function, that of providing a regulated means for the sale of liquor in the territory, and its establishment is giving satisfaction to the licensing authorities.

Official Opening of Yallourn Hospital, 13th January, 1929.

Hospital.—The hospital, which is situated on 15 acres of land at the corner of Prince's Highway and Yallourn Road, was officially opened on the 13th January, 1929. From that date to the 30th June, 1929, the number of patients admitted was 230, an average daily number in hospital of 13·6. The average period in hospital, per patient, was 10·1 days. The institution, which is of the intermediate type, and provided with 24 beds, is functioning smoothly, and admirably fulfilling its purposes. The hospital represents a gift from the people of Victoria to Yallourn, and it is regarded with both pride and satisfaction by the residents, who are taking an active interest in the improvement of its grounds, while an energetic and enthusiastic Ladies' Auxiliary organizes regular sewing meetings and raises funds to supply articles not included in the regular equipment.

The management of the Institution, and the responsibility for its maintenance, rest entirely with the Yallourn Medical and Hospital Society, formerly the Yallourn Medical and Hospital Fund, which has been registered as an association not for profit under the *Companies Act* 1915.

Associated with the Hospital is the Health Centre adjacent to the town square. This building consists of a dispensary, patients' consulting rooms, and dental clinic, with a baby health centre also in view. The dental clinic and dispensary are leased to a resident dentist and chemist respectively.

The maintenance of the hospital and health centre includes the services of two resident doctors. The necessary funds are provided by contributions of a definite amount per week to the Medical and Hospital Society by all employees in the territory.

Educational Facilities.—During the year the Minister of Education visited Yallourn, inquired into the educational needs of the town, and inspected sites set apart for various school buildings. Following upon his visit, plans were put in hand for a Technical School within the grounds of the State School, and for an Infants' School, which it is proposed to erect on the site originally reserved for the Technical School.

At the present time the technical classes are being conducted under difficulties in temporary classrooms. It is hoped that these difficulties will be removed during the ensuing twelve months by the erection of a Technical School, including properly-equipped workshops, the absence of which is a severe drawback.

During the year a cottage was allotted by the Commission for the purpose of a sub-primary school.

Reserves and Gardens.—With the intention of providing permanent recreation areas, steps have been taken to clear and drain that portion of the Melbourne swamp which is immediately south of the town. This work, when completed, will greatly improve the approach to the town. During the period under review good work was also done in the further improvement of the recreation areas on either side of Broadway. A bandstand was erected, and in the section set apart for the children a wading pool and shelter pavilion were provided. In the Broadway plots there have been some splendid displays of flowers, which, besides being beautiful in themselves, have stimulated the enthusiasm of private gardeners, whose efforts have once more proved a valuable auxiliary to the public schemes of beautification. The nursery is meeting practically all demands for street trees, public plantations and private gardens.

Community and Welfare.—The community spirit is very much in evidence, and the various social, sporting and improvement societies flourish in an atmosphere of goodwill and good-fellowship.

A series of addresses on literature was organized during the year, under the auspices of the Workers' Educational Association. In addition, there were keen debates on a variety of subjects, and they invariably attracted large and interested audiences.

The Yallourn Brass Band is a popular institution, and the residents have inaugurated a movement to raise a sum of £350 for uniforms and new instruments.

The Fire Brigade maintains a high state of efficiency, which is evidenced on any occasion on which its services are required.

A Rifle Club has been formed, and a range on the Commission's territory gazetted. The range is being cleared by voluntary labour.

A tennis court was put down at the Western Camp by voluntary labour, and the lighting of a second court in the town was carried out in a similar way.

A bowling green was completed during the year, and will be open for play in the spring. A strong membership is ensured.

The golf links are proving a great asset to the town, and are well patronized.

The Boy Scouts are a numerous and well-established troop, and propose raising funds for the erection of a hall.

Cricket and football maintain their popularity, and the provision of further playing fields is very necessary. The work now proceeding at the Melbourne swamp is designed to overcome this disability.

General Store.—The general store and butchery both continue to transact a growing volume of business. Associated with the butchery are abattoirs adjacent to the town.

Cost of Living.—The cost of living was once more below that in the metropolitan area. The Commonwealth Statistician's figures for food, groceries and housing afford the following comparison, viz. :—

	Melbourne Index No.	Yallourn Index No.
1928 June quarter	1,761	1,746
1928 September quarter	1,729	1,718
1928 December quarter	1,726	1,693
1929 March quarter	1,801	1,732

INDUSTRIAL.

The following table shows the disposition of the Commission's labour forces, as at 30th June, 1929, viz. :—

	1929. Operation.	1929. Construction.
Yallourn	882	398
Metropolitan area	132	171
Transmission lines	78	110
District undertakings	168	19
Sugarloaf-Rubicon hydro-electric scheme ..	5	45
	1,265	743

Arbitration.—A considerable portion of the arbitration proceedings during the year, as affecting the Commission, was occupied by the Metal Trades, which include electricians, engineers, boiler-makers, unskilled ironworkers and moulders. The aim of these proceedings is to bring the conditions under the various Metal Trades' Awards into uniformity, in order to avoid overlapping and disputes between the Unions concerned as to the lines of demarcation. The case is still proceeding. The taking of evidence with regard to the log covering construction work, and served by the Australian Workers Union, was concluded. The award in this case is pending.

A new award covering carpenters and joiners came into operation on the 1st December, 1928, definitely fixing a working week of 48 hours for all carpenters in mixed industries, which category includes the operations of the Commission.

Wages.—Wages fluctuated slightly during the year, in accordance with the Commonwealth Statistician's Cost of Living Index figures. At the end of the year the basic rate was, in the case of most trades, 2s. per week higher than during the corresponding period of 1928.

Industrial Peace.—No cessation of work, due to industrial trouble amongst the Commission's employees, occurred on the Commission's works at Yallourn or elsewhere, thus completing two years of uninterrupted operation. The erection of new buildings was held up by a scarcity of timber due to the general strike of timber workers, which lasted for twenty weeks, and was finally settled by means of a voluntary conference. His colleagues desire to express to Sir Robert Gibson their appreciation of his efforts, as Chairman of the Conference, in bringing about an amicable settlement of the dispute.

ELECTRIC LIGHT AND POWER ACT 1915.

Since the passing of the *Electric Light and Power Act* 1896, 207 Orders in Council have been granted. Of these, 119 were issued to municipal councils and 88 to companies or persons.

Sixty-seven Orders in Council have been revoked, including a number relating to undertakings which have passed to the control of the Commission.

The Orders in Council which have been recommended by the Commission during the year, and approved by the Governor-in-Council, authorizing the supply of electric energy in the area indicated, are the following :—

Supply Authority.	Area.	Maximum Prices Authorized.	
		Lighting Per Unit.	Power Per Unit.
Town of Mildura	Portion of the Shire of Mildura	*s. d.* 1 3	6d.–1½d.
Goroke Electric Supply Company ..	Township of Goroke	6d. per 40w. lamp	*s. d.*
Wodonga ,, ,, ,, ..	Part of parish of Wodonga	1 0	0 7
Shire of Bet Bet	Township of Dunolly	1 6	0 9
Shire of Wycheproof	Township of Berriwillock	1 3	0 6
Shire of Phillip Island	Phillip Island	1 3	0 7
M.E.S. Company	Fyansford, &c., (Geelong District)	Domestic tariff 1s. 3d. per room, 1½d. per unit	
,, ,, ...	Parish of Woorynalook, &c., (Geelong District)	Domestic tariff 1s. 3d. per room, 1½d. per unit	
,, ,, ...	Harbour Trust Territory (Geelong District) ..	Domestic tariff 1s. 3d. per room, 1½d. per unit	
,, ,, ...	Part of the Shire of Mulgrave	Domestic tariff 1s. per room, 1¼d. per unit	

Note.—Commercial and industrial tariffs are also available in respect of the four last-named Orders-in-Council.

LICENSING OF ELECTRIC WIREMEN.

The following statement sets out the number of Licences issued to 30th June, 1929, and also the number issued during the previous twelve months :—

Grade.	Number issued to 30th June, 1928.	Number issued from 1st July, 1928 to 30th June, 1929.	Total.
"A"	1,421	75	1,496
"B1"	132	17	149
"B"	917	99	1,016
"C"	1,314	100	1,414
Special Licences	51	2	53
Permits	2,886	158	3,044
Provisional "A"	3	5	8
"B1" Provisional	1	..	1

During the year two examinations in theory and practice were held, and the Board of Examiners report that a large number of candidates presented themselves, and that the percentage of passes was well up to the average.

ELECTROLYSIS RESEARCH—METROPOLITAN AREA.

During the year under review the Electrolysis Committee, consisting of representatives of—

The State Electricity Commission,
The Postmaster-General's Department,
The Victorian State Railways,
The Melbourne and Metropolitan Board of Works,
The Melbourne and Metropolitan Tramways Board,
The Metropolitan Gas Company,

continued its inquiry and research into specific cases brought under its notice in which the presence of electrolysis was suspected.

Although the tracing of causes and the ascertaining of the most suitable remedy are necessarily slow, the Committee has already accomplished good work since its comparatively recent inception. With a desire, however, to accelerate procedure, the State Electricity Commission, in consultation with the Committee, recently appointed an Electrolysis Research Engineer, who has been given suitable assistance and is devoting the whole of his time to the work of the Committee, especially that of the Technical Sub-Committee engaged in the actual field work connected with research.

One of the principal duties of the Research Engineer is the preparation of charts showing the electrical conditions of all subterranean metallic systems within the metropolitan area. When completed, these charts should tend to materially simplify the consideration of individual cases of electrolysis occurring in the exceedingly complicated metallic network of gas and water pipes, railway and tramway rails, and telephone and electric supply ducts and cables.

Since the close of the financial year under review, the Melbourne City Council was granted representation on the Electrolysis Committee.

PART II.—FINANCIAL AND COMMERCIAL.

ANNUAL ACCOUNTS.

The General Profit and Loss Account and Balance-sheet, accompanied by summarized Profit and Loss Accounts and Balance-sheets of the District Undertakings and of other activities of the Commission, are contained in Appendix No. 1.

CAPITAL EXPENDITURE.

The following tabulation shows the capital expenditure from the inception of the Commission to 30th June, 1929 :—

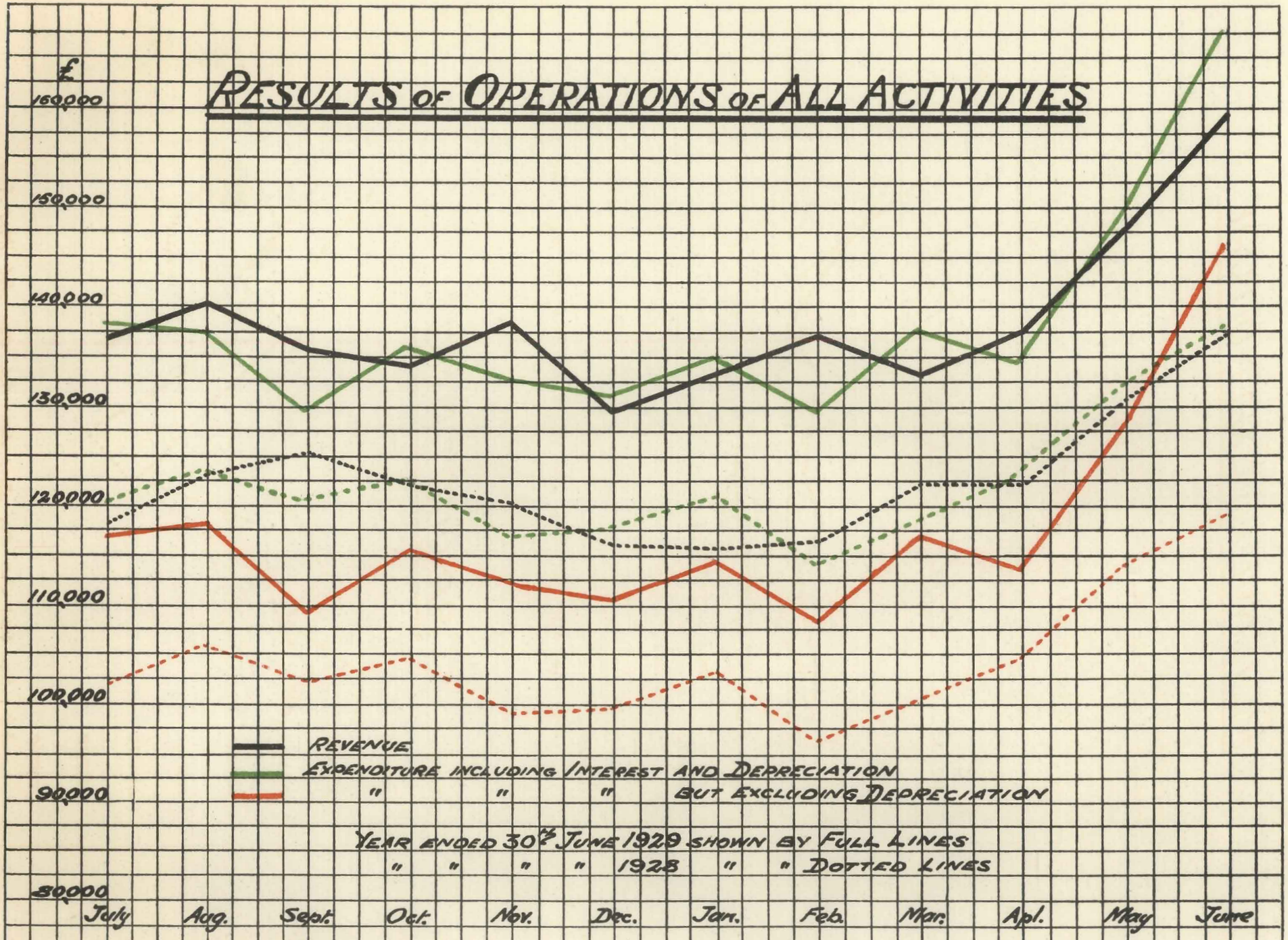
	£	s.	d.
1919–20	1,980	8	11
1920–21	213,238	2	11
1921–22	1,645,790	12	3
1922–23	3,993,825	12	1
1923–24	6,036,422	15	11
1924–25	7,246,767	11	1
1925–26	8,347,818	3	0
1926–27	9,586,181	15	6
1927–28	11,147,771	18	10
1928–29	12,220,583	19	1

RESULTS OF OPERATIONS OF ALL ACTIVITIES FOR FINANCIAL YEAR ENDED 30TH JUNE, 1929.

Item.	1928–29.	1927–28.	Increase.	Decrease.
	£	£	£	£
Operating Expenses	825,623	756,214	69,410	..
Interest	610,812	533,832	76,980	..
Depreciation	261,204	219,553	41,651	..
Total Expenditure	1,697,639	1,509,599	188,041	..
Total Revenue	1,702,253	1,511,471	190,783	..
Net Profit	4,614	1,872	2,742	

In considering the foregoing statement, the following facts should be noted :—

(*a*) During the year 1928–29 the increase of *Revenue* over the preceding year was £190,783, whilst the increase in *Expenditure* (exclusive of depreciation) was £146,390. Thus, the actual betterment on the year's operations, compared with 1927–28, was £44,393. In addition, three items of non-recurring expenditure are included in this year's accounts, viz., balance of expenditure on Royal Commission in 1926, special maintenance work on the main transmission line, and cost of fire and fire-fighting provisions at the old brown coal mine, these items aggregating in all £11,738, all debited to the General Profit and Loss Account.


£
160,000
150,000
140,000
130,000
120,000
110,000
100,000
90,000
80,000
RESULTS OF OPERATIONS OF ALL ACTIVITIES
REVENUE
EXPENDITURE INCLUDING INTEREST AND DEPRECIATION
" " " BUT EXCLUDING DEPRECIATION
YEAR ENDED 30th JUNE 1929 SHOWN BY FULL LINES
" " " " 1928 " " DOTTED LINES
July
Aug.
Sept.
Oct.
Nov.
Dec.
Jan.
Feb.
Mar.
Apl.
May
June

REVENUE AND EXPENDITURE

REVENUE

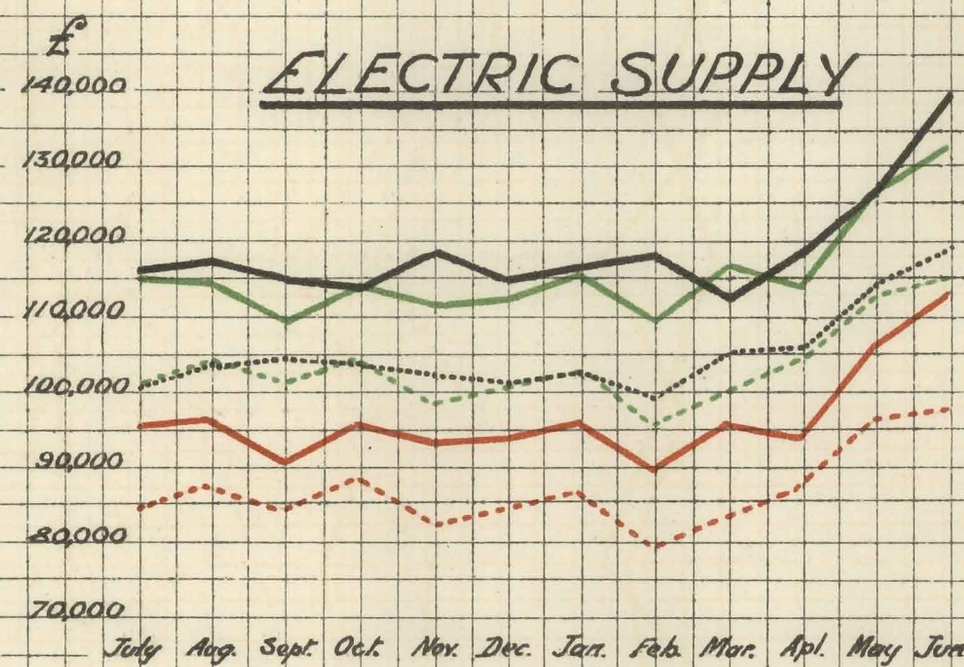
EXPENDITURE INCLUDING INTEREST AND DEPRECIATION

" " " BUT EXCLUDING DEPRECIATION

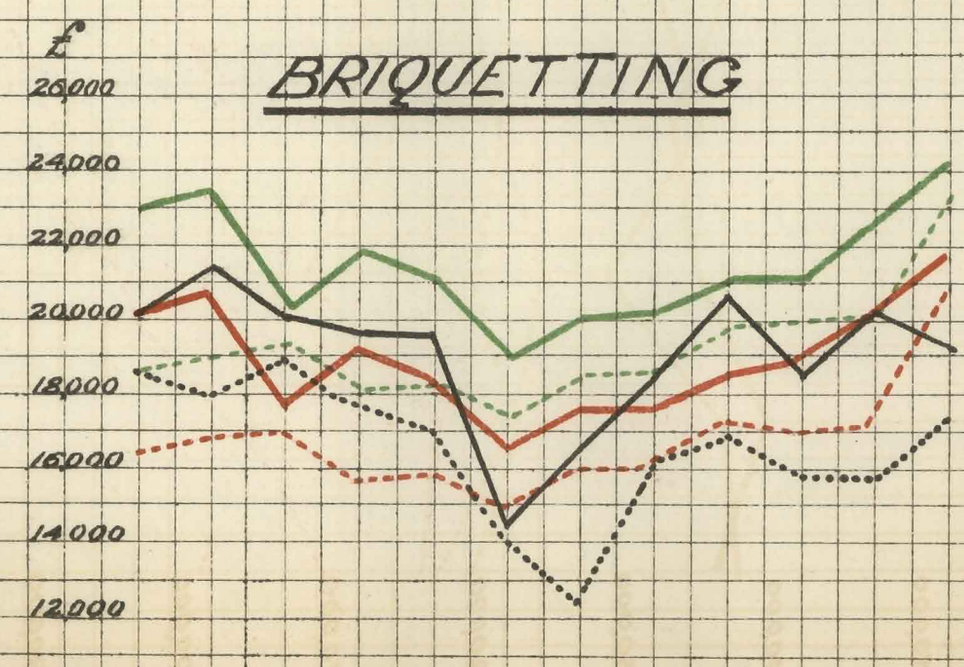
YEAR ENDED 30th JUNE 1929 SHOWN BY FULL LINES

" " " " 1928 " " DOTTED LINES

ELECTRIC SUPPLY



BRIQUETTING



(*b*) The output of energy increased by nearly 45,000,000 kwh., and that of briquettes by nearly 20,000 tons.

(*c*) Full depreciation on the whole capital investment has been charged in the accounts for the year. The amount thus charged was £261,204, as against £219,553 provided last year. This provision includes contribution to the Sinking Fund created by the State of Victoria in accordance with its financial agreement with the Commonwealth of Australia, dated 12th December, 1927.

EXPECTED LOSS ON OPERATIONS, FINANCIAL YEAR 1929-30.

With regret, the Commission has to report that its budget of operating results for the ensuing financial year provides for a loss. This is entirely due to the fact that the amount of energy available from the Sugarloaf power station will have to be restricted, owing to the restoration work at Eildon weir. It is particularly unfortunate that the restrictions will occur mainly during the period when conditions are most favorable for outflow.

This temporary reduction in capacity will have to be made up by other stations of the system, and, as capital charges on the almost non-productive Sugarloaf station will continue, the extra charges are likely to impose an unforeseen burden of up to £50,000 in the accounts for the year.

ELECTRICITY SUPPLY.

—	Financial Year 1928–29.	Financial Year 1927–28.	Financial Year 1926–27.	Financial Year 1925–26.
EXPENDITURE.	£	£	£	£
Metropolitan Supplies	**955,869**	**869,029**	**854,425**	**734,206**
District Undertakings	**426,305**	**360,035**	**284,244**	**203,725**
Total	**1,382,174**	**1,229,064**	**1,138,669**	**937,931**
REVENUE.				
Metropolitan Supplies	**988,126**	**884,243**	**672,689**	**493,356**
District Undertakings	**439,625**	**378,542**	**302,674**	**219,896**
Total	**1,427,751**	**1,262,785**	**975,363**	**713,252**
Loss for Year	..	..	**163,306**	**224,679**
Profit for Year	**45,577**	**33,721**	..	..
	Kwh.	Kwh.	Kwh.	Kwh.
Energy sold during Year ..	**358,089,467**	**319,282,728**	**245,752,546**	**161,990,327**

Metropolitan Supplies.—The above figures demonstrate the marked manner in which the demand of the Metropolitan area upon the Commission's system has increased. As explained in the section of this report which deals with the present developed demand within range of the State Scheme, the Metropolis of Melbourne is almost entirely dependent upon supply from the Commission's systems. The appended table shows an increase in customers' maximum demands of over 8 per cent., accompanied by an increase of over 10 per cent. in the quantity of energy sold. This represents a natural increase, there being no particularly large blocks of power connected during the year. Such material growth is particularly gratifying when considered in

the light of the depression which prevailed throughout the year, and the accompanying serious industrial troubles which beset the community, resulting in a still further reduction in commercial and industrial activity.

	1928–29	1927–28
Kwh. sold	**311,221,444**	**281,146,945**
Revenue	**£955,351**	**£854,649**
Revenue per kwh. sold	**·736d.**	**·729d.**
Expenditure	**£924,923**	**£840,602**
Expenditure per kwh. sold	**·713d.**	**·717d.**
Maximum demand in kws. (average)	**85,645**	**78,999**

BRIQUETTE MANUFACTURE AND DISTRIBUTION.

—	1928–29.	1927–28.	1926–27.	1925–26.
	£	£	£	£
Expenditure	**294,012**	**275,008**	**228,859**	**169,278**
Revenue	**268,307**	**243,158**	**195,510**	**129,353**
Loss	**25,705**	**31,850**	**33,349**	**39,925**

The operating expenses and interest during the year totalled £261,339, and the revenue £268,307, leaving a surplus towards depreciation of £6,968, as against a loss of £3,074 on the same basis in the previous year. Depreciation amounted to £32,673, compared with £28,776 in 1927–28, and the net loss, including depreciation, was £25,705, as against £31,850 in 1927–28.

Sales amounted to 154,753 tons, of which the household market absorbed 78,561 tons and the industrial market 76,192 tons. The sales, which represent an increase of nearly 25 per cent. over those of the previous year, do not reflect the market for briquettes, as the immediate demand exceeded the production, and considerable household and industrial business had to be turned away in consequence. In order to cope with the winter demand to some extent, Sunday work at the factory was instituted, thereby increasing the weekly output by approximately 450 tons.

The position which has arisen, of demand materially exceeding supply, and which has been aggravated by the shortage of black coal from New South Wales, due to industrial trouble in that State, could have been minimized had the Commission's recommendation, presented to the Government in September, 1925, for the extension of the briquetting plant, been adopted at that time. Authority to proceed with the work was not given until the beginning of 1928, with the result that the extended factory will not be completed until the latter part of 1930.

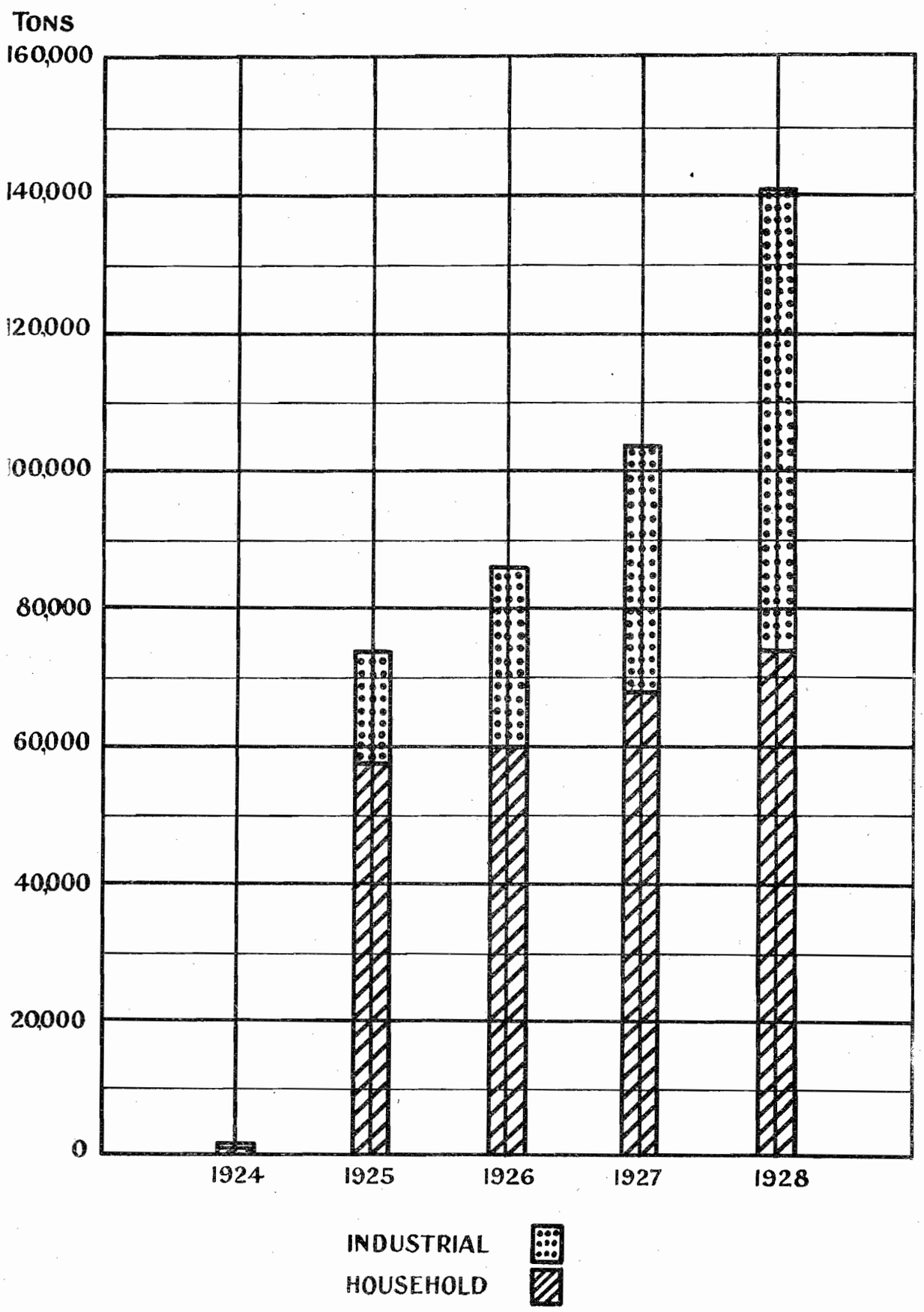
The shortage has evidenced the importance of the State's policy of making Victoria, as far as possible, independent of outside sources of fuel supply.

The favorable effect of increased production on unit costs was again strikingly illustrated during the year, when the loss per ton showed a marked decrease. The trend is shown by the following figures for the past five years, viz. :—

—	Production.	Loss.	Loss per Ton.	Loss per Ton, Excluding Depreciation.	Profit per Ton, Excluding Depreciation.
	Tons.	£	£ s. d.	£ s. d.	£ s. d.
1924–25 (six months only)	35,303	36,257	1 0 6	1 0 6	..
1925–26	86,576	39,925	0 9 3	0 9 3	..
1926–27	109,535	33,349	0 6 0	0 1 3	..
1927–28	121,828	31,850	0 5 3	0 0 6	..
1928–29	141,064	25,705	0 3 7	..	0 0 10¾

The retail distribution of briquettes at Geelong by the Commission again gave satisfactory results, and the system of regular house to house deliveries was much appreciated by consumers. In all, 6,965 tons were disposed of in this centre during the period.

As at least half of the Commission's turnover in briquettes is of a seasonal nature, the appended chart showing the growth in business since 1924 covers calendar years, viz. :—



DISTRICT UNDERTAKINGS.

General.—Before proceeding to comment on the operations of individual districts, it has to be pointed out that the financial results are not entirely comparable with those of preceding years.

There has been introduced, with effect from 1st July, 1928, a modification of costing to ensure that the supply of energy to each district conforms to actual cost, having regard to the conditions of loading in each district.

The Castlemaine District and Western Metropolitan District have been established, and both include centres which either were attached in the past to other districts, or were costed as separate districts.

Statistical data relating to the main district undertakings appear in this section of the report. From these details the following summary is extracted, viz. :—

(*a*) The total number of consumers increased during the year from 35,521 to 39,496, or by 11·19 per cent.

(*b*) Twenty-one new country and extra metropolitan centres of demand were served during the year, bringing the number of towns and localities in which local reticulation is undertaken to 141. Of these, 95 had no service until supplied by the State scheme.

(*c*) The total number of motors connected increased from 2,478 to 2,983, with a resultant increase in horse-power from 20,022 to 24,252.

(*d*) Sales of energy for all purposes within the districts amounted to 38,559,061 kwh., as compared with 31,465,252 kwh. during the previous year ; an increase of 22·54 per cent.

(*e*) The revenue from sales of energy within the districts amounted to £433,700, as compared with £378,090 during the previous year, while the average per kwh. decreased from 2·88d. to 2·699d.

(*f*) The connected load within the districts increased from 54,653 kw. to 67,024 kw. or by 22·63 per cent.

Essendon–Flemington District.—The development of this district continues to be satisfactory, and operations gave a net profit of £23,683, after providing £4,556 for depreciation.

The number of consumers increased from 13,250 to 14,053, and sales of energy from 12,396,481 to 13,589,452 kwh.

Eastern Metropolitan District.—After providing £7,155 for depreciation, operations gave a net profit of £5,285 for the year. Consumers increased from 5,800 to 6,545, and sales of energy from 3,662,471 to 6,220,007 kwh.

During the year supply was initiated in Diamond Creek, Cranbourne, and Narre Warren.

Shortly after the close of the year, new offices and show-rooms were opened at Dandenong. The show-rooms include a department where the utility and economy of cooking and other domestic electric appliances will be demonstrated. The show-rooms will serve a wide district.

Western Metropolitan District.—This district was constituted during the year, taking in Werribee, Point Cook, Sunshine and Altona, together with Deer Park, where supply was initiated in the same period. Operations showed a loss of £2,982, after providing £1,829 for depreciation. Consumers increased from 1,759 to 1,928, and sales of energy from 3,486,098 kwh. to 4,123,744 kwh.

This district has been introduced primarily from an accounting and not a supply point of view, this being necessary to combine in the books the number of smaller centres not attached to the Main Supply districts. It includes the Sunshine centre where consumers are charged at metropolitan rates ; these resulted in a loss of revenue at the rate of £2,000 per annum. The remaining centres are extra-metropolitan, and accordingly are charged at appropriate rates. In any case, the operations of the district were adversely affected by the accounting adjustments already mentioned, and because of the centres concerned being, as it were, unattached, they have to carry financial burdens out of proportion to those carried by the main districts for similar operations. These factors combine to make it unlikely that favorable results will obtain while these particular undertakings are so grouped for accounting purposes.

Castlemaine District.—This district was also constituted during the year, at the close of which it included all centres served by the first section of the Ballarat–Bendigo ring main, viz., Sunbury, Gisborne, Diggers' Rest, Lancefield, Romsey, Riddell and Monegeetta. Kyneton, Woodend, Macedon and Upper Macedon were added subsequently. Sunbury was already served by the Commission, but of the others, only three—Kyneton, Woodend, and Gisborne, where municipal undertakings were acquired—had supply previously. Castlemaine, which will be the head-quarters of the districts,will be taken over by the Commission in December, the private undertaking there having been acquired.

At the close of the financial year the number of consumers was 528, and the consumption of energy 320,765 kwh. There was a loss on operations of £1,616, after providing £525 for depreciation. The district is, of course, in its developmental stages, the town of Sunbury being the only centre operating for the full twelve months.

South-Western District.—The loss on the year's operations was £223, after providing £8,639 for depreciation.

The number of consumers increased from 4,677 to 5,485, and sales of energy by 299,335 kwh.

Dennington, Koroit and Port Fairy were served during the year for the first time by the Commission. In Koroit the local municipal undertaking was acquired, but in the other two centres named supply was initiated.

Gippsland District.—This district continues to develop at a rapid rate, and during the year six new centres were served, viz., Toongabbie, Tynong, Lakes Entrance, Glengarry, Bunyip and Longwarry, none of which had supply previously. Arrangements were also made for serving Garfield, where the local undertaking was taken over and where a supply of transmitted energy has obtained since the close of the year.

The number of consumers increased from 4,637 to 5,180, and the sales of energy from 3,065,710 kwh. to 3,692,877 kwh.

Operations resulted in a loss of £1,532, after providing £6,737 for depreciation. This loss is accounted for by the re-adjustment to which reference has been made.

North-Eastern District.—During the year Cobram and Dookie were supplied, the municipal undertaking in the former place being acquired from the Tungamah Shire Council, and service being initiated in the latter, which includes Dookie Agricultural College.

This district is given supply from the Sugarloaf–Rubicon hydro-electric scheme.

The number of consumers increased from 4,637 to 5,777, and sales of energy from 5,827,036 kwh. to 7,403,147 kwh.

After providing £11,774 for depreciation, operations showed a net loss of £9,785, an improvement of £2,801 on the figures for the prevous year. The result is very satisfactory, as during the year the balance (£9,603) of the amount of £12,003 paid in compensation by the Commission in respect of the bush fire in the Mansfield area in 1927 was written off.

As was anticipated, there has been a rapid and progressive improvement in the finances of this district following upon the completion of the Sugarloaf–Rubicon hydro-electric scheme.

COMMISSION'S ELECTRIC SUPPLY UNDERTAKINGS FOR LOCAL DISTRIBUTION.

ESSENDON AND FLEMINGTON DISTRICT.

	1924–25.	1925–26.	1926–27.	1927–28.	1928–29.
Population of Supply Area	55,000	58,000	60,500	63,000	65,500
Number of Consumers	9,897	11,212	12,332	13,250	14,053
Percentage of Consumers to Population	18 per cent.	19·3 per cent.	20·4 per cent.	21·03 per cent.	21·45 per cent.
Sales of Energy in classes—					
Street Lighting	543,625 kw. hrs.	588,874 kw. hrs.	585,426 kw. hrs.	657,722 kw. hrs.	764,644 kw. hrs.
Domestic	1,286,529 ,,	1,784,529 ,,	2,172,786 ,,	2,883,443 ,,	3,498,117 ,,
Industrial—					
Large					7,153,026 ,,
Small	5,608,981 ,,	7,779,024 ,,	8,397,222 ,,	8,855,316 ,,	743,020 ,,
Commercial					1,430,645 ,,
Excluding adjustments for unread meters and service charges paid in advance at end of year	7,439,135 ,,	10,152,427 ,,	11,155,434 ,,	12,396,481 ,,	13,589,452 ,,
Revenue	£77,347	£93,116	£101,408	£107,498	£112,583
Average Revenue per kw. hr. sold	2·495d.	2·201d.	2·181d.	2·082d.	1·988d.
Maximum Demand of District in kws.	2,462	2,635	3,339	3,690	4,097
Total Connexions in kws.	11,824	13,911	19,087	21,417	23,716
Number of Motors	482	552	574	617	659
Total h.p. of Motors	3,413	3,871	7,887	8,308	8,723

WESTERN METROPOLITAN DISTRICT.

	1928–29.
Population of Supply Area	10,300
Number of Consumers	1,928
Percentage of Consumers to Population	18·718 per cent.
Sales of Energy, in classes—	
Street Lighting	82,410 kw. hrs.
Domestic	433,157 ,,
Industrial—	
Large	3,113,383 ,,
Small	342,283 ,,
Commercial	152,531 ,,
Excluding adjustments for unread meters and service charges paid in advance at end of year	4,123,764 ,,
Revenue	£27,749
Average Revenue per kw. hr. sold	1·615d.
Maximum Demand of District in kws.	1,742
Total Connexions in kws.	6,726
Number of Motors	342
Total h.p. of Motors	4,604

EASTERN METROPOLITAN DISTRICT.

	1924–25.	1925–26.	1926–27.	1927–28.	1928–29.
Population of Supply Area	10,000	15,200	16,918	25,753	25,943
Number of Consumers	2,246	2,898	3,519	5,800	6,545
Percentage of Consumers to Population	22·4 per cent.	19·07 per cent.	20·8 per cent.	22·5 per cent.	25·22 per cent.
Sales of Energy, in classes—					
Bulk Supplies	..	..	514,554 kw. hrs.	438,233 kw. hrs.	164,810 kw. hrs.
Street Lighting	43,837 kw. hrs.	62,070 kw. hrs.	84,747 ,,	119,257 ,,	173,445 ,,
Domestic		263,665 ,,	541,319 ,,	1,011,195 ,,	1,726,876 ,,
Industrial—					
Large					2,610,613 ,,
Small	646,171 ,,	869,410 ,,	1,140,795 ,,	2,093,786 ,,	754,357 ,,
Commercial					789,906 ,,
Excluding adjustments for unread meters and service charges paid in advance at end of year	690,008 ,,	1,195,145 ,,	2,281,415 ,,	3,662,471 ,,	6,220,007 ,,
Revenue	£15,482	£23,893	£39,869	£58,999	£78,563
Average Revenue per kw. hrs. sold	5·38d.	5·65d.	5·4d.	3·87d.	3·03d.
Maximum Demand of District in kws.	300	520 (estd.)	634	1,230	1,778 (estd)
Total Connexions in kws. Excluding Bulk Supplies	2,410	3,293	4,755	8,000	11,732
Number of Motors Excluding Bulk Supplies	78	93	131	216	337
Total h.p. of Motors Excluding Bulk Supplies	683	936	1,566	1,835	3,544

COMMISSION'S ELECTRIC SUPPLY UNDERTAKINGS FOR LOCAL DISTRIBUTION—*continued.*

CASTLEMAINE DISTRICT.

	1928–29.
Population of Supply Area	5,470
Number of Consumers	528
Percentage of Consumers to Population	9·65 per cent.
Sales of Energy, in classes—	
Street Lighting	15,694 kw. hrs.
Domestic	42,069 ,,
Industrial—	
Large	136,200 ,,
Small	..
Commercial (Excluding adjustments for unread meters and service charges paid in advance at end of year)	126,802 ,,
	320,765 ,,
Revenue	£6,601
Average Revenue per kw. hr. sold	4·938d.
Maximum Demand of District in kws.	160
Total Connexions in kws.	820
Number of Motors	41
Total h.p. of Motors	330

GIPPSLAND DISTRICT.

	1924–25.	1925–26.	1926–27.	1927–28.	1928–29.
Population of Supply Area	16,467	18,700	23,825	25,230	26,670
Number of Consumers	2,881	3,307	4,209	4,637	5,180
Percentage of Consumers to Population	17·5 per cent.	17·7 per cent.	17·67 per cent.	18·38 per cent.	19·4 per cent.
Sales of Energy, in classes—					
Street Lighting	68,938 kw. hrs.	87,659 kw. hrs.	97,303 kw. hrs.	121,658 kw. hrs.	134,768 kw. hrs.
Domestic		262,215 ,,	483,730 ,,	822,916 ,,	1,007,627 ,,
Industrial—					
Large	927,797 ,,	1,356,020 ,,	1,479,929 ,,	2,111,136 ,,	122,468 ,,
Small					1,583,993 ,,
Commercial					844,021 ,,
(Excluding adjustments for unread meters and service charges paid in advance at end of year)	996,735 ,,	1,705,894 ,,	2,060,962 ,,	3,065,710 ,,	3,692,877 ,,
Revenue	21,358	£33,489	£39,545	£52,883	£60,384
Average Revenue per kw. hr. sold	5·14d.	4·71d.	4·605d.	4·14d.	3·924d.
Maximum Demand of District in kws.	532	640	970	1,200	1,610
Total Connexions in kws.	2,980	3,896	5,708	7,249	8,484
Number of Motors	204	284	406	487	555
Total h.p. of Motors	1,227	1,551	1,910	2,365	2,710

SOUTH-WESTERN DISTRICT.

	1924–25.	1925–26.	1926–27.	1927–28.	1928–29.
Population of Supply Area	26,391	27,100	26,970	26,970	31,200
Number of Consumers	3,629	3,974	4,321	4,677	5,485
Percentage of Consumers to Population	13·7 per cent.	14·7 per cent.	16·02 per cent.	17·34 per cent.	17·58 per cent.
Sales of Energy, in classes—					
Street Lighting	108,973 kw. hrs.	118,861 kw. hrs	124,222 kw. hrs.	136,030 kw. hrs.	144,438 kw. hrs.
Domestic		462,994 ,,	660,227 ,,	739,519 ,,	937,125 ,,
Industrial—					
Large	1,175,010 ,,	1,250,612 ,,	1,649,581 ,,	2,034,165 ,,	496,110 ,,
Small					722,845 ,,
Commercial					908,531 ,,
(Excluding adjustments for unread meters and service charges paid in advance at end of year)	1,283,983 ,,	1,832,467 ,,	2,434,030 ,,	2,909,714 ,,	3,209,049 ,,
Revenue	£33,910	£43,074	£49,747	£55,347	£62,236
Average Revenue per kw. hrs. sold	6·34d.	5·64d.	4·90d.	4·56d.	4·654d.
Maximum Demand of District in kws.	(*a*) 732	(*a*) 867	(*a*) 882	(*a*) 1,035	(*a*) 1,212
	(*b*) 88·5	(*b*) 111	(*b*) 124·5	(*b*) 177	(*b*) 211
Total connexions in kws.	3,815	4,573	5,900	6,340	7,769
Number of Motors	276	348	443	479	578
Total h.p. of Motors	1,311	1,491	1,888	1,812	2,160

(*a*) Belmont Sub-station. (*b*) Supply to Bellarine Peninsula.

Commission's Electric Supply Undertakings for Local Distribution—*continued.*

NORTH-EASTERN DISTRICT.

	1924–25.	1925–26.	1926–27.	1927–28.	1928–29.
Population of Supply Area	8,000	13,025	27,760	30,650	32,700
Number of Consumers	1,026	1,850	4,137	5,238	5,777
Percentage of Consumers to Population	12·8 per cent.	14·2 per cent.	14·9 per cent.	17·09 per cent.	17·66 per cent.
Sales of Energy, in classes—					
Bulk Supplies	..	371,767 kw. hrs.	2,939,350 kw. hrs.	3,414,580 kw. hrs.	4,014,310 kw. hrs.
Street Lighting	16,971 ,,	43,183 ,,	91,030 ,,	127,381 ,,	156,147 ,,
Domestic	118,045 ,,	97,413 ,,	273,173 ,,	598,412 ,,	874,619 ,,
Industrial— Large		213,290 ,,	842,514 ,,	1,686,663 ,,	208,898 ,,
Industrial— Small					1,125,129 ,,
Commercial					1,024,044 ,,
(Excluding adjustments for unread meters and service charges paid in advance at end of year)	135,016 ,,	725,653 ,,	4,146,067 ,,	5,827,036 ,,	7,403,147 ,,
Revenue	£5,050	£16,930	£51,660	£74,086	£85,585
Average Revenue per kw. hr. sold ..	8·97d.	5·597d.	2·99d.	3·05d.	2·774d.
Maximum Demand of District in kws.	156	1,000 (estd.)	1,736 (approx.)	1,750 (approx.)	2,640
Total Connexions in kws. (Excluding Bulk Supplies)	725	Not available	4,937	6,192	7,777
Number of Motors (Excluding Bulk Supplies)	56	87	337	428	471
Total h.p. of Motors (Excluding Bulk Supplies)	237	300	1,430	1,763	2,181

PART III.—DESIGN, CONSTRUCTION, AND OPERATION.

COAL SUPPLY.

Yallourn Open Cut.

Overburden Removal.—The quantity of overburden removed during the year was 1,432,450 cubic yards, as compared with 788,700 cubic yards in the previous year. The total quantity of overburden removed since operations were commenced in this cut is 4,168,390 cubic yards.

The increase in the rate of removal this year is accounted for by the fact that both the overburden dredge and the 175-B shovel worked continuously on a three-shift basis, in conjunction with electric trains for the transport of the overburden to the dump. At times also the two main overburden machines were assisted by the class 14 dragline and the 150-B shovel.

Overburden removal operations will be restricted to the dredge during the coming year. since ample reserves of coal are now available, consequent upon that below the present floor of the open-cut being worked.

Coal Winning.—During the year 1,660,698 tons of coal were excavated, as compared with 1,159,983 tons in the previous year. The total quantity of coal excavated from this cut since the commencement of operations there is 4,812,982 tons.

All of the coal won during the year was excavated by the single 250 Ruston shovel, which operated throughout on a three-shift basis. Shortly after the close of the year a deep coal dredge commenced work on the south face of the open-cut. In its initial operations it will excavate the coal to a depth of 100 feet from the coal surface, and thus form a working bench, on which a second coal dredge (now on order) will be placed, to work in conjunction with an electric steep haulage, which is also on order, and which will haul trains of six 20-ton trucks from the new working level of the open-cut to the level of the top of the 1,500-ton bunker of the power station. In the meantime, the first coal dredge, working from the coal surface, is supplying the power station with coal transported by electric trains, hauling 20-ton trucks, direct to the 1,500-ton bunker.

The briquetting factory is receiving its coal from the Ruston shovel, which has commenced to remove all the coal (of an average depth of 22 feet) between the present floor of the open-cut and the new working level being formed by the dredge.

The coal from the Ruston shovel is conveyed from the open-cut by No. 1 ropeway to a transfer bunker, whence it is delivered to the briquetting factory by a continuation of the rope haulage system.

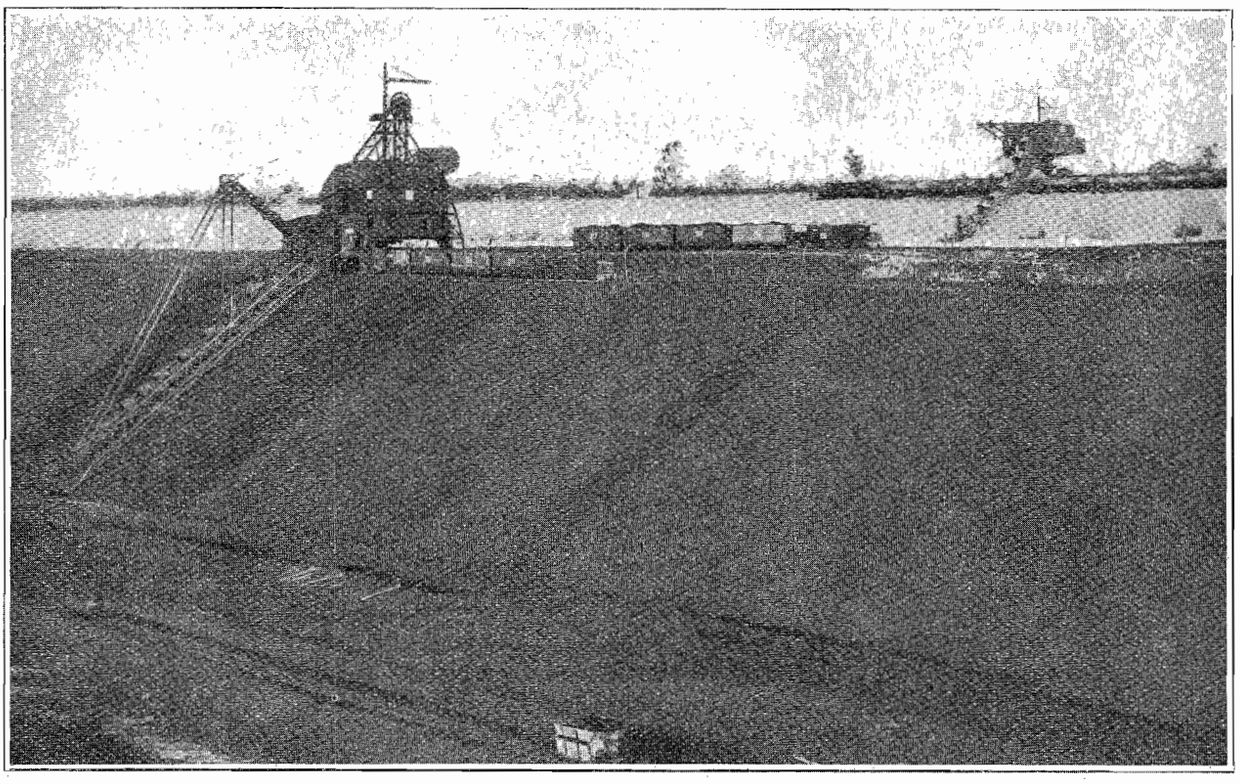
The new plant installed at, or on order for, Yallourn will provide for the increasing requirements of the power station and briquetting factory, and also permit of the necessary elasticity of operation. In 1931, when the extended briquetting factory and the first unit of 25,000 kw. of new generating plant to be installed at Yallourn are in operation, 10,000 tons of coal a day will be required, rising to about 13,000 tons a day in 1934, when the full installation of 75,000 kw. of new generating plant at Yallourn is due for completion.

Old Brown Coal Open Cut.

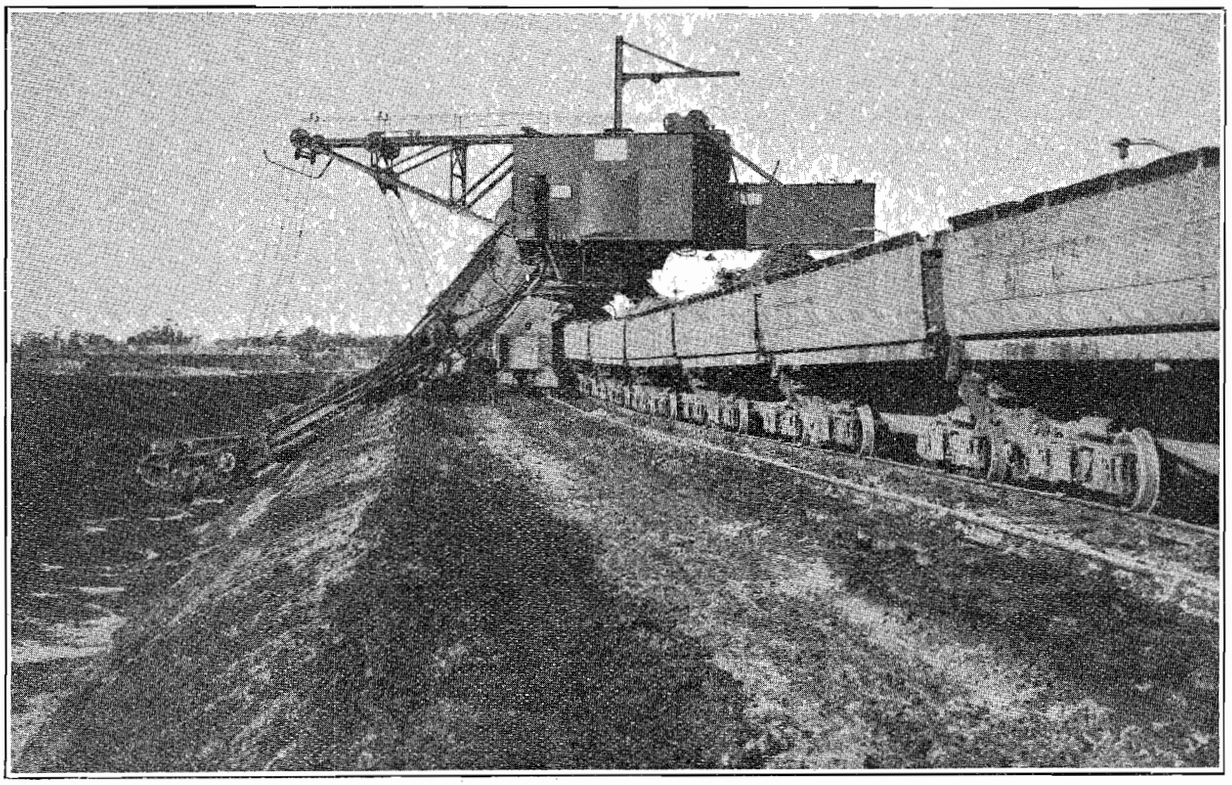
The output for the year was 41,072 tons, as against 319,656 tons for the previous year. Most of the coal excavated during the year was for private users. No overburden was removed during the period, as the mine, as far as the requirements of Yallourn are concerned, has been closed down, and there is sufficient uncovered coal to meet the needs of private customers and provide an adequate reserve.

BORING.

A steady programme of boring was carried out during the year, to test the deposits in various parts of the territory. In all, 61 bores were put down, aggregating over 16,000 feet of boring, principally in the area between the Melbourne Swamp and Prince's Highway, west of the branch railway, where valuable deposits were proved.



Deep Coal Dredge, showing face of coal after dredge operation. At the rear and to the right is the overburden dredge, working against a face of overburden below rail level.



Overburden Dredger digging 26 feet below rail level and loading into 20 cubic yard Trucks.

ELECTRICITY SUPPLY.

YALLOURN POWER STATION.

Maximum load during year ended 30th June, 1929	**62,500**	**kw.**
Total units generated during year ended 30th June, 1929 ..	**296,804,890**	**kwh.**
Total units purchased from Briquetting Factory during year ended 30th June, 1929	**7,847,500**	**„**
Total	**304,652,390**	**„**

The above total is somewhat less than the production in the previous year, when the station was seriously overloaded, in order to cope with the growth of the demand upon the system. This growth was unexpectedly rapid, and anticipated increments of new generating plant by some months. The mountain stream stations of the Sugarloaf-Rubicon hydro-electric scheme than commenced to take their share of the load, as planned. In August, they were followed by the operation of a sixth turbo-generator of 12,500 kilowatts at Yallourn, in January of the Sugarloaf hydro-station, and in May of the Richmond station. The sixth turbo-generator at Yallourn completed that station, as originally designed, and brought the installed capacity of the plant to 75,000 kilowatts to provide for a normal putout of 62,500 kilowatts, which, it will be noticed, was not exceeded during the year, as the result of the progressive provision of new generating plant there and elsewhere.

Boiler Plant.—The station loading during the year was normally carried by eleven boilers, excepting at intervals for maintenance, when ten units operated. Using new cut coal, the boiler plant satisfactorily met all demands upon the station. With the object of attaining the highest efficiency, and of establishing a sufficient reserve, a steady programme of development is being pursued, and the plant and buildings, as they stand, completed to an installed capacity of 75,000 kilowatts, will be capable of being utilized to their full normal extent under all probable conditions.

During the previous year adjustments had reached a stage when one boiler (No. 6) had been equipped with complete mechanical step grates, combined with a small drying shaft and corrugated plate type air heater. Nine boilers had had supplementary step grates fitted to the original travelling grates, and one of these had also been provided with a Howden-Ljungstrom air heater.

The firing equipments remodelled during the year under review include the following :—

(1) No. 5 boiler was provided with the third design of supplementary step grates.
(2) No. 12 boiler was equipped with the third design of supplementary step grates, combined with a large coal drying shaft of the Serpentine type.
(3) The first design of supplementary step on No. 2 boiler grate was converted to third design, and fitted with large coal drying shaft.
(4) No. 3 boiler was equipped with a large coal drying shaft.
(5) Nos. 2, 3 and 12 boilers had the induced draft fan runners improved.
(6) No. 9 boiler was equipped with Duplex Howden-Ljungstrom air heaters and two new forced draft fans.
(7) In addition, sundry boilers were improved in a number of minor features, such as air distribution to grates, baffle arrangements, instrument panels, &c.

A great deal of work was done in equipping No. 7 boiler with mechanical grates designed by the Commission's officers and constructed locally. These will be installed shortly, in conjunction with a coal drying shaft, and, together with the new hydraulic type of drive, represent an achievement in new development worthy of note. Several features in the design of these grates give promise of proving to be improvements upon the latest German methods, and in some instances alternative types constituting German methods are being tried side by side in the same boiler, in order to provide experience which, it is anticipated, will be of value in shaping the methods to be adopted in the extension of the plant at the Yallourn power station. The design of the new boiler plant is now being prepared. The design of the boiler house itself is shown in this section of the report.

It is expected that the majority of the remaining boiler firing improvements proposed in No. 1 boiler house will be finished in the coming financial year. The items yet to be carried out are :—

(1) Provision of Duplex air heaters and forced draft fans on boilers Nos. 8 and 5.
(2) Installation of large coal drying shafts with improved runners on the induced draft fans on boilers Nos. 4, 11 and 1.

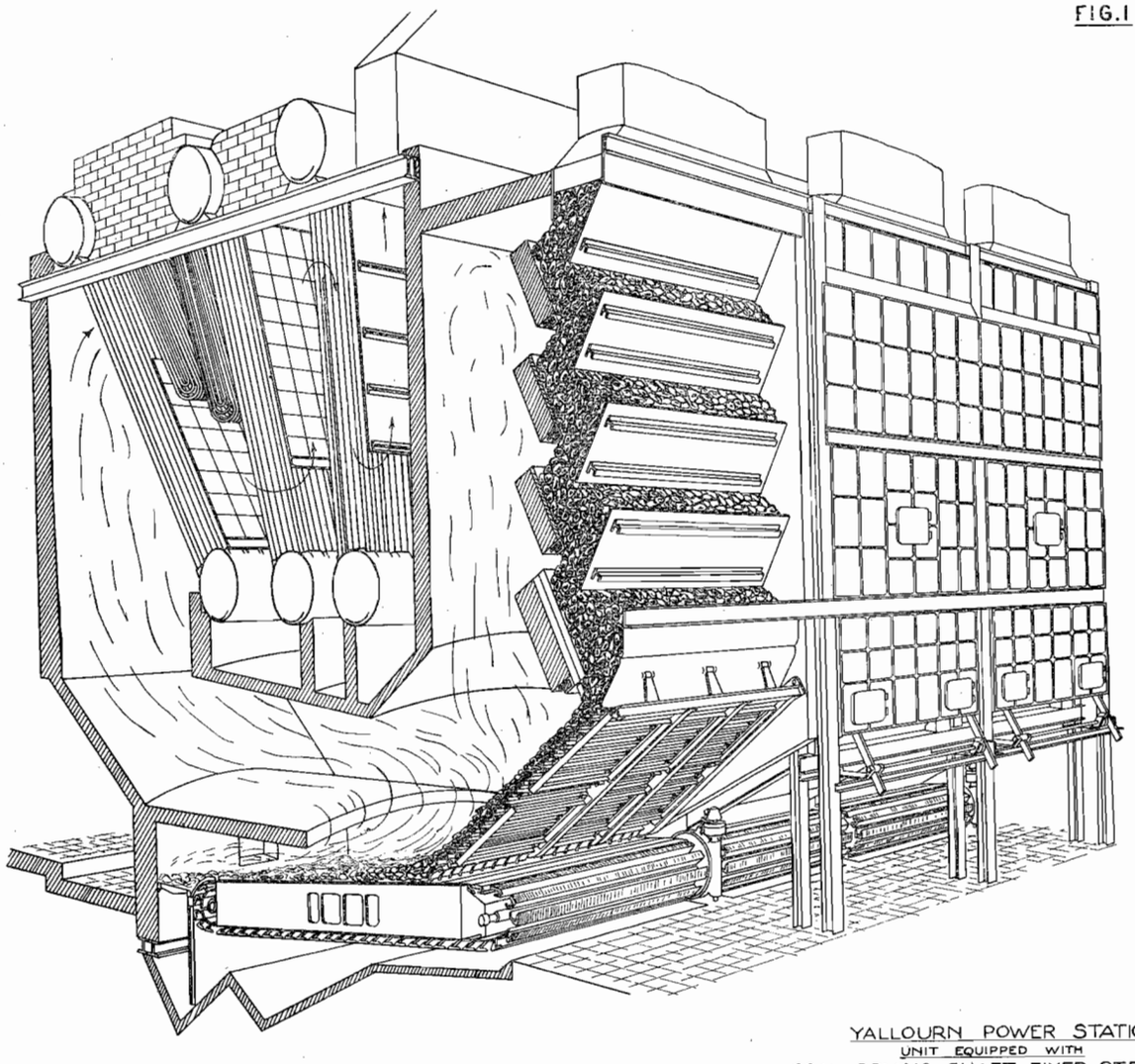
In the matter of these boiler improvements, marked success has attended the efforts of the design staff, particularly in accommodating the installation of large mechanical step grates and drying shafts on No. 7 boiler, and also the Duplex air heaters on Nos. 5, 8 and 9 boilers, within restricted spaces which, at an early stage of the researches, appeared to be so inadequate as to render the proposals impossible of accomplishment.

In all the improvements, introduced and prospective, advantage has been taken of the Commission's own experience and its knowledge of developmental progress abroad, in the direction of perfecting combustion methods, to ensure the best results.

The following is a brief commentary by the Commission's Chief Engineer upon the present position and trend of the future in regard to brown coal burning and the principles which have influenced its development at Yallourn :—

> " In a furnace burning raw brown coal, over two-thirds of the total grate surface is covered by coal in the process of drying, hence the first efforts of the Commission's staff were directed towards partially drying the coal before feeding it to the grates, thereby decreasing the amount of drying to be done on the grate with a concomitant increase in the area of grate surface available for burning coal, and a greater output from any given area of grate.
>
> " The outcome of the Commission's investigations was the introduction, several years ago, of a small inclined fixed step grate, Fig. 1, arranged so that the coal passing over its surface was partially dried by the hot gases generated on the active portion of the grate. These grates presented many difficult mechanical problems, which eventually were overcome with extremely satisfactory results.

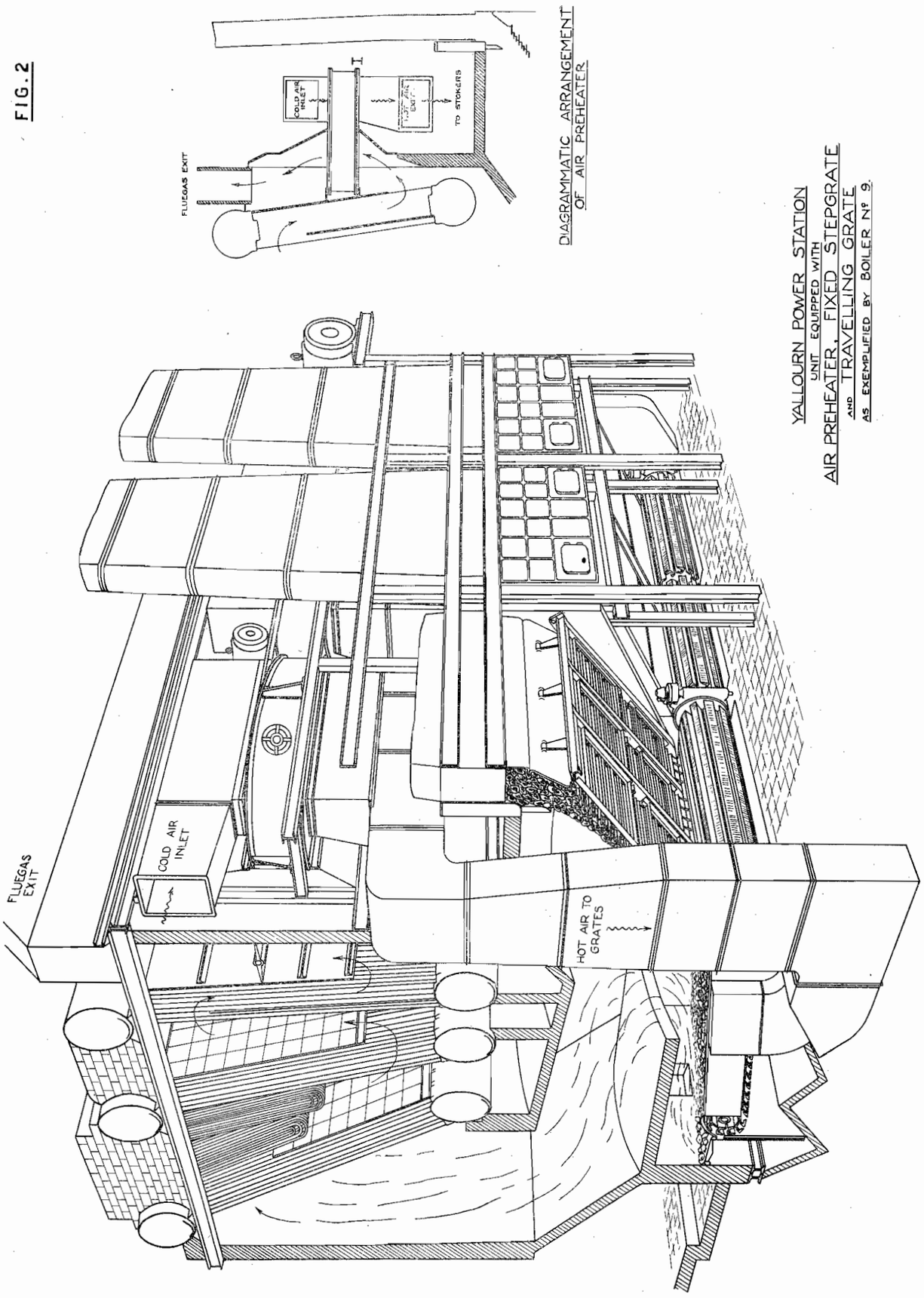
FIG.1



YALLOURN POWER STATION
UNIT EQUIPPED WITH
COAL DRYING SHAFT, FIXED STEPGRATE
AND TRAVELLING GRATE
AS EXEMPLIFIED BY BOILER Nº 2.

"The next development was the introduction of a vertical drying shaft to commence the drying process before the coal reached the supplementary drying grates. The vertical drying shaft, Fig. 1, consists of a staggered series of arched louvres, arranged so that the coal must take a sinuous course between the louvres before passing on to the grate.

FIG. 2



DIAGRAMMATIC ARRANGEMENT OF AIR PREHEATER

YALLOURN POWER STATION
UNIT EQUIPPED WITH
AIR PREHEATER, FIXED STEPGRATE
AND TRAVELLING GRATE
AS EXEMPLIFIED BY BOILER Nº 9.

" The efficacy of the drying shaft is due to—

(*a*) Sensible heat from a portion of the furnace gas stream, which circulates down the face of the drying shaft because of the difference in temperature between the coal-filled drying shaft and the main portion of the furnace.

(*b*) The deposition on the coal surface of coal particles carried upward by the gas stream.

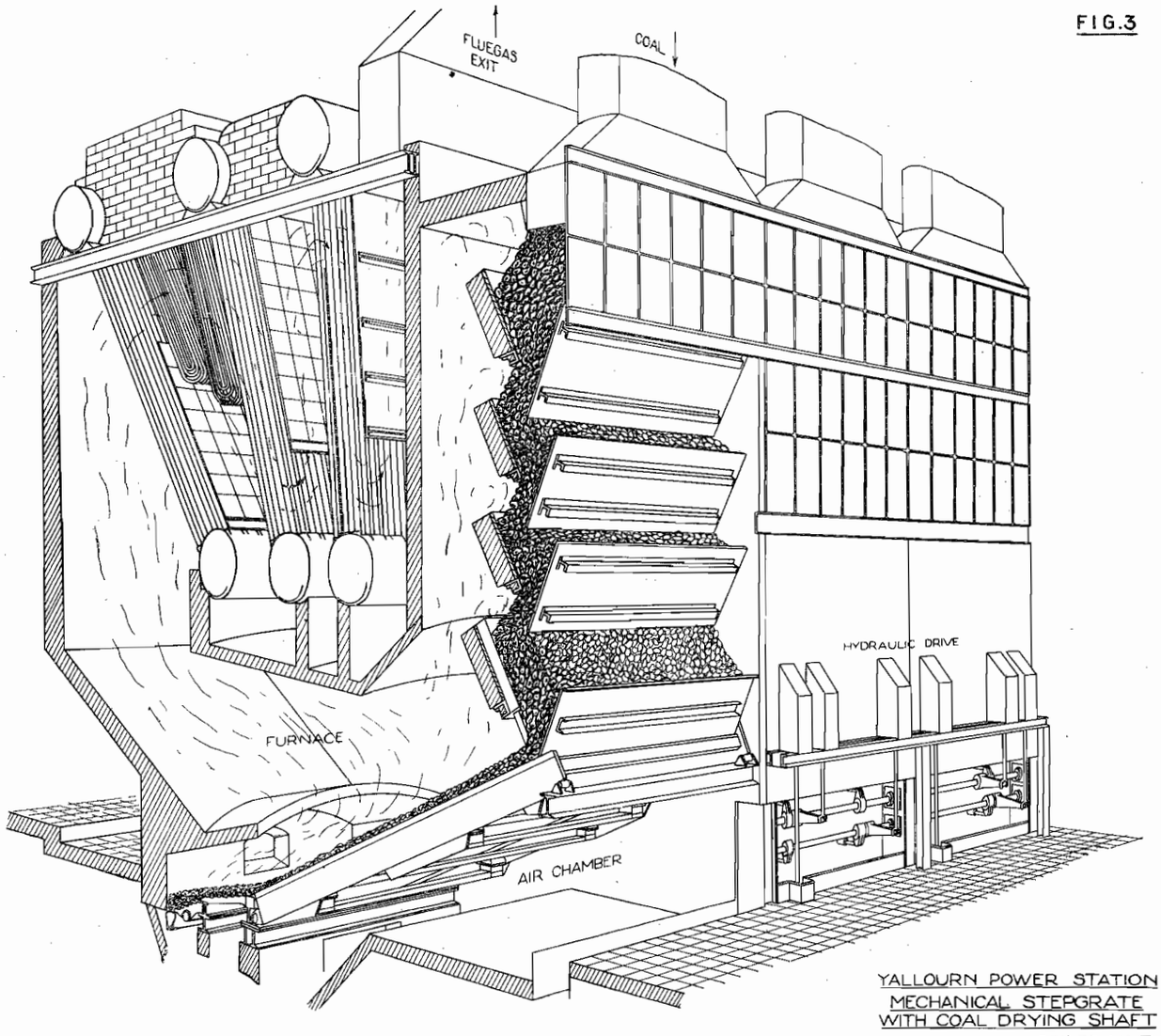
" It must be noted that primarily a drying shaft is a convenient and relatively cheap method of increasing grate area, and therefore capacity, but incidentally it has a favorable influence on the efficiency of the combined boiler and furnace as a unit, because of the decrease in the " flying particle " loss incidental firstly to the decreased weight of coal consumed per square foot of the main grate area for the same steam output, and secondly to the increase in the size of the furnace high temperature zones. Moisture removed in the drying shaft joins the furnace gas stream before it passes up to the boiler heating surface, hence, if the percentage of excess air be constant, the temperature of the gases entering the boiler heating surface will be practically unaffected by the drying shaft.

" The results obtained have proved that the vertical drying shaft is a most satisfactory solution of the problem of predrying.

" Experimental work carried out has indicated that preheating the combustion air has a marked beneficial influence on both the efficiency and capacity of a boiler unit, hence five of the boiler units eventually will have been equipped with air preheating apparatus.

" The first air heater to be adopted was an early edition of rotating corrugated plate design, which has been found to have several unsatisfactory features.

FIG.3



YALLOURN POWER STATION
MECHANICAL STEPGRATE
WITH COAL DRYING SHAFT
AS EXEMPLIFIED BY BOILER Nº 7.

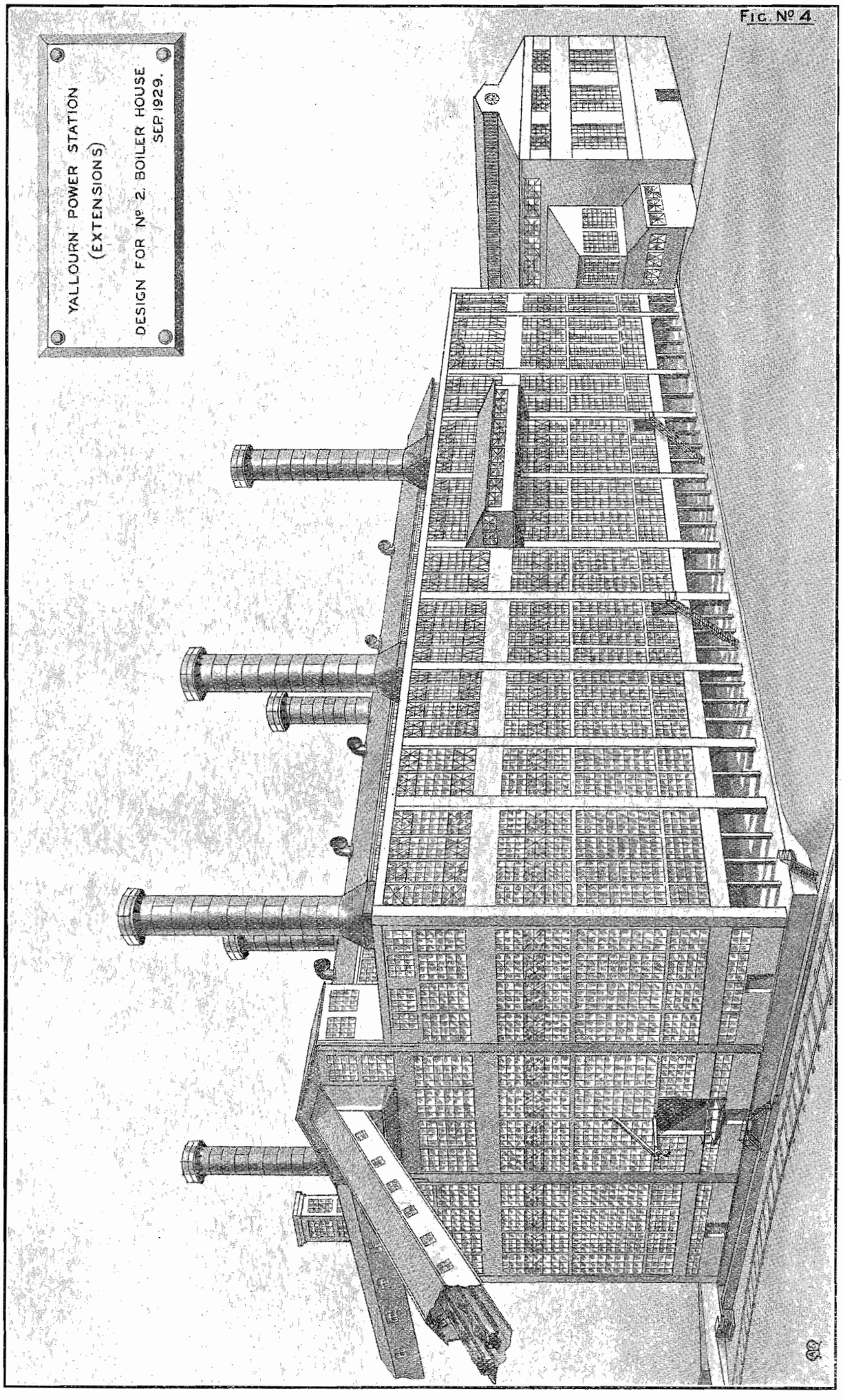

YALLOURN POWER STATION
(EXTENSIONS)
DESIGN FOR Nº 2. BOILER HOUSE
SEP. 1929.

FIG. Nº 4.

"The second air heater installed was of a corrugated plate type designed and built by the Commission's staff, and the third recently installed on No. 9 boiler is of the latest design of rotating plate type, and set as duplex units in the front of the boiler, making a very compact and relatively inexpensive arrangement. This is illustrated in Fig. 2.

"Since the time when the original boiler plant was designed, the mechanically actuated inclined step grate has been developed in Germany, hence the most recent developments in grates at Yallourn have been the adoption in two boiler units of completely mechanically actuated inclined step grates supplied with coal partially predried in vertical drying shafts.

"The arrangement of boiler illustrated in Fig. 3 shows a grate designed by the Commission's staff, and includes several novel features, with which it is desired to experiment before adopting them in the extension boiler house." (Fig. 4.)

As was anticipated in the previous Annual Report, the methods adopted to insure a prolonged life to the brickwork of the boilers are proving entirely successful, and there was hardly any perceptible wearing of the brickwork during the year. The improvements which have been effected are the result of a close study of the reaction peculiar to brown coal combustion and brown coal ash upon refractories forming the furnace.

Richmond.

During the year the work of converting the Melbourne Electric Supply Company's power station at Richmond from single-phase to three-phase supply was completed. The work included the installation of an 18,500 kw. turbo-generator, the re-modelling of the existing condensing plant, the re-conditioning of the steam-raising plant, and the erection of buildings and other structures. The re-modelled station came into operation, according to programme, at the beginning of May, ready to take its share of the normal increment of load last winter. It has functioned satisfactorily from the beginning. The maximum demand on the station was 14,800 kw., and the amount of energy generated up to the 30th June last was 3,467,800 kwh.

NEWPORT "B" POWER STATION.

Maximum load during the year ended 30th June, 1929 .. 20,000 kw.
Total units generated during the year ended 30th June, 1929 .. 49,044,400 kwh.

As in the case of Yallourn, and for the same reason, this station was not quite as heavily taxed as in the previous year.

RICHMOND POWER STATION.

Maximum load during the year ended 30th June, 1929 .. 14,800 kw.
Total units generated during the year ended 30th June, 1929 .. 3,467,800 kwh.

The function of this station is to assist in meeting the peak load on the system. It came into operation in May, 1929. The whole plant operated satisfactorily, and the station is efficiently fulfilling its functions.

SUGARLOAF-RUBICON HYDRO STATIONS.

Maximum load during the year ended 30th June, 1929 .. 16,310 kw.
Total units generated during the year ended 30th June, 1929 .. 65,593,587 kwh.

The Sugarloaf station, the last of the five to be completed, came into operation in January, 1929. The whole scheme functioned satisfactorily, and was the principal factor in relieving the previous year's overloading of the Yallourn station, while assisting the Richmond station, according to plan, to deal with the normal increment of demand on the system during the winter.

YALLOURN–YARRAVILLE 132,000-VOLT TRANSMISSION LINE.

In the Ninth Annual Report, special reference was made to the highly satisfactory performance of this line. This was maintained during the year, as the line again operated without the slighest interruption, thus completing nearly four years of freedom from failure of any kind.

The number of insulators which developed defects was twelve, as compared with 23 during the previous year.

YALLOURN–RICHMOND 132,000-VOLT TRANSMISSION LINE.

During the year, the design of this line, which is to transmit the energy from the new generating plant to be installed at Yallourn, was completed, and material ordered, so as to permit of the construction of the line according to programme. Plans provide for its completion to the extent of one circuit by the winter of 1930. In view of the narrow margin of capacity in the existing line, this extension has become a matter of great urgency.

NEWPORT TO YARRAVILLE 22,000-VOLT CABLES.

The underground cables and overhead lines constituting this section again operated without interruption.

THOMASTOWN–NORTH-EASTERN 66,000-VOLT TRANSMISSION LINE.

This line transmits the hydro-electric energy from Rubicon "A" sub-station and Sugarloaf power station to Thomastown terminal station and also to the North-Eastern district. It operated with complete satisfaction and freedom from interruption during the year. Nine defective insulators were detected in the course of routine tests and patrol.

TERMINAL STATIONS.

Yarraville.—This station continues to give excellent service. One interruption, of short duration, occurred during the year, a bird being responsible for its development.

Thomastown.—This station began to fully function late in the previous year, when it commenced to receive energy from the hydro-electric scheme. It operated most satisfactorily and without interruption during the year.

Richmond.—The design of this station, which is to receive the energy from the new generating plant to be installed at Yallourn, was completed during the year, so that its construction and equipment could proceed according to programme.

METROPOLITAN DISTRIBUTION SYSTEM.

The constructional work during the year consisted chiefly of the laying of a fourth 22,000 volt underground cable between the Yarraville terminal station and sub-station " J " (Spencer-street), in order to adequately provide for an additional supply to the Melbourne City Council. Development of load generally will necessitate the early augmentation of the capacities of sub-station " J " (Spencer-street) and sub-station " B " (Collingwood), and during the year preparations were initiated for this work to be carried out.

Investigation and design progressed in connexion with the provision of 22,000-volt distributors from the Richmond terminal station, and plans were formulated for the supervision from this station of the operations associated with load despatching throughout the whole of the system.

During the year every relay in service in the metropolitan terminal stations and sub-stations was subjected to a routine calibration check and maintenance overhaul. For the most part, this work was carried out while the circuits which the relays protect were on load. Following satisfactory laboratory tests, the installation of impedance relays on the outer 22 k.v. network was practically completed during the period.

MAIN DISTRIBUTION AND SUB-STATIONS.

Rural Districts.

South-Western District.—The 44,000-volt transmission line, which was converted to its full-designed pressure in the previous year, operated very satisfactorily during the period under review. Partial interruptions due to line troubles occurred, but their number was small and their duration short.

The continued development of load in this district will necessitate the augmentation of the several main sub-stations, and it is intended to put this work in hand in 1930.

Gippsland District.—The East, West, and South Gippsland 22,000-volt transmission lines again demonstrated their reliability, under the established system of inspection, test and patrol.

North-Eastern District.—A substantial improvement was recorded in the performance of the Sugarloaf-Benalla 66,000-volt transmission line, particularly in respect of interruptions due to lightning. The line operated very satisfactorily, and only two interruptions, of a total duration of six minutes, occurred during the year. The 22,000-volt main lines also operated satisfactorily.

A larger bank of transformers was installed at the Wangaratta main sub-station during the year.

Castlemaine District.—The Sunbury–Kyneton section of transmission line which will ultimately form the 66,000-volt ring main to serve the North Central and North-Western area of the State was completed during the year, and was operated at 22,000 volts from the Sunshine main sub-station.

MAIN AND BRANCH DISTRIBUTION SYSTEMS—DISTRICT UNDERTAKINGS.

Metropolitan and Extra Metropolitan.

Essendon–Flemington.—Six new distribution sub-stations were erected during the year. A supply up to 1,000 k.v.a. was given to the Leathercloth Pty. Ltd., by means of a 22,000-volt feeder from the Sunshine main sub-station. This necessitated the conversion of the Ballarat-road feeder from 6,600 volts to 22,000 volts, a procedure which was contemplated and provided for in the original design and construction of the line.

Eastern Metropolitan District.—Extensions involving the construction of about 10 miles of 22,000-volt line and 5 miles of 6,600-volt line, together with the necessary sub-stations, were completed, to provide for supplies to Cranbourne, Narre Warren, Bundoora, Janefield, Mont Park, and Diamond Creek. Re-construction work and extensions in the Frankston area were also carried out.

Country Districts.

South-Western District.—Twenty-one miles of 22,000 volt line and the necessary sub-stations were constructed for the extension of supply from Warrnambool to Koroit, Port Fairy and Dennington. The existing D.C. reticulation at Koroit was converted to A.C.

Gippsland District.—Supply was given during the year to Lakes Entrance, Kalimna, Tynong, Toongabbie, Glengarry, Longwarry, and Bunyip, as well as to the Bairnsdale, Maffra, and Korumburra Water Works Trusts.

North-Eastern District.—The system at Mansfield was converted from D.C. to A.C., and the town supplied from a 66,000/6,600 volt sub-station. Dookie was similarly supplied from the 66,000 volt transmission system.

Castlemaine District.—From the first section of the Melbourne-Bendigo-Ballarat-Geelong ring main seven towns were supplied, viz., Gisborne, Digger's Rest, Sunbury, Lancefield, Romsey, Riddell and Monegeetta. Arrangements were also in hand for serving further towns as the construction of the line progresses. At the date of this report, the first section to Castlemaine was complete, and Woodend, Upper Macedon, Macedon and Kyneton were also receiving supply, while arrangements were being made to reconstruct the reticulation at Castlemaine.

WATER POWER INVESTIGATIONS.

Investigations of the water power resources of the State were continued throughout the year.

In the case of schemes, the development of which is considered to be somewhat remote, work was confined largely to river gaugings and to the office investigation of survey data collected in the field. Much work still remains to be done in this direction.

Field surveys on the Snowy River were completed, and showed generally favorable conditions, although field data have not yet been analysed.

In 1925, a considerable amount of survey work was carried out on the upper portions of the Kiewa scheme, with the result that the general lay-out of this portion of the scheme was considerably and advantageously modified.

Surveys were also carried out on the lower portions of this scheme, and a complete modified lay-out was prepared in the light of recent surveys and river gaugings.

Automatic recording river gauges have been maintained at vital points on the Kiewa scheme since early in 1925, and these records, together with past records and the survey information now available, are sufficient to enable the Commission to reach a final decision as to the future use of this source of power.

River gauging continued to occupy a prominent place in these investigations, and gauging stations were improved and various refinements introduced to render the results more accurate and reliable.

At the 30th June, 1929, twenty-one regular gauging stations were being maintained by the Commission, and of these six were equipped with automatic recording gauges.

BRIQUETTING AND RESEARCH.

Briquetting.—The Yallourn factory operated satisfactorily throughout the year, producing 141,044 tons of briquettes, an increase of 19,306 tons on the output of 121,738 tons for the preceding year. The average output per working day was approximately 470 tons.

No new plant capable of increasing output was installed during the period, but the crushing system hitherto reserved for the preparation of boiler coal only in the wet section was converted to a complete three-crusher three-screen unit, giving a 50 per cent. reserve against breakdown of the two pre-existing complete units which previously had worked almost continuously in parallel.

The electrical precipitation plant, for settling dust in the drier flues, which came into operation in May, 1928, worked very satisfactorily throughout the year.

Considerable quantities of new plant for factory extensions have already arrived at Yallourn, including drying, cooling and pressing plant from the Zeitzer Eisengiesserei A.G., of Zeitz, Germany, and the first instalment of the 600 lb. pressure boiler plant from Messrs. John Thompson, of Wolverhampton. Excavations for the press house basement and concrete footings have been nearly completed. Concreting is well under way, and the erection of structural steelwork for the drier and press house and for the boiler house is proceeding.

The most important contracts for plant for the factory extensions had been let at the date of, and were mentioned in, the Ninth Annual Report. Among those let during the period under review the principal were :—Structural steel to G. W. Kelly & Lewis Pty. Ltd., Melbourne, for £13,665 ; 11,000-volt switchgear and transformers to Metropolitan Vickers Electrical Company Ltd., England, for £9,266 ; electrical dust precipitation plant to Lurgi Apparatebau, G.m.b.H., Germany, for £8,020 ; feed pumps and spares to Gibson, Battle (Melb.) Pty. Ltd., for £6,676 ; 40 and 25 ton cranes to John Welsh, of Carlton, for £4,127 ; sundry contracts for crushing, screening and cooling plant of Australian manufacture for £3,280 ; brickwork, plastering, &c., W. J. Charlesworth, Melbourne, £8,794.

The extended factory is expected to be in operation before the end of 1930, after which the normal output for the whole of the briquetting works should be about 1,200 tons per day. It is hoped, provided favorable deliveries of plant are received from various contractors, to have an increment in output, probably to about 600 tons per day, for the winter of 1930, but this intermediate increment is at the present moment indefinite.

STAFF.

Higher Organization.—Apart from its being a matter of public policy, and one of the statutory duties of the Commission, the development of the use of electricity is a commercial necessity, in order that the large investment in the State scheme shall provide a sufficient return. The extensive and growing nature of the Commission's activities, with regard to both electricity supply and briquetting, also demands concentration on the commercial side. During the year the Commission decided to create the position of Commercial Manager, and Mr. R. Liddelow was appointed to this post. The position of Secretary thus rendered vacant has been filled by the appointment of Mr. W. J. Price.

Appreciation.—The Commission desires to again place on record its appreciation of the loyal and efficient services rendered during the year by its officers and employees.

JOHN MONASH, Chairman.

THOMAS R. LYLE, Commissioner.

ROBERT GIBSON, Commissioner.

F. W. CLEMENTS, Commissioner.

W. J. PRICE,
Secretary.

7th November, 1929.

APPENDIX No. 1.

AUDITOR-GENERAL.—VICTORIA.

Melbourne.

Auditor-General's Certificate.

I certify that the accounts have been examined with the books and vouchers, and I am of opinion the Balance-sheet fairly exhibits a true and correct view of the undertaking at the 30th June, 1929. The values of the stores have been accepted on the certificates of the storekeepers.

J. A. NORRIS,
Auditor-General,
28th October, 1929.

STATE ELECTRICITY COMMISSION OF VICTORIA.

GENERAL BALANCE-SHEET AS AT 30TH JUNE, 1929.

LIABILITIES.

	£	s.	d.	£	s.	d.
CAPITAL EXPENDITURE AUTHORIZED BY PARLIAMENT UNDER—						
LOAN ACT NO. 3029	355,000					
,, ,, 3101	1,430,000					
,, ,, 3160	2,006,000					
,, ,, 3234	1,576,000					
,, ,, 3306	1,447,000					
,, ,, 3381	1,569,500					
,, ,, 3433	1,841,000					
,, ,, 3478	1,918,334					
,, ,, 3565	1,750,000					
,, ,, 3606	2,050,000					
	15,942,834					
EXPENDITURE UNDER ABOVE ACTS				9,723,801	17	0
ADD EXPENDITURE UNDER TREASURY ACT 3274/3200				2,500,000	0	0
ADD EXPENDITURE UNDER TREASURY ACT 3345/3300				1,500,000	0	0
ADD EXPENDITURE UNDER TREASURY ACT 3598/3200				1,148,222	15	2
LIABILITY ON ACCOUNT OF LOAN FUNDS						14,872,024 12 2
ADVANCED BY TREASURY FROM PUBLIC ACCOUNT (SECTIONS 5 AND 6, ACT NO. 3239)						148,031 0 4
DEBENTURES GUARANTEED BY COMMISSION						106,051 8 11
SUNDRY CREDITORS AND ACCRUED CHARGES				154,131	18	11
INTEREST ACCRUED				230,000	2	3
						384,132 1 2
TRUST MONEYS—						
Security Deposits				8,755	12	5
Unclaimed Wages				1,003	8	1
Consumers' Deposits				6,157	6	8
Consumers' Advances for Construction				5,945	1	4
Sundries				37	9	7
						21,898 18 1
RESERVE ACCOUNTS—						
Melbourne Electric Supply Company Reserve Account				1,301,000	11	0
Add Interest accrued on Investments to 30th June, 1929				23,799	16	0
				1,324,800	7	0
Depreciation and Sinking Fund				832,349	11	10
Bad and Doubtful Debts				1,268	3	1
						2,158,418 1 11

ASSETS.

	£	s.	d.	£	s.	d.	£	s.	d.
YALLOURN WORKS—									
Power Station, Plant, and Equipment	2,582,454	12	2						
Coal Supply Plant and Equipment	1,676,360	17	8						
Briquetting Plant and Equipment	616,406	7	11						
Town of Yallourn	643,385	13	4						
Township Brown Coal Mine	9,349	10	5						
Lighting Undertakings—Yallourn and Brown Coal Mine	12,878	5	0						
General Plant, Buildings and Equipment—									
Permanent	440,830	3	11						
Temporary	49,358	3	10						
				6,031,023	14	3			
NEWPORT "B" WORKS—									
Power Station Plant and Equipment	769,308	2	11						
				769,308	2	11			
RICHMOND WORKS—									
Power Station Plant and Equipment	133,734	5	9						
				133,734	5	9			
TRANSMISSION SYSTEMS				729,939	19	4			
TERMINAL STATIONS				618,257	8	11			
TRANSMISSION AND TRANSFORMATION—CENTRAL SUPPLY SYSTEM				856,343	16	8			
SUGARLOAF WORKS—									
Power Station Plant and Equipment				866,142	0	4			
CASTLEMAINE DISTRICT—									
Transmission System	58,057	9	11						
Local Distributing Systems	36,553	13	6						
				94,611	3	5			
EASTERN METROPOLITAN DISTRICT—									
Transmission Systems	57,100	11	9						
Local Distributing Systems	277,334	15	11						
				334,435	7	8			
ESSENDON-FLEMINGTON DISTRICT—									
Local Distributing System				227,807	9	4			
GIPPSLAND DISTRICT—									
Transmission Systems	119,114	11	8						
Local Distributing Systems	187,389	0	10						
				306,503	12	6			
MELBOURNE DISTRICT—									
Distributing Systems				25,373	17	5			
NORTH-EASTERN DISTRICT—									
Transmission Systems	290,316	4	1						
Local Distributing Systems	214,766	2	9						
				505,082	6	10			
SOUTH-WESTERN DISTRICT—									
Transmission Systems	142,758	0	1						
Local Distributing Systems	236,680	15	5						
				379,438	15	6			
WESTERN METROPOLITAN DISTRICT—									
Transmission System	7,834	14	4						
Local Distributing Systems	69,459	5	10						
				77,344	0	2			
SERVICE BUILDINGS AND EQUIPMENT—									
Head Office Building, Furniture and Fittings	125,838	15	4						
Footscray Store Buildings and Workshop	46,627	11	7						
Dandenong Store Buildings and Workshop	8,580	15	6						
Yarraville Workshops and Laboratory	22,687	9	2						
South Melbourne Garage and Equipment	8,178	11	9						
Briquette Depot Equipment	24,343	11	6						

General Construction Plant and Equipment ..	4,024 6 11				
		240,281 1 9			
				12,195,627	2 9
MOTOR AND OTHER VEHICLES		.. ..		23,965	3 0
ELECTRIC SUPPLY POWER SURVEYS		.. ..		991	13 4
STORES ON HAND—					
Footscray		162,116 5 8			
Garage		4,065 4 5			
Stationery Store		3,256 6 10			
Sugarloaf		4,271 9 9			
Yarraville		29,790 2 1			
Castlemaine District		10,248 0 8			
Eastern Metropolitan District		11,229 14 9			
Essendon–Flemington District		4,659 9 9			
Gippsland District		7,118 8 11			
North-Eastern District		11,394 3 7			
South-Western District		6,215 7 11			
Western Metropolitan District		1,175 0 2			
Yallourn		171,647 12 2			
				427,187	6 8
COAL STOCKS ON HAND		.. ..		2,919	15 7
BRIQUETTE STOCKS ON HAND		.. ..		12,598	13 4
SUNDRY DEBTORS—					
Head Office		134,171 14 10			
Brown Coal		750 19 1			
Briquettes		30,022 5 8			
Castlemaine District		916 10 7			
Eastern Metropolitan District		14,557 0 10			
Essendon–Flemington District		10,373 18 0			
Gippsland District		4,232 3 8			
Melbourne District		7,160 18 9			
North-Eastern District		8,414 5 5			
South-Western District		7,044 1 10			
Western Metropolitan District		3,222 1 9			
Yallourn District		1,912 10 1			
				222,778	10 6
PAYMENTS IN ADVANCE		.. ..		3,422	6 5
LOAN FLOTATION EXPENSES		.. ..		187,898	9 4
INTEREST DURING CONSTRUCTION		.. ..		609,852	1 0
AMOUNT CHARGED TO COMMISSION BY TREASURY IN ACCORDANCE WITH DECISION OF CABINET, 22ND JULY, 1922		.. ..		62,023	6 8
ADVANCES TO AND CAPITAL EXPENDITURE ON BEHALF OF MELBOURNE ELECTRIC SUPPLY COMPANY		.. ..		1,701,240	2 5
MELBOURNE ELECTRIC SUPPLY COMPANY INVESTMENT ACCOUNT ..		1,301,000 11 0			
Add Interest accrued on Investments to 30th June, 1929 ..		23,799 16 0			
				1,324,800	7 0
SINKING FUND INVESTMENT		.. ..		98,131	6 9
VICTORIAN GOVERNMENT STOCK		.. ..		7,975	1 3
CASH—					
At Bank and in Hand		20,231 19 9			
In Transit		851 10 6			
Advances to Officers		5,180 0 0			
				26,263	10 3
PROFIT AND LOSS ACCOUNT		.. ..		782,881	6 4
				£17,690,556	2 7

£17,690,556 2 7

There is a contingent asset and liability in respect of securities lodged as bona fides under Contracts to the extent of £41,842 2s. 6d., and held by the Bank on the Commission's behalf.

R. LIDDELOW,
Commercial Manager.

STATE ELECTRICITY COMMISSION OF VICTORIA.

GENERAL PROFIT AND LOSS ACCOUNT FOR YEAR ENDED 30TH JUNE, 1929.

Dr. *Cr.*

To *Expenditure*—	£ s. d.	£ s. d.	By *Revenue*—	£ s. d.	£ s. d.
Electric Supply—			Electric Supply—		
Purchased Power	53,073 19 11		Bulk Supply	940,449 0 4	
Generation and Transmission Systems	1,103,052 16 8		Street Lighting	29,811 10 4	
Distribution Systems	237,549 5 0		Domestic	168,849 19 4	
	1,393,676 1 7		Industrial Large	117,093 6 9	
Deduct Cost of Power transferred to Works	11,502 0 0		Industrial Small	40,768 8 11	
		1,382,174 1 7	Commercial	120,251 2 11	
Briquette Works—			Merchandizing	2,735 19 10	
Manufacturing and Selling	253,553 15 10		Miscellaneous	7,247 11 0	
Add Briquettes on hand 30th June, 1928	40,457 12 5			1,427,206 19 5	
	294,011 8 3		*Add* Meters unread 30th June, 1929, and Service Charges paid in advance 30th June, 1928	33,978 1 7	
Deduct Cost of Briquettes transferred to Works	1,662 12 1			1,461,185 1 0	
		292,348 16 2	*Deduct* Meters unread 30th June, 1928, and Service Charges paid in advance 30th June, 1929	33,434 8 10	
Brown Coal Mine—					1,427,750 12 2
Winning and Selling	17,677 6 10		Briquette Works—		
Deduct Cost of Coal transferred to Works	6,299 12 9		Briquette Sales	254,045 9 4	
		11,377 14 1	*Add* on Hand 30th June, 1929	12,598 13 4	
To Profit carried down		16,352 9 2			266,644 2 8
		1,702,253 1 0	Brown Coal Mine		7,858 6 2
					1,702,253 1 0
To Cost of Brown Coal Mine Fire		3,889 18 2	By Balance Brought Down		16,352 9 2
Balance American Experts' Expenses		3,667 1 7	Transfer Essendon–Flemington Redemption Account		29,497 4 4
Special Maintenance Yallourn to Yarraville Transmission Line		4,181 4 7	Balance 30th June, 1929, carried to Balance-sheet		782,881 6 4
Balance as at 30th June, 1928		816,992 15 6			
		828,730 19 10			828,730 19 10

R. LIDDELOW,
Commercial Manager.

EXPENDITURE OUT OF CONSOLIDATED REVENUE 1ST JULY, 1928, TO 30TH JUNE, 1929.

To Expenditure—	£ s. d.	By Treasury Account—	£ s. d.
Salaries	1,560 0 0	Division 71/1	6,450 0 0
Power Investigations	4,219 2 3	Division 71/2	4,196 5 6
Licensing of Wiremen	838 3 1	Division 71/3	76 4 8
Electric Inspection	4,029 0 2		
Research Work	76 4 8		
	10,722 10 2		10,722 10 2

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STATE ELECTRICITY COMMISSION OF VICTORIA.

DISTRICT UNDERTAKINGS.

PROFIT AND LOSS ACCOUNT FOR YEAR ENDED 30TH JUNE, 1929.

—	Castlemaine District.	Eastern Metropolitan District.	Essendon–Flemington District.	Gippsland District.	North-Eastern District.	South-Western District.	Western Metropolitan District.
EXPENDITURE.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
To Generation, Purchase of Energy and Distribution	5,762 16 11	50,660 7 5	76,246 14 8	40,013 17 1	57,756 18 7	35,410 9 8	25,312 8 3
,, Interest	1,756 2 11	16,317 6 2	10,325 14 5	14,572 0 7	25,637 17 7	18,211 6 11	3,761 6 9
,, Depreciation and Sinking Fund	525 10 11	7,155 18 11	4,555 15 8	6,737 6 11	11,774 4 9	8,639 10 9	1,828 16 0
,, Bad and Doubtful Debts	8 2 7	103 0 9	141 7 11	77 4 10	105 17 9	77 0 8	33 0 10
Total	8,052 13 4	74,236 13 3	91,269 12 8	61,400 9 5	95,274 18 8	62,338 8 0	30,935 11 10
INCOME.							
By Sales	6,436 4 1	79,522 7 2	114,952 13 8	59,867 18 3	85,489 13 8	62,115 13 10	27,953 6 8
Total	6,436 4 1	79,522 7 2	114,952 13 8	59,867 18 3	85,489 13 8	62,115 13 10	27,953 6 8
Profit Transferred to Head Office	..	5,285 13 11	23,683 1 0	..	..	..	..
Loss Transferred to Head Office	1,616 9 3	..	..	1,532 11 2	9,785 5 0	222 14 2	2,982 5 2

Balance-sheet as at 30th June, 1929.

—	Castlemaine District.	Eastern Metropolitan District.	Essendon–Flemington District.	Gippsland District.	North-Eastern District.	South-Western District.	Western Metropolitan District.
Assets.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Transmission Systems	58,057 9 11	57,100 11 9	..	119,114 11 8	290,316 4 1	142,758 0 1	7,884 14 4
Local Distributing Systems	36,553 13 6	277,334 15 11	227,807 9 4	187,389 0 10	214,766 2 9	236,680 15 5	69,459 5 10
Interest during Construction	763 0 8	1,003 7 1	..	2,233 10 11	6,425 6 5	4,796 3 6	201 15 8
Loan Flotation Expenses	..	2,893 2 1	2,349 18 6	3,119 5 10	5,531 8 8	5,632 19 8	..
Stores on Hand	10,248 0 8	11,229 14 9	4,659 9 9	7,118 8 11	11,394 3 7	6,215 7 11	1,175 0 2
Sundry Debtors	916 10 7	14,557 0 10	10,373 18 0	4,232 3 8	8,414 5 5	7,044 1 10	3,222 1 9
Payments in Advance	10 11 0	76 14 6	5 4 6	27 8 10	84 3 9	37 12 9	4 13 10
Victorian Government Stock	1,493 19 0	345 0 5	196 2 6	3,164 14 7	2,917 0 9	54 6 6	..
Cash at Bank and in Hand	92 16 10	207 13 0	..	109 12 6	163 3 11	134 2 10	49 9 4
	108,136 2 2	364,748 0 4	245,392 2 7	326,508 17 9	540,011 19 4	403,353 10 6	81,997 0 11
Liabilities.							
Sundry Creditors and Accrued Charges	3,295 12 2	41,360 11 0	975 6 3	11,731 1 7	43,626 7 0	10,194 17 5	3,074 16 11
Interest Accrued	622 0 8	4,641 16 5	2,987 12 2	4,542 8 4	7,856 8 5	6,050 9 1	1,182 10 1
Trust Moneys	155 16 2	4,364 9 1	3,334 6 4	1,003 10 8	1,139 5 9	1,681 7 0	423 13 0
Reserves—							
Depreciation and Sinking Fund	1,054 3 6	13,315 3 6	28,966 7 1	15,986 4 10	20,379 0 0	24,030 12 9	4,135 0 9
Bad and Doubtful Debts	7 8 10	78 9 5	8 16 5	126 6 5	180 7 8	150 18 5	54 6 2
Balance carried to General Balance-sheet	103,001 0 10	300,987 10 11	209,119 14 4	293,119 5 11	466,830 10 6	361,245 5 10	73,126 14 0
	108,136 2 2	364,748 0 4	245,392 2 7	326,508 17 9	540,011 19 4	403,353 10 6	81,997 0 11

STATE ELECTRICITY COMMISSION OF VICTORIA.

STATEMENT OF CAPITAL EXPENDITURE.

—	Expended to 30th June, 1928.	Total at 30th June, 1928.	Additional for Year 1928-29.	Total for Year 1928-29.	Expended to 30th June, 1929.	Total at 30th June, 1929.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
YALLOURN WORKS—						
Power Station Plant and Equipment	2,443,368 6 5		139,086 5 9		2,582,454 12 2	
Coal Supply Plant and Equipment	1,430,514 7 2		245,846 10 6		1,676,360 17 8	
Briquetting Plant and Equipment	573,520 15 3		42,885 12 8		616,406 7 11	
Town of Yallourn	512,701 9 10		130,684 3 6		643,385 13 4	
Township, Brown Coal Mine	9,111 3 6		238 6 11		9,349 10 5	
Lighting Undertakings—Yallourn and Brown Coal Mine	13,044 8 6		*Cr.* 166 3 6		12,878 5 0	
General Plant, Buildings and Equipment—Permanent	423,382 9 2		17,447 14 9		440,830 3 11	
General Plant, Buildings and Equipment—Temporary	45,869 3 7		3,489 0 3		49,358 3 10	
		5,451,512 3 5		579,511 10 10		6,031,023 14 3
MAIN SUPPLY SYSTEM—						
Power Station Plant and Equipment—Newport "B"	768,394 8 7		913 14 4		769,308 2 11	
Power Station Plant and Equipment—Richmond	13,016 2 9		120,718 3 0		133,734 5 9	
Transmission Systems	730,524 12 9		*Cr.* 584 13 5		729,939 19 4	
Terminal Stations	591,898 14 4		26,358 14 7		618,257 8 11	
		2,103,833 18 5		147,405 18 6		2,251,239 16 11
TRANSMISSION AND TRANSFORMATION—CENTRAL SUPPLY SYSTEM	839,220 15 11		17,123 0 9		856,343 16 8	
		839,220 15 11		17,123 0 9		856,343 16 8
SUGARLOAF WORKS—						
Power Station Plant and Equipment	780,812 3 3		85,329 17 1		866,142 0 4	
		780,812 3 3		85,329 17 1		866,142 0 4
CASTLEMAINE DISTRICT—						
Transmission System	11,300 11 11		46,756 18 0		58,057 9 11	
Local Distributing Systems	10,521 3 8		26,032 9 10		36,553 13 6	
		21,821 15 7		72,789 7 10		94,611 3 5
EASTERN METROPOLITAN DISTRICT—						
Transmission Systems	73,372 16 7		*Cr.* 16,272 4 10		57,100 11 9	
Local Distributing Systems	216,668 11 7		60,666 4 4		277,334 15 11	
		290,041 8 2		44,393 19 6		334,435 7 8
ESSENDON–FLEMINGTON DISTRICT—						
Local Distributing System	206,703 13 10		21,103 15 6		227,807 9 4	
		206,703 13 10		21,103 15 6		227,807 9 4
GIPPSLAND DISTRICT—						
Transmission Systems	128,699 5 2		*Cr.* 9,584 13 6		119,114 11 8	
Local Distributing Systems	139,030 13 6		48,358 7 4		187,389 0 10	
		267,729 18 8		38,773 13 10		306,503 12 6
MELBOURNE DISTRICT—						
Distributing System	25,296 5 0		77 12 5		25,373 17 5	
		25,296 5 0		77 12 5		25,373 17 5
NORTH–EASTERN DISTRICT—						
Transmission Systems	303,740 9 7		*Cr.* 13,424 5 6		290,316 4 1	
Local Distributing Systems	184,002 18 9		30,763 4 0		214,766 2 9	
		487,743 8 4		17,338 18 6		505,082 6 10
SOUTH–WESTERN DISTRICT—						
Transmission System	142,750 9 5		7 10 8		142,758 0 1	
Local Distributing Systems	203,558 5 3		33,122 10 2		236,680 15 5	
		346,308 14 8		33,130 0 10		379,438 15 6

STATE ELECTRICITY COMMISSION OF VICTORIA.—STATEMENT OF CAPITAL EXPENDITURE—*continued.*

—	Expended to 30th June, 1928.	Total at 30th June, 1928.	Additional for Year 1928–29.	Total for Year 1928–29.	Expended to 30th June, 1929.	Total at 30th June, 1929.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
WESTERN METROPOLITAN DISTRICT—						
Transmission System	9,606 2 5		*Cr.* 1,721 8 1		7,884 14 4	
Local Distributing Systems	64,217 0 5		5,242 5 5		69,459 5 10	
		73,823 2 10		3,520 17 4		77,344 0 2
SERVICE BUILDINGS AND EQUIPMENT—						
Head Office Building, Furniture and Fittings	122,128 8 3		3,710 7 1		125,838 15 4	
Footscray Store Buildings and Workshop	46,918 12 2		*Cr.* 291 0 7		46,627 11 7	
Dandenong Store Buildings and Workshop	8,599 8 9		*Cr.* 18 13 3		8,580 15 6	
Yarraville Workshops and Laboratory	26,963 16 10		*Cr.* 4,276 7 8		22,687 9 2	
Briquette Depot Equipment	14,684 6 9		9,659 4 9		24,343 11 6	
General Construction Plant and Equipment	3,364 13 7		659 13 4		4,024 6 11	
South Melbourne Garage and Equipment	7,823 19 0		354 12 9		8,178 11 9	
		230,483 5 4		9,797 16 5		240,281 1 9
MOTOR AND OTHER VEHICLES	21,864 10 11		2,100 12 1		23,965 3 0	
		21,864 10 11		2,100 12 1		23,965 3 0
ELECTRIC SUPPLY POWER SURVEYS	576 14 6		414 18 10		991 13 4	
		576 14 6		414 18 10		991 13 4
LOAN FLOTATION EXPENSES	181,388 14 11		6,509 14 5		187,898 9 4	
		181,388 14 11		6,509 14 5		187,898 9 4
INTEREST DURING CONSTRUCTION	586,582 0 11		23,270 0 1		609,852 1 0	
		586,582 0 11		23,270 0 1		609,852 1 0
AMOUNT CHARGED BY TREASURY IN ACCORDANCE WITH DECISION OF CABINET, 22ND JULY, 1922	62,023 6 8		..		62,023 6 8	
		62,023 6 8				62,023 6 8
	11,977,766 1 4	11,977,766 1 4	1,102,591 14 9	1,102,591 14 9	13,080,357 16 1	13,080,357 16 1

APPENDIX No. 2.

ELECTRIC ENERGY GENERATED AND SUPPLIED TO METROPOLITAN AREA 1918–1929

Year.	Newport "A," Generated.	Melbourne City Council, Generated.	Melbourne Electric Supply Company, Generated.	Richmond Generated.	Newport "B," Generated.	Yallourn at Yarraville Terminal Station.	Hydro Generated.	Newport "A" to Yarraville Terminal Station (25 Cycle).	Newport "A" to Melbourne City Council (25 Cycle).	Newport "A" to Melbourne Electric Supply Company (25 Cycle).	Yarraville Terminal Station to Newport "A" (25 Cycle).	Yarraville Terminal Station to Melbourne City Council.	Yarraville Terminal Station to Melbourne Electric Supply Company	Other Supplies from Terminal Stations, and Richmond Power Station and Losses (including N/E).
	Kw. hrs.	Kw. hrs.	Kw. hrs.	Kw. hrs.	Kw. hrs.	Kw. hrs.	Kw. hrs.	Kw. hrs.	Kw. hrs.	Kw. hrs.	Kw. hrs.	Kw. hrs	Kw. hrs.	Kw. hrs.
1918	293,400	38,002,182	45,209,890	..	..	..	..	..	..	..	..	..	..	..
1919	19,091,723	39,974,648	50,811,070	..	..	..	..	..	..	..	..	..	..	..
1920	47,868,179	50,673,371	53,869,324	..	..	..	..	..	..	..	..	..	..	..
1921	80,397,774	55,517,920	55,289,970	..	..	..	..	..	..	9,025,350	..	..	..	..
1922	188,910,649	36,898,790	47,543,348	..	..	..	..	..	30,577,273	35,749,700	..	..	..	..
1923	266,532,672	37,348,870	41,542,034	..	16,448,300	..	..	10,524,055	19,741,900	65,714,900	392,700	20,500,000	..	6,079,655
1924	265,472,939	19,993,000	32,310,586	..	61,329,200	20,912,300	..	7,898,800	88,943	80,719,800	4,036,600	58,683,857	4,954,600	26,501,843
1925	251,318,843	17,679,440	28,574,875	..	38,228,900	107,548,364	..	182,700	..	72,232,600	2,705,900	59,522,500	23,210,050	60,521,514
1926	223,421,572	14,638,690	39,412,944	..	44,656,600	164,461,110	..	4,682,500	..	42,344,965	58,800	65,374,300	49,805,677	98,561,433
1927	179,755,507	13,478,850	21,709,481	..	44,946,700	271,500,160	..	1,659,800	..	..	29,100	73,726,500	98,261,910	146,089,150
1928	176,911,804	16,000,960	..	..	50,143,150	279,396,155	36,305,379	3,483,600	..	..	118,100	80,790,509	112,037,068	176,382,616
1929 (1st January to 30th June) ..	86,613,294	8,454,020	..	3,467,800	23,998,050	131,913,000	34,027,373	397,200	..	..	8,700	41,679,500	60,046,037	92,069,186

SUMMARY.

Year.	Total Units Generated and Supplied to Metropolitan Area.	Utilized for Railway Traction and Minor 25-cycle Supplies.	Utilized for General and Tramway Purposes.	Total Output from Newport "A" (Generated plus Supply from Yarraville Terminal Station).	Total Generated and Supplied to S.E.C. System (including N.E. System).	Total Output from Melbourne Electric Supply Company (including Supply from S.E.C.)	Total Output from Melbourne City Council.	Total Output from Melbourne Electric Supply Company.
	Kw. hrs.	Kw. hrs.	Kw. hrs.	Kw. hrs.	Kw. hrs.	Kw. hrs	Kw. hrs.	Kw. hrs.
1918	83,505,472	293,400	83,212,072	293,400	..	45,209,890	38,002,182	45,209,890
1919	109,877,441	19,091,723	90,785,718	19,091,723	..	50,811,070	39,974,648	50,811,070
1920	152,410,874	47,868,179	104,542,695	47,868,179	..	53,869,324	50,673,371	53,869,324
1921	191,205,664	71,372,424	119,833,240	80,397,774	..	64,315,320	55,517,920	64,315,320
1922	273,352,787	122,583,676	150,769,111	188,910,649	..	83,293,048	67,476,063	83,293,048
1923	361,871,876	170,945,122	190,926,754	266,925,372	26,972,355	107,256,934	77,590,165	107,256,934
1924	400,018,025	180,801,996	219,216,029	269,509,539	90,140,300	113,030,386	78,765,800	117,984,986
1925	443,350,422	181,609,443	261,740,979	254,024,743	145,959,964	100,807,475	77,201,940	124,017,525
1926	486,590,916	176,452,907	310,138,009	223,480,372	213,800,210	81,757,909	80,012,990	131,563,586
1927	531,390,698	178,124,807	353,265,891	179,784,607	318,106,660	21,709,481	87,205,350	119,971,391
1928	558,757,448	173,546,304	385,211,144	177,029,904	369,328,284	..	96,791,460	112,037,068
1929 (1st January to 30th June)	288,473,537	86,224,794	202,248,743	86,621,994	193,803,423	..	50,123,520	60,046,037

APPENDIX No. 3.

TRANSMISSION LINES—OVERHEAD.

District.	Erected prior to 30th June, 1929.		Erected during Year ended 30th June, 1929.		Total Erected.	
	Route Miles.	Miles of Cable.	Route Miles.	Miles of Cable.	Route Miles.	Miles of Cable.
132,000 Volt Lines	110	660	..	..	110	660
NORTH-EASTERN.						
66,000 Volt Lines	223·7	696·1	..	..	223·7	696·1
22,000 Volt Lines	102·1	437·5	4·7	10	106·8	447·5
6,600 Volt Lines	8·3	20·8	1·4	4·2	9·7	25·0
SOUTH-WESTERN.						
44,000 Volt Lines	116	348	..	..	116	348
22,000 Volt Lines	..	..	20·5	61·5	20·5	61·5
6,600 Volt Lines	132·1	349·5	3·3	6·6	135·4	356·1
GIPPSLAND.						
22,000 Volt Lines	191·4	564·6	39·2	106·4	230·6	671·1
6,600 Volt Lines	13·7	33·6	..	..	13·7	33·6
METROPOLITAN.						
22,000 Volt Lines	137·9	413·7	..	..	137·9	413·7
6,600 Volt Lines	28·2	84 6	..	..	28·2	84·6
EASTERN METROPOLITAN.						
22,000 Volt Lines	97·8	277·1	9·5	19	107·3	296·1
6,600 Volt Lines	59·6	170·5	7·6	19·3	67·2	189·8
WESTERN METROPOLITAN (including Essendon–Flemington).						
22,000 Volt Lines	26·5	79·5	2·5	7·5	29	87
6,600 Volt Lines	27·3	82·0	1·4	4·2	28·7	86·2
NORTH-WEST.						
66,000 Volt Lines	..	..	29	87	29	87
22,000 Volt Lines	..	..	26·1	78·3	26·1	78·3

SUMMARY OF OVERHEAD LINE CONSTRUCTION.

Voltage.	Erected during Year.		Total Erected.	
	Route Miles.	Miles of Cable.	Route Miles.	Miles of Cable.
132,000	..	..	110·0	660·0
66,000	29	87	252·7	783·1
44,000	..	..	116·0	348·0
22,000	102·5	282·7	658·2	2,045·7
6,600	13·7	34·3	283·0	775·4
Total	145·2	404·0	1,419·9	4,612·2

UNDERGROUND CABLE LAID.

Class of Cable.	Route Miles Cable Laid prior to 30th June, 1928.	Route Miles Cable Laid during Year 30th June, 1928, to 30th June, 1929.	Total Route Miles Laid to 30th June, 1929.
Supervisory Control Cable	12·7	·1	12·8
22,000 Volt	90·1	2·75	92·85
6,600 Volt	25·4	1·18	26·58
Pilot and Telephone	46·2	2·67	48·87
Low Tension	2·9	·58	3·48
Miscellaneous	16·2	3·16	19·36
Total	193·5	10·44	203·94

APPENDIX No. 4.

TABLE SHOWING NUMBER AND CAPACITY OF SUB-STATIONS AS AT 30TH JUNE, 1929.

District and Stations.	*No.*		*Kva.*
Terminal Stations	3		111,900
Central Supply Transmission Sub-stations	16		137,250
Distribution Subs. at Line Voltage	16		21,280
Transformer Distribution Sub-stations—			
Melbourne	7	3,105	
Essendon–Flemington	41	7,800	
Extra Metropolitan	17	4,530	
Eastern „	114	5,000	
	—179		20,435
WESTERN DISTRICT.			
Transmission Sub-stations	5		3,150
Transformer Distribution Sub-stations	70		2,927
GIPPSLAND DISTRICT.			
Transmission Sub-stations	3		800
Transformer Distribution Sub-stations	78		3,502
NORTH-EASTERN DISTRICT.			
Transmission Sub-stations	7		9,650
Transformer Distribution Sub-stations	47		3,265
CASTLEMAINE DISTRICT.			
Transformer Distribution Sub-stations	10		325
SUGARLOAF–RUBICON AREA.			
Transformer Distribution Sub-stations	2		200
TOWN OF YALLOURN, ETC.			
Transformer Distribution Sub-stations	23		6,450
Total Installed	459		321,134

APPENDIX No. 5.

DISTRICTS SERVED BY STATE ELECTRICITY COMMISSION OF VICTORIA.

District.	Population.	System of Supply. Single-Ph. 230/460-V. Three-Ph. 230/400-V.	No. of Consumers.	Domestic Light and Power.		Commercial Light and Power. (c)		(a) Commercial Power Two-part Tariff. (b) Commercial Power, Restricted Hour Tariff. (See Notes.)				
				Service Charge per Room per Month.	Energy Charge per Unit.	Service Charge per Room per Month.	Energy Charge per Unit.	Service Charge per H.P. per Month.				Energy Charge per Unit.
								H.P., 1–50.	H.P., 51–100.	H.P., 101–200.	H.P., 201–500.	
				s. d.	*d.*	*s. d.*	*d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*d.*
Alexandra	850	A.C., 3 ph.	211	1 6	1¾	2 0	1¾	6 0	5 6	5 0	4 6	1
Allansford	296	A.C., 1 ph.	32	1 6	1¾	2 0	1¾	7 0	6 6	6 0	5 6	1¼
Altona	1,500	,,	215	1 4	1½	1 10	1½	5 6	5 0	4 6	4 0	1
Alvie, Cororooke, and Warrion	270	A.C., 3 ph. and 1 ph.	70	1 6	1¾	2 0	1¾	7 0	6 6	6 0	5 6	1¼
Bairnsdale	4,000	A.C., 3 ph.	733	1 3	1½	1 9	1½	5 0	4 6	4 0	3 6	1
Bayswater	450	A.C., 1 ph.	69	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Barnawartha	240	,,	19	1 6	1¾	2 0	1¾	6 0	5 6	5 0	4 6	1
Barwon Heads	600	,,	144	1 6	1½	2 0	1½	6 6	6 0	5 6	5 0	1¼
Beaconsfield	150	,,	11	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Beeac	300	,,	100	1 6	1¾	2 0	1¾	7 0	6 6	6 0	5 6	1¼
Belgrave	800	A.C., 3 ph.	437	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Benalla	4,000	,,	567	1 3	1¾	1 9	1¾	5 0	4 6	4 0	3 9	1
Berwick	650	A.C., 1 ph.	203	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Birregurra	400	,,	89	1 6	1¾	2 0	1¾	7 0	6 6	6 0	5 6	1¼
Boolarra	685	A.C., 3 ph.	48	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Bostock Creek	50	A.C., 1 ph.	18	1 6	1¾	2 0	1¾	7 0	6 6	6 0	5 6	1¼
Boronia	700	,,	49	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Briar Hill	200	,,	44	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Bunyip	600	,,	54	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Camperdown	3,500	A.C., 3 ph.	592	1 3	1¾	1 9	1¾	6 0	5 6	5 0	4 9	1¼
Chiltern	1,500	,,	110	1 6	1¾	2 0	1¾	6 0	5 6	5 0	4 6	1
Clayton	250	A.C., 1 ph.	78	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Cobden	650	A.C., 3 ph.	118	1 6	1¾	2 0	1¾	7 0	6 6	6 0	5 6	1¼
Cobram	850	D.C.	149	1 6	1¾	2 0	1¾	..	..	..	..	..
Colac	4,800	A.C., 3 ph.	1,092	1 3	1¾	1 9	1¾	6 0	5 6	5 0	4 9	1¼
Cororooke (see Alvie).												
Cowwarr	200	,,	68	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Cranbourne	300	A.C., 1 ph.	80	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Croydon	1,500	A.C., 3 ph. and 1 ph.	518	1 0	1¼	1 6	1¼	5 0	4 6	4 0	3 6	1
Dandenong	5,000	,, ,,	1,062	1 2	1¼	1 9	1½	5 0	4 6	4 0	3 6	1
Darnum	100	A.C., 3 ph.	27	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Deer Park	100	,,	13	1 4	1½	1 10	1½	6 6	6 0	5 6	5 0	1¼
Dennington	310	A.C., 1 ph.	..	1 6	1½	2 0	1¾	7 0	6 6	6 0	5 6	1¼
Diamond Creek	100	,,	..	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Diggers Rest	50	,,	10	1 6	1¾	2 0	1¾	7 0	6 6	6 0	5 6	1¼
Dromana	350	A.C., 3 ph.	75	1 6	1¾	1 6	1¾	7 0	6 6	6 0	5 6	1¼
Drouin	850	,,	159	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Drysdale	800	A.C., 1 ph.	67	1 6	1½	2 0	1½	6 6	6 0	5 6	5 0	1¼
Echuca	4,600	A.C., 3 ph.	714	1 3	1¾	1 9	1¾	5 0	4 6	4 0	3 9	1
Eltham	700	A.C., 1 ph.	106	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Essendon	63,000	A.C., 3 ph	14,053	1 0	1¼	See Standard Metropolitan Tariffs, page 58.						
Evelyn (see Silvan).												
Euroa	2,000	D.C., 230 v	375	1 4	1¾	1 10	1¾	..	..	..	..	..
Ferntree Gully	1,200	A.C., 3 ph. and 1 ph.	160	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Frankston	3,000	A.C., 3 ph.	1,072	1 2	1¼	1 9	1½	5 0	4 6	4 0	3 6	1
Gisborne	770	,,	126	1 6	1¾	2 0	1¾	7 0	6 6	6 0	5 6	1¼
Glengarry	120	,,	18	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Greensborough	930	,,	449	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Hastings and Tyabb	550	A.C., 1 ph.	82	1 6	1¾	2 0	1¾	7 0	6 6	6 0	5 6	1¼
Heyfield	700	A.C., 3 ph.	125	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Kallista	150	A.C., 1 ph.	29	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Kilsyth	150	,,	32	1 0	1¼	1 6	1¼	5 0	4 6	4 0	3 6	1
Kolora and supply *en route*	..	,,	50	1 6	1¾	2 0	1¾	7 0	6 6	6 0	5 6	1¼
Koroit	2,000	A.C., 3 ph.	201	1 4	1¾	1 10	1¾	6 6	6 0	5 6	5 0	1¼
Korumburra	2,500	,,	550	1 4	1½	1 10	1½	5 6	5 0	4 6	4 0	1
Kyabram	1,700	,,	384	1 4	1¾	1 10	1¾	5 6	5 0	4 6	4 0	1
Lakes Entrance	900	A.C., 1 ph.	108	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Lancefield	600	A.C., 3 ph.	89	1 6	1¾	2 0	1¾	7 0	6 6	6 0	5 6	1¼
Leongatha	1,700	,,	410	1 4	1½	1 10	1½	5 6	5 0	4 6	4 0	1
Lilydale	1,800	,,	260	1 4	1½	1 10	1½	5 6	5 0	4 6	4 0	1
Longwarry	300	,,	36	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Lower Plenty	50	A.C., 1 ph.	27	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Maffra	2,000	A.C., 3 ph.	496	1 4	1½	1 10	1½	5 6	5 0	4 6	4 0	1
Mansfield	650	A.C., 1 ph.	208	1 6	1¾	2 0	1¾	6 0	5 6	5 6	4 6	1
Merrigum	200	A.C., 3 ph.	50	1 6	1¾	2 0	1¾	6 0	5 6	5 0	4 6	1
Mirboo North	600	,,	110	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Moe	400	,,	140	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Montrose	100	A.C., 1 ph.	54	1 0	1¼	1 6	1¼	5 0	4 6	4 0	3 6	1
Mooroopna	1,500	A.C., 3 ph.	215	1 4	1¾	1 10	1¾	5 6	5 0	4 6	4 0	1
Montmorency	300	A.C., 1 ph.	41	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Mortlake	1,000	A.C., 3 ph.	199	1 6	1¾	2 0	1¾	7 0	6 6	6 0	5 6	1¼
Morwell	1,370	,,	261	1 4	1½	1 10	1½	5 6	5 0	4 6	4 0	1

APPENDIX No. 5—*continued.*

DISTRICTS SERVED BY STATE ELECTRICITY COMMISSION OF VICTORIA—*continued.*

District.	Population.	System of Supply. Single-Ph. 230/460-V. Three-Ph. 230/400-V.	No. of Consumers.	Domestic Light and Power.		Commercial Light and Power. (*c*)		(*a*) Commercial Power Two-part Tariff. (*b*) Commercial Power, Restricted Hour Tariff. (See Notes.)				
				Service Charge per Room per Month.	Energy Charge per Unit.	Service Charge per Room per Month.	Energy Charge per Unit.	Service Charge per H.P. per Month.				Energy Charge per Unit.
								H.P., 1–50.	H.P., 51–100.	H.P., 101–200.	H.P., 201–500.	
				s. d.	*d.*	*s. d.*	*d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*d.*
Mulgrave	350	A.C., 3 ph.	154	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Monegetta	50	A.C., 1 ph.	12	1 6	1¾	2 0	1¾	7 0	6 6	6 0	5 6	1¼
Nalangil	50	,,	61	1 6	1¾	2 0	1¾	7 0	6 6	6 0	5 6	1¼
Narre Warren	100	,,	..	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Newry	300	A.C., 3 ph.	32	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Nilma	50	A.C., 1 ph.	19	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Noble Park	500	,,	95	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Noorat	120	A.C., 3 ph.	59	1 6	1¾	2 0	1¾	7 0	6 6	6 0	5 6	1¼
Ocean Grove	50	A.C., 1 ph.	41	1 6	1½	2 0	1½	6 6	6 0	5 6	5 0	1½
Officer	50	,,	2	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Olinda	250	,,	48	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Pakenham	400	,,	39	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Pomborneit	50	,,	17	1 6	1¾	2 0	1¾	7 0	6 6	6 0	5 6	1¼
Portarlington	600	,,	118	1 6	1½	2 0	1½	6 6	6 0	5 6	5 0	1½
Port Fairy	2,000	A.C., 3 ph.	206	1 4	1¾	1 10	1½	6 6	6 0	5 6	5 0	1¼
Portsea (see Sorrento).												
Point Lonsdale	700	A.C., 1 ph.	97	1 6	1½	2 0	1½	6 6	6 0	5 6	5 0	1½
Queenscliff	1,900	A.C., 3 ph.	395	1 4	1½	1 10	1½	6 0	5 6	5 0	4 9	1½
Riddell	350	A.C., 1 ph.	17	1 6	1¾	2 0	1¾	7 0	6 6	6 0	5 6	1½
Ringwood	3,500	A.C., 3 ph.	610	1 0	1¼	1 6	1¼	5 0	4 6	4 0	3 6	1
Romsey	600	,,	86	1 6	1¾	2 0	1¾	7 0	6 6	6 0	5 6	1¼
Rosebud	200	,,	79	1 6	1¾	2 0	1¾	7 0	6 6	6 0	5 6	1¼
Rosedale	520	A.C., 1 ph.	67	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Rutherglen	1,100	A.C., 3 ph.	256	1 4	1¾	1 10	1¾	5 6	5 0	4 6	4 0	1
Ruby	50	A.C., 1 ph.	8	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Rye	50	A.C., 3 ph.	11	1 6	1¾	2 0	1¾	7 0	6 6	6 0	5 6	1¼
Sale	3,941	,,	738	1 3	1½	1 9	1½	5 0	4 6	4 0	3 6	1
Sassafras Area	500	A.C., 3 ph. and 1 ph.	269	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Shepparton	5,500	A.C., 3 ph.	1,036	1 3	1¾	1 9	1¾	5 0	4 6	4 0	3 9	1
Sherbrooke	..	A.C., 1 ph.	..	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Silvan Line and Evelyn	100	A.C., 3 ph. and 1 ph.	55	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Springhurst	100	A.C., 3 ph.	17	1 6	1¾	2 0	1¾	6 0	5 6	5 0	4 6	1
Springvale	1,250	,,	286	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Somerville	200	,,	52	1 6	1¾	2 0	1¾	7 0	6 6	6 0	5 6	1¼
Sorrento and Portsea	650	,,	558	1 6	1¾	2 0	1¾	7 0	6 6	6 0	5 6	1¼
Stratford	800	,,	96	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Sunbury	2,050	,,	187	1 4	1¾	1 10	1½	6 6	6 0	5 6	5 0	1¼
Sunshine	6,100	,,	1,253	1 0	1¼	1 6	1¼	See Standard Metropolitan Tariffs, page 58.				
Tatura	1,350	,,	242	1 4	1¾	1 10	1¾	5 6	5 0	4 6	4 0	1
Terang	2,255	,,	439	1 4	1¾	1 10	1¾	7 0	6 6	6 0	5 6	1¼
Thornton	150	A.C., 1 ph.	37	1 6	1¾	2 0	1¾	6 0	5 6	5 0	4 6	1
Tinamba	50	,,	18	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Tongala	250	A.C., 3 ph.	80	1 6	1¾	2 0	1¾	6 0	5 6	5 0	4 6	1
Toongabbie	150	A.C., 1 ph.	15	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Traralgon	2,300	A.C., 3 ph.	469	1 4	1½	1 10	1½	5 6	5 0	4 6	4 0	1
Trafalgar	700	,,	215	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Tremont	200	A.C., 1 ph.	41	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Tyabb (see Hastings).												
Tyers	250	,,	46	1 9	1½	2 3	1½	6 0	5 6	5 0	4 6	1
Upwey	200	A.C., 3 ph.	105	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Wahgunyah	500	,,	72	1 6	1¾	2 0	1¾	6 0	5 6	5 0	4 6	1
Wangaratta	4,000	,,	702	1 3	1¾	1 9	1¾	5 0	4 6	4 0	3 9	1
Warrion (see Alvie).												
Warrnambool	7,740	A.C., 3 ph.	1,158	1 3	1¾	1 9	1¾	6 0	5 6	5 0	4 9	1½
Werribee	2,600	,,	447	1 4	1½	1 10	1½	5 6	5 0	4 6	4 0	1
Winchelsea	700	A.C., 1 ph.	99	1 6	1¾	2 0	1¾	7 0	6 6	6 0	5 6	1¼
Yarragon	400	A.C., 3 ph.	71	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1
Yarrawonga	1,650	D.C., 230 v.	333	1 4	1¾	1 10	1¾	7 6	..	..	..	1¾
Yinnar	50	A.C., 1 ph.	26	1 6	1½	2 0	1½	6 0	5 6	5 0	4 6	1

NOTES.

(*a*) Service charge subject to discount of 5 per cent. if three motors, 10 per cent. if four motors, 15 per cent. if five motors, and 20 per cent. if six or more motors are installed.

Energy charge subject to discount of 5 per cent. if more than 5,000 units, 10 per cent. if more than 25,000 units, and 11 per cent. if more than 50,000 units be consumed per month.

(*b*) Supply between the hours of 10 p.m. and 7 a.m.—
Service charge subject to the same discounts as for Commercial Power Tariff and to special discount of 10 per cent.

(*c*) Applicable to licensed hotels and boarding-houses.

APPENDIX No. 5—*continued.*

STANDARD METROPOLITAN TARIFFS.

Commercial and Industrial Supplies—Lighting.—Tariff "A" Block Rate for energy consumed between two consecutive monthly meter readings:—

Up to and including 500 kilowatt-hours	5¾d. per kilowatt-hour.
For all further consumption in the same period	3d. ,,

Power and Heating.—Tariff "C" Block Rate for energy consumed between two consecutive monthly meter readings:—

Up to and including 500 kilowatt-hours	2d. per kilowatt-hour.
For the next 4,500 kilowatt-hours	1¼d. ,,
For the next 20,000 kilowatt-hours	0·9d. ,,
For all further consumption in the same period	0·8d. ,,

Tariff "D" Maximum Demand Rate—

Not applicable to any consumer whose monthly consumption is less than 5,000 kilowatt-hours.

For each kilowatt of Maximum Demand recorded during the month in respect of which the charge is made	17s. per month.
and for all energy consumed	0·3d. per kilowatt-hour.

Any consumer applying to be charged under this tariff shall be deemed to have agreed to his being charged accordingly for a period of not less than twelve consecutive calendar months.

In the event of the consumption in any one month being less than 5,000 kilowatt-hours, the Commission may thereupon discontinue the application of this Tariff "D."

Tariff "E"—Restricted Hour—Two Rate—

For energy consumed between 10 p.m. and 7 a.m.	0·5d. per kilowatt-hour.
For energy consumed during other periods of the day of 24 hours	2d. ,,

Tariff "F"—Commercial Cooking—

For energy consumed in connexion with the use of electric cooking ranges	1¼d. per kilowatt-hour.

Tariff "G"—Domestic.—For all purposes in dwellings, i.e., lighting, heating, cooking, power, &c. Service charge per room per month, payable quarterly in advance, 1s., and for all energy consumed, 1¼d. per kilowatt-hour. No meter rent. Passages, pantries, cupboards, bathrooms, lavatories, cellars, entrance halls, porches, cloak rooms, sculleries, workshops, motor garages and wash-houses, and also vestibules and verandahs, unless such vestibules and verandahs are used as living rooms), are not counted as rooms. Outside lighting is exempt from the service charge, excepting in the cases of lighting for tennis courts, bowling greens and croquet lawns, the service charge for which is 5s. per month for each electrically-lighted tennis court, bowling green and croquet lawn.

ELECTRIC SUPPLY UNDERTAKINGS OPERATED BY VARIOUS AUTHORITIES IN METROPOLITAN AREA.

District.	Population.	Supply Authority.	System of Supply.	Consumers.		Tariffs.
				Lighting.	Other Purposes.	
Brighton ..	500,000	*Melbourne Electric Supply Co. Ltd.	A.C., 1 ph., 200–400 v. ..	105,273	3,416	See footnote
Collingwood ..			A.C., 3 ph., 230–400 v. ..			
Camberwell ..			A.C., 1 ph., 200–400 v. ..			
Caulfield ..			,, ,, ..			
Cheltenham ..			,, ,, ..			
Fitzroy ..			A.C., 3 ph., 230–400 v. ..			
Hawthorn ..			A.C., 1 ph., 200–400 v. ..			
Kew			,, ,, ..			
Mentone ..			,, ,, ..			
Malvern ..			,, ,, ..			
Mordialloc ..			,, ,, ..			
Oakleigh ..			,, ,, ..			
Prahran ..			,, ,, ..			
Richmond ..			A.C., 3 ph., 230–400 v. ..			
St. Kilda ..			A.C., 1 ph., 200–400 v. ..			
Sandringham ..			,, ,, ..			
South Melbourne			A.C., 3 ph., 230–400 v. ..			
City of Melbourne	105,200	Melbourne City Council ..	D.C., 230–460 v. / A.C., 3 ph., 230–400 v.	22,411	(total)	
Aspendale, Chelsea, and Carrum	7,000	Carrum E.S. Co. ..	A.C., 3 ph., 230–400 v. ..	1,600	..	
Brunswick ..	47,000	Brunswick City Council ..	,, ,, ..	10,032	424	
Box Hill ..	15,800	Box Hill City Council ..	,, ,, ..	4,076	..	
Coburg ..	33,000	Coburg City Council ..	,, ,, ..	6,407	93	
Doncaster ..	2,000	Doncaster Shire Council ..	A.C., 1 ph., 200–400 v. ..	350	..	
Footscray ..	48,000	Footscray City Council ..	A.C., 3 ph., 230–400 v. ..	9,500	(total)	
Heidelberg ..	15,700	Heidelberg Shire Council	,, ,, ..	4,729	1,443	
Northcote ..	39,376	Northcote City Council ..	A.C., 3 ph., 230–400 v. ..	9,515	(total)	
Preston ..	22,000	Preston City Council ..	,, ,, ..	4,000	..	
Port Melbourne	12,000	Port Melbourne City Council	,, ,, ..	1,800	250	
Williamstown ..	20,000	Williamstown City Council	,, ,, ..	4,700	79	

NOTE.

The Commission's Standard Metropolitan Tariffs (see statement following list of towns served by State Electricity Commission) apply in all those towns excepting Aspendale, &c., and Doncaster, where the charges are 8d. for lighting and 4d. for power.

The Melbourne City Council has the Standard Two-part Domestic Tariff in operation, but its power tariffs are:—Block Rate: First 500 units in any one month, 1¾d. per unit; next 500 units in any one month, 1d.; all further consumption in any one month, 0·8d. per unit. Restricted Hour Flat Rate: Up to 500 units during any one month, 1¾d. per unit; for next 500 units in any one month, 1d. per unit; for next 9,000 units, 0.8d. per unit; all further consumption, 0·65d. per unit. Maximum Demand Rate: 2d. per unit for the quantity of energy equivalent to 90 hours' use per month of consumers' maximum demand, and 0·3d. per unit for all energy over that quantity.

APPENDIX No 5—*continued.*

ELECTRIC SUPPLY UNDERTAKINGS OPERATED BY VARIOUS MUNICIPAL AND PRIVATE UNDERTAKERS—RURAL DISTRICTS.

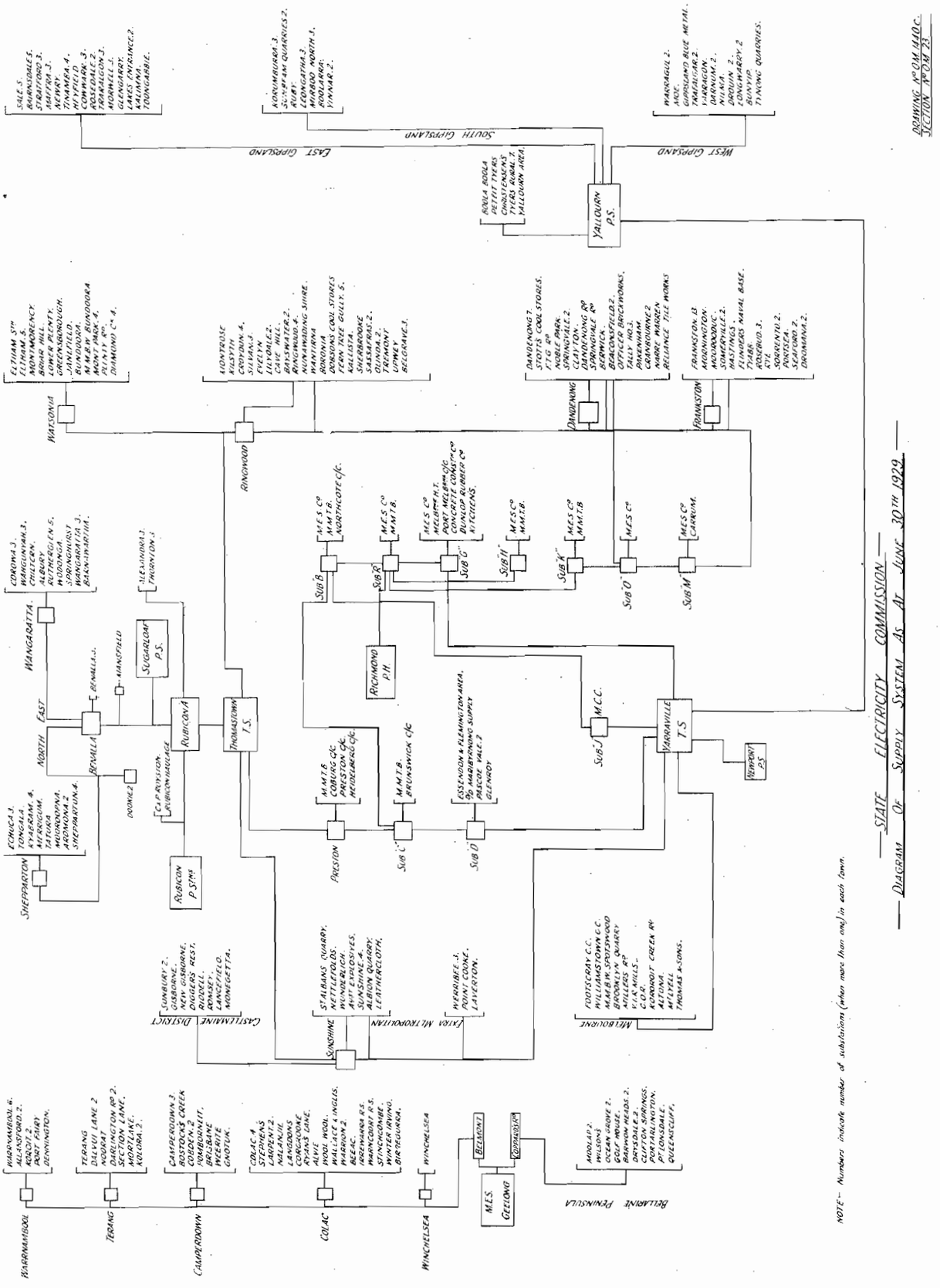
Locality.	Population.	Supply Authority.	System of Supply.	No. of Consumers.		Price per Unit.	
				Light.	Power.	Lighting.	Power.
Ararat	4,700	Ararat Borough Council	A.C., 230–400 v.	630	210	1s.	6d.
Avoca	800	Avoca E.S. Co.	,,	130	40	1s.	6d.
Bacchus Marsh	1,400	Bacchus Marsh Shire Council	,,	305	..	1s.	6d.
Ballarat	40,000	Electric Supply Co. of Victoria Ltd.	,,	4,500	(total)	9d., and 9d. to 5d.	3½d. to 1½d., with fuel clause
Ballan	450	Ballan E.S. Co. Ltd.	,,	150	..	1s. 3d.	9d.
Beaufort	1,400	Ripon Shire Council	,,	200	..	1s. 6d.	9d.
Beechworth	2,600	Beechworth Borough Council	,,	300	..	1s.	6d. (maximum)
Bendigo	35,000	Electric Supply Co. of Victoria Ltd.	,,	4,000	(total)	9d., and 9d. to 5d.	4d. and 1½d., with fuel clause
Beulah	550	Karkarooc Shire Council	D.C., 230 v.	103	15	1s. 6d.	9d.
Birchip	945	Birchip E.S. Co. Ltd.	,,	220	..	11d.	6d.
Boort	700	Boort Co-op. Butter and Ice Co.	,,	175	56	1s. 3d. to 9d.	6d. to 4½d.
Broadford	800	Broadford Shire Council	,,	200	..	9d.	
Casterton	1,900	Casterton E.S. Co.	,,	250	15	1s.	7½d.
Castlemaine	5,500	Castlemaine E.S. Co.	D.C., 230–460 v.	673	..	1s.	5d.
Charlton	1,031	Charlton E.L. Co.	D.C., 230 v.	348	73	1s. to 9d.	4½d.
Cohuna	..	Federal Milk Pty. Ltd.	,,	210	12	1s.	9d.
Coleraine	900	Coleraine and W.D.B.F. Co. Ltd.	,,	155	10	1s. 2d.	
Daylesford	3,400	India Rubber G.P. and T.W. Co.	D.C., 230–460 v.	495	..	10d.	5d.
Dimboola	1,500	Dimboola Shire Council	,,	281	94	1s. 2d.	7d.
Donald	1,800	Donald Shire Council	D.C., 230 v.	400	..	1s.	6d.
Eaglehawk	4,719	Eaglehawk Borough Council	D.C., 230–460 v.	630	..	9d.	5½d., and 4½d. to 1½d.
Elmore	700	Elmore Elec. Supply Co.	D.C., 230 v.	162	..	1s.	
Foster	650	Toora–Foster Elec. Co.	A.C., 230–400 v.	See Toora		10d.	4d. to 1d.
Garfield	..	M. O'Donohue	D.C., 230 v.	50	..	1s.	6d.
Geelong	32,000	Melbourne Elec. Supply Co. Ltd.	A.C., 230–400 v.	7,845	(total)	8½d. to 4d.	4½d. to 2d.
Hamilton	5,098	Hamilton E.S. Co.	D.C., 230 v.	893	..	10d. to 8d.	7d. to 1½d.
Healesville	2,400	Healesville Shire Council	A.C., 230–400 v.	363	127	10d. to 6d.	4d. to 3d.
Heathcote	1,200	McIvor Shire Council	D.C., 230 v.	190	..	1s.	6d.
Hepburn	350	Hepburn Springs E.S. Co.	A.C., 230–400 v.	100	..	1s. 3d.	10d.
Hopetoun	800	Karkarooc Shire Council	D.C., 230 v.	94	41	1s. 6d.	9d.
Horsham	4,500	Horsham E.S. Co.	D.C. 230–460 v.	865	65	10d.	5d.
Inglewood	1,100	Inglewood Borough Council	D.C., 230 v.	168	..	1s.	
Jeparit	800	H. J. W. Block	,,	191	17	1s.	6d.
Kangaroo Flat	840	Marong Shire Council	A.C., 230–400 v.	60	..	1s.	6d.
Kaniva	500	Lawloit Shire Council	,,	108	3	1s. 3d.	6d.
Kerang	2,600	Kerang Shire Council	D.C., 230 v.	455	45	10d.	5d. to 4d.
Kilmore	900	Kilmore Shire Council	,,	192	22	1s. to 6d.	7d.
Koondrook	300	Koondrook Shire Council	A.C., 230–400 v.	60	..	1s. 3d.	9d.
Koo-wee-rup	500	Koo-wee-rup E. L. Co.	A.C. 1 ph., 230 v.	60	..	Domestic light, 2s. per room per month, and 2d. per unit	
Korong Vale	500	Korong Shire Council	A.C., 230–400 v.	150	..	1s.	6d.
Kyneton	3,120	Kyneton Borough Council	,,	575	..	10d.	5d.
Lorne	250	Winchelsea Shire Council	D.C., 230 v.	100	..	1s. 6d. to 1s.	
Maryborough	5,120	Maryborough Borough Council	A.C., 230–400 v.	341	136	1s.	5d.
Mildura	6,000	Mildura Town Council	D.C., 230–460 v.	1,100	(total)	11d.	2½d., and 6d. to 1.49d.
Minyip	700	Dunmunkle Shire Council	D.C., 230 v.	165	(total)	1s. 2d.	8d.
Mornington	2,100	Mornington Shire Council	A.C., 230–400 v.	283	208	1s.	4d.
Murrayville	400	Walpeup Shire Council	A.C., 230–400 v.	..	..	1s. 6d.	1s.
Murchison	600	Waranga Shire Council	A.C., 230–400 v.	100	..	1s. 3d.	6d.
Nagambie	750	Goulburn Shire Council	D.C., 230 v.	150	..	10d.	6d. to 5d.
Nathalia	860	Numurkah Shire Council	D.C., 230–460 v.	200	..	1s. 4d.	8d.
Natimuk	559	H. C. Woolmer	A.C., 230–400 v.	70	..	1s. 6d	9d.
Nhill	1,750	Lowan Shire Council	D.C., 230–460 v.	250	..	1s. 3d.	9d. to 5d.
Numurkah	1,350	Numurkah Shire Council	D.C., 230 v.	300	..	9d.	5d. to 3½d.
Nyah	..	Swan Hill Shire Council	A.C., 230–400 v.	40	..	1s. 3d.	6d.
Orbost	2,000	Orbost Butter and Cheese Co.	D.C., 230 v.	250	80	10d.	6d.
Ouyen	700	Walpeup Shire Council	,,	140	..	1s.	
Pyramid	500	Gordon Shire Council	A.C., 230–400 v.	75	..	1s. 6d.	9d.
Quambatook	450	Kerang Shire Council	D.C., 230 v.	86	8	1s. 3d.	9d.
Rainbow	900	Rainbow E.L. Co.	,,	145	..	1s.	1s. to 8d.
Rochester	1,487	Commonwealth E.S. Co.	,,	360	12	1s. to 6d.	7d. to 6d.
Rupanyup	700	Dunmunkle Shire Council	,,	125	..	1s. 3d.	8d.
Rushworth	1,200	Waranga Shire Council	,,	275	(total)	11d.	6d. to 1½d.
Sea Lake	600	Wycheproof Shire Council	,,	175	(total)	1s. 4d.	6d. to 4½d.

Appendix No. 5—*continued.*

Electric Supply Undertakings Operated by Various Municipal and Private Undertakers—Rural Districts—*continued.*

Locality.	Population.	Supply Authority.	System of Supply.	No. of Consumers.		Price per Unit.	
				Light.	Power.	Lighting.	Power.
Seymour ..	2,500	Seymour Shire Council	A.C. 230–400 v. ..	401	147	10d. to 6d. ..	5d. to 2d.
Stawell ..	5,000	Stawell Borough Council ..	A.C., 230–400 v. ..	510	85	10d. ..	5d.
St. Arnaud ..	3,500	St. Arnaud Borough Council ..	,, ..	321	..	1s. and 11d. ..	6d. and 5d.
Swan Hill ..	3,031	Swan Hill Shire Council	,, ..	450	100	1s. to 3d. ..	5d. to 1d., and 3½d.
Toora ..	350	Toora Foster Elec. Co. Ltd. ..	,, ..	90	50	1s. ..	4d. to 1d.
Trentham ..	750	Kyneton Shire Council	,, ..	120	..	1s. 3d. ..	6d.
Ultimo ..	250	Swan Hill Shire Council	,, ..	30	..	1s. 3d. ..	6d.
Violet Town ..	600	Violet Town Shire Council ..	D.C., 230 v. ..	91	23	1s. 6d. ..	6d. and 3d.
Warburton ..	1,000	Yuthong Electric Coy.	.. ..	140	..	1s. per month per 25 c.p. lamp	9d.
Warracknabeal	2,800	Warracknabeal E.L. Co. ..	A.C., 230–400 v. ..	310	..	1s.	6d.
Warragul ..	1,910	River Latrobe H.E. Co.	,, ..	222	200	1s. 3d. to 9d. ..	4d. to ½d.
Wedderburn ..	1,100	Korong Shire Council .. .	,, ..	150	..	1s.	6d.
Wodonga ..	2,270	Wodonga E.S. Co.	D.C., 230 v. ..	216	..	9d.	7d. to 6d
Woodend ..	1,000	Newham and Woodend Shire Council	D.C., 230 v., and A.C., 110 v.	198	15	1s. 3d. ..	6d.
Wycheproof ..	800	Wycheproof Shire Council ..	D.C., 230 v. ..	160	(total)	1s. 3d. ..	6d. to 4½d.
Yarram ..	1,200	Yarram H.E. Co.	A.C., 230–400 v. ..	250	..	11d. ..	5d. to 4d., and 2d.
Yea	950	Yea Shire Council	,, ..	70	..	1s. (maximum)	

APPENDIX No. 6.



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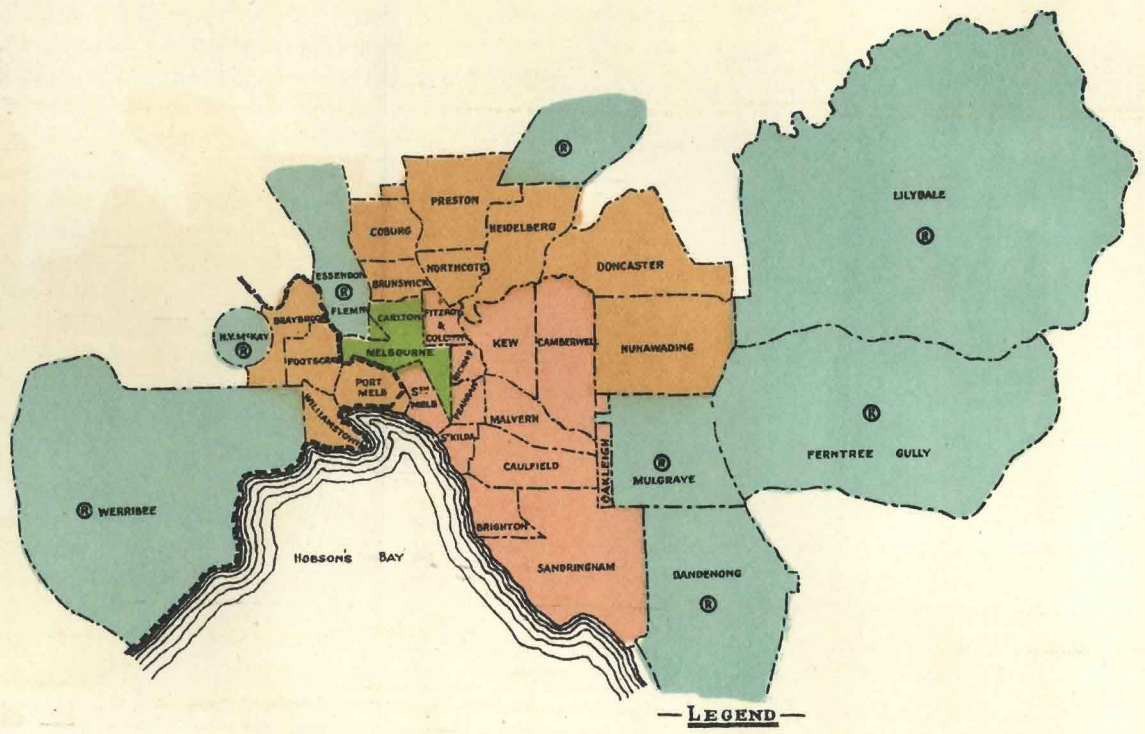
— ELECTRICALLY SUPPLIED AREAS IN VICTORIA —

ELECTRICALLY SUPPLIED AREAS
MELBOURNE, MELBOURNE SUBURBS & LILYDALE



— LEGEND —

- Areas supplied in bulk by S.E.C.
- Ⓡ Area, including local distribution, supplied by S.E.C.
- Area of Retail supply by M.E.S Cº (whole of Cºs requirements supplied in bulk by S.E.C.)
- Area of Retail supply by M.C.C (portion of Council's requirements supplied in bulk by S.E.C.)

— LEGEND —

- Municipal Electric Supply Undertakings Generating Own Supply.
- (Taking Bulk Supply from S.E.C. & Retailing)
- Private Electric Supply Undertakings
- Electric Traction Combined with Lighting and Power Supply
- Towns Operated By S.E.C.
- Main Transmission Line Yallourn — Melbourne.
- Trunk & Sub-Trunk Transmission Lines
- Transmission Lines Approved but not under construction
- Thermal Power Station.
- Hydraulic Power Stations.
- Terminal Stations (In operation & under construction)

SECTION Nº O.M.22. DRAWING Nº O.M.1549.