1921.

VICTORIA.

STATE ELECTRICITY COMMISSION OF VICTORIA.

SECOND ANNUAL REPORT

FOR THE

FINANCIAL YEAR ENDED 30TH JUNE, 1921;

TOGETHER WITH

STATEMENT OF ACCOUNTS.

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22nd November, 1921.

The Hon. Arthur Robinson, M.L.C.,
Attorney-General,
Melbourne.

Sir,

In accordance with the provisions of section 25 (*b*) of the *State Electricity Commission Act* 1918, No. 2996, we beg to submit our report for the financial year ended 30th June, 1921, together with statement of accounts for that period.

1. NEW LEGISLATION.

The duties devolving on the Commissioners under the *State Electricity Commission Act* 1918, No. 2996, were carried on by them as part-time Commissioners from March, 1919, to 30th June, 1920. During this period the investigations necessary to complete reports and recommendations in regard to the best sources of supply of electricity from Victorian resources were completed, and the Government approved of the conclusions arrived at.

Much preliminary work has been carried out on the scheme decided on by Parliament, and as the work progressed, it became increasingly evident that, to insure a successful issue to the important schemes already entered into as well as the future schemes foreshadowed in the report, the services were required of a Commissioner who could devote the whole of his time and attention to the interests of the Commission and would also naturally take the position of Chairman of that body and preside at its meetings.

This proposal was accordingly submitted to the Government and approved, and a Bill to carry it into effect was passed by Parliament in December last.

In submitting this recommendation to the Government it was pointed out that no provision was made in the existing Act for the appointment of a full-time permanent Chairman, and it would, therefore, be necessary to appoint a General Manager, who would become the permanent Chairman of Commissioners on legislation being passed by Parliament. His colleagues regard the Government and themselves as extremely fortunate in securing the services of Lieutenant-General Sir John Monash, G.C.M.G., K.C.B., Dr. Eng., to fill this important post.

Sir John Monash took up duty as General Manager of the Commission on the 1st October, 1920, and in accordance with the provisions of section 5 of Act No. 3104, passed by Parliament on the 24th December last, was appointed as permanent Chairman of the Commission.

By the same Act the name of the Department was changed from the " Electricity Commissioners " to the " State Electricity Commission of Victoria," as from 10th January, 1921.

2. INVESTIGATION OF MORWELL SCHEME BY A SELECT COMMITTEE OF PARLIAMENT.

Consequent on a letter written by Mr. A. G. M. Michell, M.C.E., read to members by Mr. H. Beardmore, M.L.A., criticising a comparison made by Sir John Monash of the Commission's Morwell Scheme and the Kiewa Scheme as propounded by Mr. Michell, a Select Committee was appointed by Parliament to inquire into the statements made therein. After close inquiry the Committee recommended to Parliament that the Morwell Scheme be proceeded with immediately on the lines proposed by the Commission, namely, the erection of a central generating station at Morwell, an auxiliary station in the metropolis, and the utilization of water power at a subsequent stage when a fuller supply is required.

Following the Select Committee's recommendation, legislation was passed by Parliament providing a further sum of £1,430,000 for the prosecution of the constructional works of the Commission then in hand or projected, this being the amount of the estimated expenditure for the year ended 31st December, 1921.

3. CONTROL OF ELECTRICAL UNDERTAKINGS.

Under the provisions of the Electric Light and Power Act as originally framed, Municipal Councils were entitled to an Order under that Act, but, in order that more effective supervision might be exercised on existing and future undertakings, power was asked by the Commission to modify that provision as far as future Orders in Council are concerned.

To that end a clause was inserted in Act No. 3104 (section 15) as under :—

> 15. Notwithstanding anything in section eight of the *Electric Light and Power Act* 1915 a Council shall not be entitled to an Order under that Act for its municipal district in any case where the Commission recommends to the Minister that such Order should not be granted, and any Order hereafter granted to a Council shall be subject to such conditions as the Governor in Council on the recommendation of the Commission thinks fit.

At the same time and in the same Act (section 18), provision was made that before any undertaker could erect a generating station or extend an existing generating station the consent of the Commission must be obtained.

This provision was inserted on account of numerous applications having been received, particularly from municipalities, for the right to generate electricity in districts which will come within the range of the transmission lines of the Commission. The Commission has viewed these applications with concern, more especially from the viewpoint of the municipalities themselves.

The erection of costly generating plants to supply such districts as those above referred to would only mean that the municipality must scrap the plant when the Morwell transmission lines, supplying energy at a much lower rate than the municipality could possibly generate, are brought into operation, probably at no distant date. Although a percentage of the initial cost of the plant would presumably be recovered by the municipality, it would nevertheless be faced with a serious loss on the transaction with no appreciable gain for the period of operation against which this loss can be offset.

Moreover, the creation at this date of small local generating stations in districts within the probable range of transmission from the State's own generating stations would conflict with the policy of the Government in inaugurating a State scheme which has as its objective, as expressed in the Act, the economic and effective supply of electricity and the amalgamation or concentration of all electrical undertakings throughout the State.

4. POWER REQUIREMENTS OF METROPOLITAN AREA.

A problem which has been engaging the constant attention of the Commission since its appointment has been the necessity of meeting the urgent demands for electrical energy for industrial purposes in the metropolis during the year 1923 and prior to the estimated date at which the Morwell Scheme can be brought into full operation.

The only possible source from which such demands could be met is the existing Newport Generating Station. Therefore, the matter was taken up with the Railways Commissioners, with a view to arriving at the best possible solution of the difficulty.

As a consequence, the Commission submitted to the Government the following proposals :—

(*a*) The Electricity Commission to erect on the site immediately adjacent to the existing Newport Power House a new Power House to be known as the Newport "B" Station, embodying the following features :—

(1) Morwell Brown Coal to be used as fuel, either raw or briquetted.

(2) Frequency to be 50 cycles.

(3) To be linked up with the existing Newport Power House through the medium of Frequency Changers.

(4) To be adapted to be linked up with the future Newport Terminal Station of the Morwell Power Station, the initial installation to comprise one 14,000 kilowatt turbo-generator with a second generator of similar size as a stand-by.

(*b*) The Electricity Commission to be supplied until June, 1923 (when it is anticipated the new Power Station will be in operation), with a maximum of 12,500 kilowatts of 25 cycle energy for distribution and re-sale to consumers other than the Railway Department.

(*c*) That the Commission has the right to purchase for distribution and re-sale all electrical energy, the production of either or both Power Houses, which might be surplus to the Railway Department's requirements, this surplus being over and above the 12,500 kilowatts referred to.

(*d*) With the coming into operation of the Morwell Station, the Newport " B " Station to take peak loads only, the more constant demands (other than Railway requirements) being met by the Morwell Station.

It will be noted that, when the new Station and the Morwell Power Station are in operation, both these Stations and the Newport " A " (Railway) Power Station will be linked together. The State-owned Power Stations will thus be in the position of rendering mutual assistance in the event of breakdown at any one of the Stations. Furthermore, this arrangement will reduce to a minimum the amount of spare plant required to be installed, and will, of course, decrease the risk of cessation of supply through failure of operating plant, thereby enabling these State-owned Stations to be operated at a maximum of efficiency and reliability.

With the approval of the Government, Messrs. Merz and McLellan, who carried out the Electrification of the Suburban Railways, have been engaged to design and supervise the erection of the Newport " B " Station in its entirety. The new Station will be practically an extension of the existing generating station erected as part of the Railways Electrification Scheme; therefore, this firm of engineers is in possession of full and complete information as to the work which has been intrusted to them.

In the instructions to its consulting engineers for this work the Commission particularly stressed the urgency of having the new Station in operation by May, 1923, so that the electric supply position could be relieved.

As the Commission is the sole distribution authority for bulk supply throughout the State, provision for the transfer of the powers conferred on the Victorian Railways Commissioners under the *Railways Act* 1918 to supply electricity in bulk to undertakers, companies, &c., within the area defined by that Act, viz., Footscray, Williamstown, Port Melbourne, &c., was included in the *State Electricity Commission Act* 1920, No. 3104.

5. STANDARDS OF PLANT—SYSTEMS—FREQUENCY, ETC.

Section 11 of Act 2996 directed the Commission to inquire into the question of securing the adoption of such standards of plant and equipment of a system, frequency and pressure for the generation and distribution of electricity as will admit of the efficient interconnexion of undertakings throughout the State.

The Commission has given this question careful consideration, and will shortly be issuing regulations dealing with these standards.

6. CUSTOMS DUTIES ON IMPORTATION OF MACHINERY.

In the Report issued by the Electricity Commissioners in November, 1919, reference was made to the considerable effect that Customs Duties would have upon the amount of capital proposed to be expended on the Morwell Scheme.

A large proportion of the very special plant and machinery required being either unobtainable in Australia, or only procurable at a prohibitive cost, representations were made to the Customs authorities for the remission or reduction of duties on this class of material. The Commonwealth Government has now advised the Victorian Government that it is prepared to admit, under Tariff Item No. 174, United Kingdom, Preferential Tariff free, General Tariff 10 per cent., plant which either could not have been manufactured in Australia at the date of placing the order, or could have been manufactured here only at a prohibitive cost.

This decision will have the effect of partly removing what would otherwise have proved a most onerous burden to the Victorian manufacturer.

7. ELECTRIC LIGHT AND POWER ACT 1915.

Reference was made in the first annual report of the Commission to the fact that a number of country undertakings were finding it increasingly difficult to operate without incurring financial loss.

This experience has unfortunately been further confirmed during the period under review. Reference to the statement relating to operations of electrical undertakings appended hereto will show that the Commission has found it necessary, after careful investigation, to recommend, in the case of many small undertakings operating their own generating stations, amendments of their Orders in Council to allow of increased charges for electricity supplied.

The chief reasons for these increases have been the largely enhanced cost of labour and materials, the latest wages award governing wages and conditions of engine-drivers having, in some cases, almost doubled working expenses.

Attached is a statement of the Electric Supply Undertakings operating in Victoria under the provisions of the *Electric Light and Power Act* 1915 as at 31st December last, also setting out the prices charged by these respective undertakers. Since the passing of the *Electric Light and Power Act* 1896, 154 Orders have been granted authorizing the supply of electricity, of which 87 were granted to municipal councils and 67 to private undertakers. Fifteen Orders in Council have been cancelled and seven municipal councils transferred their powers wholly or in part to private companies for periods up to 30 years.

8. LICENSING OF WIREMEN.

Reference was made in the first Annual Report to the appointment of a committee to deal with applications for licences without examination. The date fixed by the Governor in Council for the granting of licences under the Rules without examination was the 30th September last, and up to that date the committee had dealt with over 2,500 applications for the three grades of licences.

The Committee consisted of—

Mr. C. S. Willers (Fire Underwriters' Association).
Mr. W. Cumming (Electrical Contractors' Association); and
Mr. G. Henderson (Electrical Trades Union).

The Commission desires to record its thanks to the members of this Committee for the very painstaking and thorough manner in which they performed their difficult task.

A Board of Examiners was also appointed for the conduct of examinations under the Rules, the Board at present consisting of—

Mr. F. W. Chambers, Electric Inspector.
Mr. F. W. Green, Swinburne Technical College.
Mr. T. F. Whitelaw, Electric Supply Department, Melbourne City Council.

During the period under review two examinations have been held.

It was found necessary to amend the original Licensing of Wiremen Rules which came into force on the 1st April, 1920, in order to bring them into line with actual working conditions. Amended Rules were brought into operation on the 1st May last.

The Commission has arranged with the Fire Underwriters' Association for their Chief Inspector and Assistant Inspector to act as honorary inspectors under the Rules. This was necessary in order to carry out the supervision of the work of wiremen, thus obtaining the best results from the Rules. It is also a means of preventing overlapping in connexion with the appointment of Inspectors to supervise wiring work.

The superintendents of the various electric supply undertakings are also assisting the Commission in enforcing the Rules and are reporting breaches of the Rules.

As the result of reports made by its Inspectors and the Board of Examiners, the Commission is strongly of the opinion that there is room for improvement in electric wiring work. Steps are therefore being taken which should insure the gradual raising of the standard of this work. Already the Rules are having a good effect in regard to workmanship and class of material used, and the Commission anticipates that, as a result of the legislation enacted by Parliament, better results may be expected for the future.

The total licences and permits issued since the coming into operation of the Licensing of Wiremen Rules are :—

Grade.	Number.
A	1,017
B	319
C	329
Special Licence	1
Permits	580

9. COAL SUPPLY BRANCH.

Keeping in view the urgency of providing fuel for industrial and domestic purposes at a cheap rate, the Commission has, during the period under review, made every endeavour to open up the Morwell Coal Deposits well in advance of the date when brown coal will be required for the generation of electricity.

After a thorough investigation on the ground, the Commission's Consulting Engineer for Coal Supply, Mr. Lindesay C. Clark, submitted his final scheme for the working of the Open Cut on the 1st October, 1920. This scheme was approved by the Commission and its immediate execution authorized.

The proposed method of operation is based on the use of large revolving shovels for excavating both the overburden and the coal. This type of shovel has reached its highest point of development in the United States where the size and range of these machines is much greater than elsewhere. An order was therefore placed with the Bucyrus Company for two Bucyrus Shovels, the dippers of which will have a capacity of 2½ and 3½ cub. yards respectively. The landed cost of these shovels at site will amount to approximately £58,000. The shovels are now being shipped, and, so that operations can be commenced at the earliest possible date, the construction has already been commenced of an inclined approach through the overburden to the surface of the coal.

The transport and dumping of the overburden will be effected by belt conveying machines. Special features are embodied in this apparatus which has been designed by the Commission's staff to meet the special conditions under which it will operate.

It is intended to use one of the Bucyrus Shovels on the removal of the overburden and the other on the actual winning of the coal. From the shovel the coal will be transported from the Open Cut to the Crushing and Screening Plant by endless rope haulages. The Rope Haulage system has been ordered from the Mead-Morrison Manufacturing Company, U.S.A., which specializes in this type of apparatus. The amount of the contract is £31,225 at manufacturer's works.

Tenders for this apparatus were invited only within the Commonwealth, but as no tender was received from an Australian manufacturer, other arrangements had to be made to obtain the plant required.

The design of the Crushing and Screening Plant is now receiving attention, and also the storage bins at the railway sidings.

Arrangements have been made with the Railway Department for the construction of sidings at Yallourn to assist in the transport of the coal to the metropolis. It is anticipated that the construction of these sidings will be put in hand very shortly.

Special consideration is being given to the problem of the distribution of coal to the consumers.

The plant to be installed at Yallourn provides for an initial output of 1,000 tons per day, which demand, it is thought, will be rapidly increased. It is anticipated that the Commission will be in a position to supply raw brown coal to the public in June, 1922.

Exploratory Work.—Up to the present boring of the coal area has been carried out only on the Western side of the Moe–Morwell Railway line. Arrangements have been made with the Mines Department to explore the ground on the Eastern side of the line in order to ascertain whether the deposits of brown coal continue in this area, and to determine their nature and extent.

The Commission is devoting some attention to the utilization of pulverized brown coal.

Considerable attention has been given in the last few years in various parts of the world to the use of pulverized black coal as a fuel. The results have been sufficiently encouraging to justify experiments to ascertain how far the like treatment may be successfully applied to brown coal.

With this end in view plans have been prepared for the installation of an experimental plant for the production of brown coal in powdered form in order to investigate its suitability for locomotives and stationary boilers and furnace work in general. These experiments will be carried out in conjunction with the Railway Department, and should they prove a success will assuredly be of great assistance to Victorian industries.

10. BRIQUETTING AND RESEARCH BRANCH.

In order to give effect to the Commission's recommendation as contained in the Report issued in November, 1919, it was decided to appoint Mr. H. Herman, formerly Director of Geological Survey in the Mines Department, as Engineer in charge of Briquetting and Research to the Commission. Mr. Herman took up duty on the 1st October, 1920, and early in December was commissioned to visit Europe in order to ascertain the latest practice in connexion with briquetting of brown coal, particularly on the German and Austrian brown coal fields, it being the Commission's intention to install a briquetting plant with an initial capacity of 300 tons per day.

The necessary loan moneys for this work were made available by Parliament in December last under Act No. 3101.

Samples of Morwell brown coal were briquetted in Germany under the supervision of our briquetting engineer, and the results indicate that briquettes made from Morwell coal are equal in every way to the best German briquettes. Furthermore, the analysis of Morwell coal by German engineers indicates the Morwell coal to be at least equal in quality to the best German brown coal.

From information received from Mr. Herman it is apparent to the Commission that it will be called upon to recommend to the Government that the essential portions of the plant be imported from Germany, as without doubt the briquetting of brown coal without the addition of any binding material is at its highest point of development in that country.

Tenders have now been invited for the supply of a Briquetting Factory containing five briquetting presses, the factory to have an output of 96,000 tons per annum.

Although the main object of Mr. Herman's visit abroad was to investigate the latest practice in the briquetting of brown coal, he is also making inquiries and collecting information in relation to the latest developments in connexion with pulverized fuel and by-product recovery.

11. ELECTRIC SUPPLY BRANCH.

The preparation of the designs and specifications for the electrical portion of the plant and apparatus required for the scheme as recommended to the Government was sufficiently advanced in September, 1920, to enable tenders being invited.

At a later date Specifications were also prepared and tenders invited for the supply and erection of a complete boiler house equipment for the Power Station at Morwell, capable of supplying the necessary steam requirements for an output of 50,000 kilowatts.

Tenders were also invited for the steel framing and roofing of the buildings to house the boilers and generator plant.

Tenders for the electrical plant closed at the end of March last, and judging by the number and the complete manner in which tenders were submitted, it is evident that the Morwell scheme has aroused world-wide interest.

The more important tenders accepted by the Commission are set out hereunder.

MORWELL.

Specification No.	Plant, &c.	Contractors.	Amount.
32	Turbo-alternators, condensing plant, and spare parts	Metropolitan Vickers Ltd.	£305,234
33	Transformers, switchgear, Morwell Power Station ..	Australian General Electric Co. ..	£134,000
37	Aluminium cable	Aluminium Co. of America	$365,663
38	Transmission towers	Milliken Bros.	£72,858
39	Suspension and Strain Insulators	Ohio Brass Co.	$137,700
41	Synchronous condensers, transformers, switchgear, &c., for Newport Terminal Station	Australian General Electric Co. ..	£228,940
42	Transformers, switchgear, &c., for sub-stations ..	Australian General Electric Co. ..	£53,936
45	Telephone wire	British Ins. and Helsby Cables Ltd. ..	£5,070

In some cases the amounts of the contracts are subject to slight adjustments, but in all cases they represent the cost free along side ship at the port of shipment.

The following features of the plant and apparatus to be supplied and now on order will be of interest:—

(Specification No. 32).—The 12,500 kilowatt turbo-generators, five of which have have been ordered from the Metropolitan Vickers Company, Manchester, will operate at a speed of 3,000 r.p.m., which represents the latest practice in the design and manufacture of sets of such large size. Steam will be supplied at a pressure of 250 lbs. per square inch, superheated to a temperature of 630 degrees F. The turbines will be of the impulse type, fitted with Baumann's patent multi-exhaust low pressure blading and also with integral condensate heaters. The condensing plant and circulating water pumps for each turbine will be manufactured at the works of the sub-contractors, Thompson and Co., Castlemaine, the value of such portion of the plant amounting, in the aggregate, to about £120,000.

(Specification No. 33).—For the Morwell Power Station the whole of the switchgear for the control of the generators, step-up transformers, and overhead transmission line conductors, will be manufactured by the General Electric Company, U.S.A., and will be designed for outdoor use. This design while slightly increasing the first cost of the switchgear will result ultimately in considerable economy by the dispensation of costly buildings, and concrete structures necessary for the indoor type. This will be the first installation of its kind in Australia, although there are many in satisfactory use in the United States where the climatic conditions are much more severe than those obtaining in Victoria.

(Specifications Nos. 37, 38, 39 and 45).—The overhead transmission line will consist of one line of galvanized steel towers to be made by Milliken Brothers Manufacturing Company, spaced about 1,000 feet apart on the average, supporting two circuits, each circuit consisting of three conductors. The total number of towers required will be about 600. The conductors will consist of aluminium wires built around a special steel core of high tensile strength and will be made by the Aluminium Company of America. The finished conductor will have a diameter of 0.741 inches, weighing 2,788 lbs. per mile, and in position will have a minimum clearance of 25 feet from the ground. Altogether about 700 miles of conductor have been ordered. The adoption of aluminium conductors steel reinforced will result in a saving of approximately £80,000 in the total cost of the line, as compared with the cost based on the use of copper. This result is brought about partly by the less cost of the conductors, and partly by the fact that the aluminium conductors are capable of withstanding a greater mechanical tension on account of the steel core, thereby making it possible to increase the spans and decrease the number of towers required, while maintaining the same minimum clearance of the conductors to the ground.

The insulators for the main line conductors are being manufactured by the Ohio Brass Company of U.S.A., a firm of the highest manufacturing repute. For the first line there will be required 29,160 insulators at the cost mentioned above.

The first transmission line from Morwell will follow on a route round the North of Melbourne to the site of the Terminal Station near the existing Power House at Newport.

Parallel to the transmission line and on the same right-of-way, but on separate poles, will be installed a special telephone line for the use of the patrols in effectively patrolling and maintaining the main line.

(Specification No. 41).—At the Newport Terminal Station, where the transmission line will terminate, will be installed the necessary switchgear and transformers for reducing the voltage from 120,000 to 22,000 and 6,600. This gear will also be of the outdoor type. At the same place will be installed two synchronous condensors, each of 15,000 k.v.a. capacity, which will continuously operate, one on each line to maintain constant voltage. In this station a frequency changer of 12,000 kilowatt capacity will be installed to serve as a link between the Morwell system operating at 50 cycles, and the 25 cycle system of the Newport "A" Power House, operated by the Railways Department. This frequency changer will enable power to be transferred from either system to the other as circumstances require.

A site has been chosen on the North side of Stoney Creek, near Newport, for the establishment of the terminal station with its machinery and switchgear. This Station will be connected up with the existing Newport Power Station and the new one under construction by means of underground cables.

(Specification No. 42).—From the Newport Terminal Station will be conveyed by means of overhead and underground cables, energy at 22,000 volts to a number of sub-stations situated within the metropolitan area. The contracts entered into provide for the installation at the Melbourne City Council's Power Station in Spencer-street (sub-station "J") of three banks of transformers of a total capacity of 18,000 k.v.a. for the purpose of stepping down from the voltage of the supply 22,000 volts to 6,600 volts which is required by the city. At the present time the City Council is receiving 5,000 kilowatts of power from the 25 cycle plant at Newport "A" under agreement with the Railways Commissioners. As soon as the 50 cycle supply to the amount stated is made available at Sub-station "J" the aforementioned 5,000 kilowatts at present being supplied from the Newport 25 cycle system will be released and will be used by the Railways Commissioners in connexion with the suburban railway electrification.

Additional Sub-stations, one ("C") at the boundary of Brunswick and Melbourne City and the other ("D") in the North-West of Melbourne, each containing 3,000 k.v.a. of Transformers and Switchgear, will be installed for supplying the requirements of these areas. The necessary lands for these Sub-stations have already been acquired.

Transmission Line Survey.—Preparatory to the erection of the towers for supporting the conductors of the transmission line, a final and detailed survey of the route was taken in hand by Messrs. J. M. and H. E. Coane on behalf of the Commission. A right-of-way varying in width from 110 to 300 feet is being reserved throughout the whole distance from Morwell to Melbourne and the necessary easements on the intervening properties are being acquired.

Newport "B" Power Station.

Owing to the urgency of bringing this station into operation by May, 1923, tenders for the plant and buildings were immediately invited by the Consulting Engineers in England, and the following important contracts have been entered into on behalf of the Commission.

Plant, &c.	Contractors.	Amount.
Four boilers, including coal bunkers, air heaters, &c., and boiler-house building and turbine-house building	Babcock and Wilcox ..	£210,000, delivered and erected
Two turbo-alternators	C. A. Parsons and Co. ..	£101,696, f.o.b.
Two condensing plants	Weymouth and Co.	£43,363, including erection
Switchgear	English Electric Co.	£40,000, f.o.b.
Transformers, step-up and auxiliary ..	Metropolitan Vickers Co. ..	£21,250, f.o.b.
Frequency converter	British Thomson Houston Co. Ltd.	£3,450, f.o.b.
Battery and charging sets	Electric Construction Co. ..	£1,500, f.o.b.

Brown Coal Experiments.—Investigations have been made with the temporary power plant at Morwell as to the most economical method of utilising the raw brown coal in a boiler plant for the production of power, and similar experiments have also been undertaken at the Melbourne City Council's Power Station. During the last two or three years many thousands of tons of raw brown coal have been burned at the latter plant with very satisfactory results, both with regard to the maintenance of the capacity of the boiler and efficiency of combustion. The plant under test at this Station has consisted of a Babcock and Wilcox boiler and stoker fitted with forced draught and a special type of grate link to minimise the riddlings or leakages of coal through the grate.

At the Morwell Temporary Station tests have been made and are still being made on a travelling grate made by the Underfeed Stoker Company, also fitted with forced draught, the furnace design being slightly different from that in use in the City Council's plant. Both types of Stokers have given satisfactory results.

Experiments are also being undertaken at the latter plant with the coal drier attached to a Babcock and Wilcox boiler, the object being to dry the raw fuel on its way to the furnace by the use of the heat in the waste gases passing from the furnace to the stack.

12. TOWNSHIP.

Up to November last some confusion had arisen owing to the township of Morwell having been wrongly associated with the Morwell scheme—in point of fact it is some five miles from the site of the Commission's works. It therefore became necessary for the Commission to decide on a name for its new township, and it was decided to name the township and the site of the works—Yallourn. This name is derived from two native words, Yalleen (meaning brown), and Lourn (meaning fire).

The general lay-out and design of the township by the Commission's staff is now practically complete and will be submitted for Governmental approval at an early date.

For some time past numerous applications have been received from the married employees of the Commission for housing accommodation for their families. It was therefore decided by the Commission to erect as a nucleus of the township, 50 wooden and brick cottages, each containing four rooms. The Commission anticipates that these cottages will be made available to its employees at a cheaper rental than that payable for a similar class of house in Melbourne. The cottages will be fitted with electric light, power points for radiators, and a good water supply will also be available. The erection of the first of these cottages is being carried out by day labour in order to set an example as to the standard of workmanship required.

Investigations of schemes for the installation of sewerage and water supply systems are approaching completion.

13. RAILWAY FACILITIES.

As the result of representations made by this Commission in conjunction with the Railway Department, the Parliamentary Standing Committee on Railways recommended the immediate construction of a section of the proposed deviation of the Moe-Morwell Railway, namely, from Herne's Oak to the site of the Power Station.

Included in this work is a railway siding system which will assist in the transport of the brown coal from the open cut to the metropolis.

On authorization by Parliament construction was immediately started and is now well on to completion.

The Chief Engineer for Railway Construction, Mr. M. E. Kernot, recommended to the Committee that the whole deviation of the line be constructed, but the question of constructing the portion other than that recommended by the Committee has been postponed for the present. From the Commission's point of view it is essential that the remaining portion of this deviation be authorized in order to avoid the existing steep grades on this section of the main Gippsland line and so provide improved railway facilities in connexion with the extensive coal traffic anticipated.

14. GENERAL CONSTRUCTION WORKS.

Morwell.

During the past twelve months considerable attention has been devoted to the erection of temporary quarters for the housing of the workmen to be engaged in the erection of the buildings and plant at Yallourn. Two construction camps have been formed, one close to the open cut area, the other at the site of the Power Station buildings and workshops. The former camp provides accommodation in the form of cubicles for about 150 men, whilst 250 men can be similarly accommodated in the latter camp ; in addition provision has been made for the temporary accommodation of the increased number of workers who will be engaged on the site, particularly during the next summer.

Owing to the vast amount of construction work to be carried out, it was deemed necessary to install a temporary power plant on the ground in order to expedite the work by the use of power-driven plant where possible. The plant as originally designed was brought into operation during April last, and has proved of material assistance in providing the lighting and power required in connexion with the works in progress.

As coal winning operations will commence at an early date, it has been necessary to add to the temporary power plant by installing two other turbo-generator sets together with the requisite steam-raising plant. This plant when completed will have a capacity of 960 kw. A large portion of the machinery of which this plant is comprised was obtained second hand.

Temporary stores and offices have been erected ; also two cement sheds.

The construction of roads has been pushed ahead, the clearing of the main road from Yallourn township to the Power House having been completed, whilst the earth work is in hand for the road from the south end of the township across the Melbourne Swamp. An outcrop of basalt suitable for screenings for concrete work is being worked and a tram line along which the stone will be conveyed to the Power House site has been constructed. For the present a crusher has been installed at the site of the Power House, but it is intended later to erect an additional crusher at the quarry site.

Deposits of clay contiguous to the township site have been tested and found quite suitable for the production of a fair quality brick. As investigation indicated that the cost of locally-made bricks compared favorably with the Melbourne bricks it was decided to install a brick-making plant. Pending the erection of a machine press and kilns, the bricks will be hand pressed, and will be burned as soon as a kiln has been erected on the ground.

Much preliminary work has already been carried out on the site of the open cut so that when the shovels are erected it will be possible to immediately proceed with the removal of the overburden and the winning of the coal.

Owing to the location of the open cut area it was necessary to surround it with a levee bank to exclude flood waters. About half of this bank has been completed, whilst drainage channels have also been constructed to carry off the waters outside the levee bank.

Centrifugal pumps are now in course of manufacture to deal with the water lodging within the levee bank.

The Ruston Proctor Shovel loaned from the Commonwealth Government commenced work in February, 1921, and has been the means of considerably expediting the completion of the flood prevention works.

Before the actual site works for the Power Station buildings could be commenced, much investigation work in connexion with the Weir site, circulating water conduits, screening pits, test bores for foundations, &c., was necessary. This is now completed.

Following on the appointment of the Construction Engineer in October, 1920, a considerable amount of construction plant was obtained and appreciable progress has been made with the excavation work for the buildings. The use of the Ruston Proctor Steam Navvy on this work has been the means of expediting the completion of site works.

As it was necessary for samples of the coal in the open cut area to be obtained for the information of the Engineer in charge of Briquetting and Research, several shafts were sunk. Samples from these shafts have been forwarded from time to time to the Mines Department for analysis.

Newport "B" Station.

The site works for this station, which adjoins the existing Railway Power Station at Newport, were commenced in April: Office, store, workmen's accommodation, &c., have been erected and plant obtained. Good progress is being made on the excavation of the site to the required level.

15. WATER POWER INVESTIGATIONS.

In November last the Commission submitted a special report to the Government in regard to the investigations carried out by its consulting Engineer, Mr. A. G. M. Michell, M.C.E., of the water power resources of the Kiewa River, Rubicon River, and the Sugarloaf Basin at Eildon Weir.

The Commission recommended that the Kiewa scheme as propounded by Mr. Michell should not be gone on with, as the existing demand of the metropolis is not sufficient to justify its embarking on the execution of a hydro-electric scheme of the magnitude and nature outlined in the report.

The Commission pointed out in the report that the North-Eastern district of the State is at present industrially undeveloped, and intimated that it was proposed to continue the investigations which would be directed towards evolving practicable hydro-electric schemes on a more modest scale for the service of such North-Eastern towns or groups of towns.

Instructions were issued to Messrs. J. M. & H. E. Coane to further investigate the resources of the Sugarloaf Weir, Rubicon River, and Snobb's Creek, with this object in view. The Commission hopes to be in a position early next year to present to the Government a definite scheme for utilizing these particular water-power resources.

During the period under review the surveys of the transmission line and other details in connexion with the Kiewa scheme outlined by Mr. Michell were carried to completion under the supervision of Messrs. J. M. and H. E. Coane, in order that this large hydraulic investigation, complete in every detail, will be readily available, should it be decided to proceed with the Kiewa scheme at a later date.

The Commission also has a survey party at present in the Snowy River district investigating the possibility of electric supply from the water-power resources of that district.

16. OFFICE ACCOMMODATION.

Reference was made in the first annual report to the difficulty with which the Commission had been faced in regard to office accommodation. In November last the Commission recommended to the Government that an eight-storied building be erected on the site of the Marine Board Offices at the corner of William-street and Flinders-lane, in order to accommodate its own staff, and making available, for the present, two floors for other Government Departments. This recommendation was approved by the Government, and subsequently the necessary loan moneys were made available, under Act No. 3101, by Parliament for this purpose.

Some little delay was occasioned in connexion with the removal of the old building, but the work is now proceeding with all speed, and it is anticipated that possession will be taken in April or May, 1922.

17. CENTRAL STORE—YARRAVILLE.

In view of the large amount of work which the Commission will be called upon to carry out in the metropolis in connexion with the distribution of electricity and brown coal, it was decided to erect a store on a site at Yarraville, which is deemed very suitable for the purpose required. Steps have been taken to acquire the necessary land, and the erection of buildings and provision for railway sidings will shortly be proceeded with.

18. STAFF.

The administration of the *Electric Light and Power Act* 1915, having, by virtue of section 9 of Act 2996, been transferred to the control of the Commission, arrangements were made for the transfer of the Electric Inspector (Mr. F. W. Chambers) and his staff from the staff of the Public Works Department to the Commission's staff as full-time officers. This arrangement comes into force as from the 1st July, 1921, and is necessitated by the great amount of routine work which the Commission's staff is called upon to carry out under the provisions of the above Act. The Commission is also desirous of employing this staff in instituting a system of inspection of the various undertakings in the State, this being one of the first steps in insuring the objective visualized by Parliament in passing Clause 11 of Act 2996, viz., the safe, economical and effective supply of electricity throughout Victoria.

In addition to the above appointment the following principal officers joined the Commission's staff during the period under review :—

Mr. H. Herman, late director of Geological Survey, as Engineer in charge of Briquetting and Research.

Mr. C. H. Kernot, late of the State Rivers and Water Supply Commission, as Construction Engineer at Yallourn.

Mr. A. R. La Gerche, late of the Public Works Department, to take charge or the Architectural Sub-branch.

Mr. A. G. M. Michell resigned his position as Consulting Hydraulic Engineer in December last, and Messrs. J. M. and H. E. Coane have been appointed in his stead.

In conclusion, the Commission desires to place on record its appreciation of the loyal services which the members of its staff have rendered, thereby assisting materially in insuring the successful progress of the important schemes which have been intrusted to the Commission.

We have the honour to be,

Sir,

Your obedient Servants,

JOHN MONASH, Chairman.
THOMAS R. LYLE, Commissioner.
GEO. SWINBURNE, Commissioner.
R. GIBSON, Commissioner.

R. LIDDELOW, Secretary.

INCREASES IN PRICE AUTHORIZED BY THE COMMISSION.

1st July, 1920, to 30th June, 1921.

Undertaker.	Existing Price.	Proposed Charges.	Decision.
Poowong and Jeetho Shire ..	8d. per unit ..	Lighting, 10d. per unit, with a minimum charge of 5s. for 6 units or less. Power, 6d. per unit, with minimum charge of 5s. for 10 units or less	Approved
Mortlake Butter Factory Co. ..	For any amount up to 20 units, 10s.; and for each unit over 20 units, 9d. per unit	For any amount up to 20 units per quarter, a minimum of 15s.; and for each unit over 20 units, 1s. per unit	,,
Leongatha Butter and Cheese Factory Co. Ltd.	8d. per unit ..	1s. per unit ..	Increase to 10d. per unit approved
Newham and Woodend Shire ..	10d. ,, ..	1s. ,, ..	Approved
Casterton Electric Supply Co. Ltd.	9d. ,, ..	1s. ,, ..	Increase to 10½d. approved; the position to be reviewed in eighteen months
Hampden Shire	8d. ,, ..	9d. ,, ..	Approved
Dimboola Shire	Lighting, 10d. per unit; power, 5d. per unit	Lighting, 1s. per unit; power, 6d. per unit	,,
Castlemaine Electric Supply Co.	.. .. ..	Lighting, 9d. per unit; power, 4½d. per unit	,,
Preston Shire	6d. per unit ..	8d. per unit ..	,,
Mansfield Shire	Lighting, 8d. per unit; power, 4d. per unit	Lighting, 11d. per unit; power, 6d. per unit	,,
Hampden Shire	9d. per unit ..	1s. per unit ..	,,
Horsham Electric Supply Co. ..	8d. per unit, with a minimum monthly charge of 5s.	10d. ,, ..	,,
Indiarubber and Gutta-percha Telegraph Works Ltd. (Shepparton)	Lighting, 8d. per unit; power, 4d. per unit	Lighting, 10½d. per unit; power, 5½d. per unit	,,
Inglewood Borough	8d. per unit, with a minimum monthly charge of 3s. 6d.	10d. per unit ..	,,
Dimboola Shire	Lighting, 1s. per unit	Lighting, 1s. 2d. per unit; power, 8d. per unit	Lighting, 1s. 2d. per unit; power, 7d. per unit
Commonwealth Electric Co. (Rochester)	Lighting—first 50 units per month, 7½d.; second 50 units and over per month, 6d.; third 50 units and over per month, 5d.	Lighting—first 50 units per month, 10d.; second 50 units and over per month, 8d.; third 50 units and over per month, 6d. Power—first 50 units per month, 6d.; second 50 units per month, 4d.	Approved
Rutherglen Shire	Lighting, 8d. per unit; power, 6d. per unit	Lighting, 1s. per unit; power, 8d. per unit	Lighting, 1s.; power, maximum, 6d. Approved
Numurkah Shire	8d. per unit ..	Lighting, 9d. per unit; power, 5d. per unit	Approved. Minimum charge, 15s. per quarter
Winchelsea Shire	1s. per unit ..	1s. 3d. per unit ..	Approved
Dunmunkle Shire (Murtoa) ..	10d. ,, ..	1s. per unit, with power to make a uniform charge of 4s. per month for any amount up to 4 units	,,

INCREASES IN PRICE AUTHORIZED BY THE COMMISSION—*continued.*

1ST JULY, 1920, TO 30TH JUNE, 1921—*continued.*

Undertaker.	Existing Price.	Proposed Charges.	Decision.
Dunmunkle Shire (Minyip) ..	10d. per unit ..	1s. 2d. per unit, with power to make a uniform charge of 4s. 8d. per month up to 4 units	Approved
Jeparit	10d. ,, ..	1s. per unit ..	,,
Wycheproof Shire (Wycheproof)	1s. ,, ..	1s. 6d. ,, ..	Increase to 1s. 3d. per unit approved
Wycheproof Shire (Sea Lake) ..	1s. ,, ..	1s. 6d. ,, ..	Increase to 1s. 4d. per unit approved

NEW ORDERS APPROVED BY THE COMMISSION.

1ST JULY, 1920, TO 30TH JUNE, 1921.

Undertaker.	Area.	Maximum Charge.	
		Lighting.	Power.
Doncaster Shire	Portion of the late Shire of Templestowe ..	1s. per unit	
Bright Shire	Township of Bright	1s. ,,	6d. per unit
Seymour Shire	Shire of Seymour	1s. ,,	
Ripon Shire	Township of Beaufort	1s. ,,	
Mornington Shire	Township of Mornington	1s. ,,	
Stawell Borough	Borough of Stawell	1s. ,,	
Coburg Town	Portion of Shire of Broadmeadows	1s. ,,	

ELECTRIC SUPPLY UNDERTAKINGS OPERATING IN VICTORIA UNDER THE "ELECTRIC LIGHT AND POWER ACT 1915," No. 2645.

Undertaking.	Population.	Supply Authority.	System of Generation and Distribution.	Consumers.	Present Price per kw. hour.	
					Lighting.	Power.
Alexandra ..	700	Alexandra Shire Council ..	D.C., 2-wire, 230 volts	113	1s. ..	6d.
Ararat ..	4,800	Ararat Borough Council ..	A.C., 3-phase, 50 cycles, 240/415 volts	430	8d. ..	3d.
Bairnsdale ..	4,000	A. H. Wood Pty. Ltd. ..	D.C., 230/460 volts	180	7d. ..	4d.
Ballarat ..	42,000	Electric Supply Co. of Victoria Ltd.	D.C., 3-wire, 220/440 volts ..	2,872	8d., 9d. to 3½d.	3d. to 1½d.
Bendigo ..	31,800	,, ,, ,,	,, ,, ,, ...	2,722	8d., 9d. to 4½d.	4d. to 1½d.
Beulah ..	550	Karkarooc Shire Council ..	D.C., 3-wire, 230/460 volts ..	98	1s. 2d. ..	6d.
Birchip ..	900	Birchip Electric Supply Co. ..	D.C., 2-wire, 230 volts	159	11d. ..	9d.
Boort ..	600	Gordon Shire Council ..	,, ,, ,, ...	112	1s. ..	4½d.
Brunswick ..	40,889	Brunswick City Council ..	A.C., 3-phase, 50 cycles, 230/400 volts. Supplied in bulk by M.C.C.	4,615	6d. ..	2d. to 1½d.
Camperdown	3,300	Hampden Shire Council ..	D.C., 2-wire, 230 volts	425	7d. to 4d.	4d.
Carrum ..	3,500	Carrum Electric Supply Co. ..	A.C., single-phase, 50 cycles, 230/400 volts	650	8d. ..	2d.
Casterton ..	1,500	Casterton Electric Supply Co..	D.C., 2-wire, 230 volts	240	10½d. ..	7½d.
Castlemaine ..	6,300	Castlemaine Electric Supply Co.	D.C., 3-wire, 230/460 volts ..	325	9d. ..	4½d.
Charlton ..	1,360	Charlton Electric Light and Power Co.	D.C., 2-wire, 230 volts	230	9d. ..	4½d.
Cobden ..	520	Heytesbury Shire Council ..	,, ,, ,, ...	150	1s.	
Coburg ..	16,950	Coburg Town Council ..	A.C., 3-phase, 50 cycles, 230/400 volts. Bulk supply from M.C.C.	875	5½d. ..	2d.
Cobram ..	700	Tungamah Shire Council ..	D.C., 2-wire, 230 volts	100	1s. ..	8d.
Cohuna ..	..	J. McKenzie King	,, ,, ,, ...	65	9d. ..	6d.
Coleraine ..	1,489	Coleraine and Western District Butter Factory Co.	,, ,, ,, ...	148	10d. ..	7d. and 10d.
Daylesford ..	3,800	Indiarubber, G.P., and T.W. Co. Ltd.	D.C., 3-wire, 230/460 volts ..	311	8d. and 6d.	4d. and 3d.
Dandenong ..	4,000	,, ,, ,,	,, ,, ,, ...	407	8d. and 6d.	4d. and 3d.
Dimboola ..	800	Dimboola Shire Council ..	,, ,, ,, ...	226	11d. ..	5d.
Donald ..	1,500	Donald Shire Council ..	D.C., 2-wire, 230 volts	250	8d., 7½d., 5d.	4½d.
Doncaster ..	..	Doncaster Shire Council ..	A.C., single-phase, 50 cycles, 200/400 volts. Bulk supply M.E.S.	144	7d. ..	3d.
Drouin ..	750	Drouin Co-operative Butter Factory Co.	D.C., 2-wire, 230 volts	84	9d. ..	4½d.
Eaglehawk ..	7,670	Eaglehawk Borough Council ..	D.C., 3-wire, 230/460 volts ..	540	7d. ..	4½d., 1½d.
Elmore ..	700	Elmore Electric Light and Power Co.	,, ,, ,, ..	113	1s. ..	1s.
Essendon ..	38,000	North Melbourne Electric Tramways and Lighting Co.	D.C., 3-wire, 220/440 volts; and 3-phase A.C., 50 cycles, 230/400 volts. Bulk supply from M.C.C. at 6,000 volts	3,375	5½d. ..	3d., 1½d.
Euroa ..	2,000	Euroa Shire Council	D.C., 2-wire, 230 volts	249	9d. ..	6d.
Frankston ..	792	Frankston and District Gas and Electric Co. Pty. Ltd.	3-phase, A.C., 220 volts	135	10d. ..	6d.
Footscray ..	31,251	Footscray City Council ..	A.C., single-phase, 50 cycles, 200/400 volts. Supplied in bulk by M.C.C.	4,836	5d. ..	2d. to 1d.
Geelong ..	25,267	Melbourne Electric Supply Co. Ltd.	D.C., 3-wire, 220/440 volts ..	3,862	8d., 10d. to 3d. M.D.	4d., 1d.
Gisborne ..	600	Gisborne Shire Council ..	D.C., 2-wire, 230 volts	88	9d. ..	4d.
Hamilton ..	5,000	Hamilton Electric Supply Co.	,, ,, ,, ...	492	9d. to 6d.	6d., 2⅜d.
Heidelberg ..	14,116	Heidelberg Shire Council ..	A.C., single-phase, 50 cycles, 200/400 volts. Bulk supply from M.E.S. Co.	1,485	6d. ..	3d. to 2d.
Heathcote ..	1,100	McIvor Shire Council ..	D.C., 2-wire, 230 volts	145	1s. ..	6d.
Heyfield ..	600	Heyfield Butter Factory Co. ..	,, ,, ,, ...	80	9d. ..	5d.
Hopetoun ..	450	Karkarooc Shire Council ..	,, ,, ,, ...	104	1s. 2d. ..	6d.
Horsham ..	4,500	Horsham Electric Supply Co.	D.C., 3-wire, 230/460 volts ..	530	8d. ..	5d.
Inglewood ..	1,400	Inglewood Borough Council ..	D.C., 2-wire, 230 volts	130	8d.	
Jeparit ..	450	H. J. W. Block	,, ,, ,, ...	103	10d. ..	5d.
Kerang ..	2,000	Kerang Shire Council ..	D.C., 2-wire, 220 volts	340	7d. ..	4d.
Kilmore ..	1,200	Kilmore Shire Council ..	D.C., 2-wire, 230 volts	140	9d. ..	7d.
Koroit ..	2,221	Koroit Borough Council ..	,, ,, ,, ...	152	10d. ..	6d. to 2d.
Kyabram ..	1,613	Kyabram Butter Factory Co...	D.C., 3-wire, 230/460 volts ..	200	9d. ..	4d.
Korumburra..	2,500	Poowong and Jeetho Shire Council	D.C., 2-wire, 230 volts	362	10d. ..	5d.
Lorne ..	250	Winchelsea Shire Council ..	D.C., 100 volts	50	1s.	
Leongatha ..	1,300	Leongatha Butter and Cheese Factory Co. Ltd.	D.C., 2-wire, 230 volts	240	10d. ..	4d.
Lilydale Shire (Ringwood, Croydon, &c.)	2,000	Lilydale Shire Council ..	A.C., single-phase, 200/400 volts, 50 cycles. Supply obtained from Nunawading Shire Council	358	7d. ..	3d. to 2d.
Maffra ..	1,500	Maffra Shire Council ..	D.C., 2-wire, 230 volts	171	9d. ..	4½d.
Mansfield ..	650	Mansfield Shire Council ..	,, ,, ,, ...	168	8d. ..	4d.
*Metropolitan Suburbs	408,184	Melbourne Electric Supply Co. Ltd.	A.C., single-phase, 4,000 volts, 50 cycles; secondary, 200/400 volts	51,675	5½d. to 3d., 7d. to 3d. M.D.	2¼d. to ·65d. 2⅜d. to ½d. M.D., 1d. to 2¼d.
Melbourne City	106,064	Melbourne City Council ..	D.C., 2-wire, 230/460 volts; A.C., single-phase, 50 cycles; primary, 4,000 volts; secondary, 200/400 volts. A.C., 3-phase, 50 cycles; primary, 6,000; secondary, 230/400 volts	13,150	4d. to 2d., 6d. to 1½d. M.D.	1¾d., 1¼d., and 1d. M.D., 2d. to ½d.
Minyip ..	600	Dunmunkle Shire Council ..	D.C., 2-wire, 230 volts	72	10d.	
Mildura ..	5,000	Mildura Shire Council ..	,, ,, ,, ...	550	10d. ..	4d.

* Richmond, Prahran, St.-Kilda, Malvern, Caulfield, South Melbourne, Fitzroy, Collingwood, Kew, Oakleigh, Hawthorn, Camberwell, Brighton, Sandringham, Mordialloc, Mentone, and portion of Shire of Moorabbin.

ELECTRIC SUPPLY UNDERTAKINGS OPERATING IN VICTORIA, ETC.—*continued.*

Undertaking.	Population.	Supply Authority.	System of Generation and Distribution.	Consumers.	Present Price per kw. hour.	
					Lighting.	Power.
Mooroopna ..	1,432	Rodney Shire Council ..	D.C., 2-wire, 230 volts	120	10d. ..	5½d. to 4½d.
Mortlake ..	800	Mortlake Butter and Cheese Factory Co.	,, ,, ,, ...	148	10d. ..	6d.
Murtoa ..	800	Dunmunkle Shire Council ..	,, ,, ,, ...	128	10d.	
Nagambie ..	750	Goulburn Shire Council ..	,, ,, ,, ...	130	8d. ..	4d.
Nathalia ..	860	Numurkah Shire Council ..	D.C., 3-wire, 230/460 volts ..	163	1s. ..	8d.
Nhill ..	1,500	Nhill Electric Light Co. Pty. Ltd.	D.C., 2-wire, 230 volts	127	1s. ..	6d.
Northcote ..	29,735	Northcote City Council ..	A.C., single-phase, 50 cycles, 200/400 volts. Bulk supply, M.E.S. Co.	3,600	5d. ..	2d.
Numurkah ..	1,196	Numurkah Shire Council ..	D.C., 2-wire, 230 volts	264	8d. ..	4d. and 3d.
Orbost ..	2,000	Orbost Butter and Produce Co.	,, ,, ,, ...	180	8d. ..	4d.
Nunawading Shire (Box Hill, Mitcham, &c.)	6,700	Nunawading Shire Council ..	A.C., single-phase, 50 cycles, 200/400 volts. Bulk supply from M.E.S. Co.	1,735	6d. ..	2½d. to 1¼d.
Preston ..	9,800	Preston Shire Council ..	A.C., single-phase, 50 cycles, 200/400 volts. Supply from Northcote Council	1,050	5½d. ..	2½d. to 1⅜d.
Port Melbourne	13,600	Port Melbourne Town Council	A.C., 3-phase, 50 cycles, 230/400 volts. Supplied in bulk by M.C.C.	960	5d. ..	2d. to 1¼d.
Rainbow ..	600	Rainbow Electric Supply Co. ..	D.C., 2-wire, 230 volts	105	1s. ..	1s.
Rochester ..	1,487	Commonwealth Electric Co. Ltd.	D.C., 2-wire, 240 volts	303	7½d. ..	5d.
Rushworth ..	1,200	Waranga Shire Council ..	D.C., 2-wire, 230 volts	200	10d. ..	6d.
Rutherglen ..	1,200	Rutherglen Borough Council ..	D.C., 230/460 volts, 3-wire ..	180	8d. and 6d.	4d.
Sale ..	550	Sale and District Co-operative Butter and C.S. Co.	A.C., 3-phase, 50 cycles, 230/400 volts	110	7d. ..	3½d.
Sea Lake ..	550	Wycheproof Shire Council ..	D.C., 2-wire, 230 volts	109	1s. ..	6d.
Shepparton ..	4,000	Shepparton Shire Council ..	D.C., 3-wire, 230/460 volts ..	343	8d. and 6d.	4d. and 3d.
Sorrento ..	350	Flinders Shire Council ..	D.C., 2-wire, 230 volts	123	9d., and £1 per 40 W. lamp per annum	
Sunbury ..	1,500	Bulla Shire Council	,, ,, ,, ...	154	9½d. and 7½d.	5d., 4d., and 3d.
Sunshine ..	..	H. V. McKay	,, ,, ,, ...	350	6½d. ..	3d.
Swan Hill ..	3,600	Swan Hill Shire Council ..	,, ,, ,, ...	460	8d. ..	4d.
Tatura ..	1,230	Tatura Butter Factory Co. ..	,, ,, ,, ...	148	10d. ..	6d.
Terang ..	2,255	Hampden Shire Council ..	,, ,, ,, ...	382	8d. ..	4d.
Toora-Foster	800	Toora-Foster Electric Co. ..	A.C., 3-phase, 6,000/415/240 volts ..	150	1s. per point per month	4d. to 1d.
Warburton ..	800	Upper Yarra Shire Council ..	D.C., 2-wire, 230 volts. Supplied by Signs Publishing Co. for street lighting only			
Wahgunyah	400	Rutherglen Shire Council ..	D.C., 240 volts	32	9d. ..	6d.
Werribee ..	1,500	Werribee Shire Council ..	D.C., 3-wire, 230/460 volts ..	150	10d., 8d.	5d. to 4d.
Williamstown	19,000	Williamstown City Council ..	A.C., 3-phase, 50 cycles, 230/400 volts. Supply in bulk by M.C.C.	1,850	5½d. ..	4d. and 1½d. M.D.
Wodonga ..	1,096	Wodonga Electric Supply Co.	D.C., 230 volts	130	7d. ..	5d.
Woodend ..	1,000	Newham and Woodend Shire Council	D.C., 230 volts, 2-wire	120	1s. ..	6d.
Wycheproof ..	760	Wycheproof Shire Council ..	,, ,, ,, ...	105	1s. ..	6d.
Yarrawonga	1,650	Yarrawonga Shire Council ..	D.C., 2-wire, 230 volts	270	11d. ..	6d.

STATE ELECTRICITY COMMISSION OF VICTORIA—STATEMENT OF ACCOUNTS.

EXPENDITURE OUT OF CONSOLIDATED REVENUE, 1ST JULY, 1920, TO 30TH JUNE, 1921.

Dr. *Cr.*

	£	s.	d.	£	s.	d.
To Salaries			8,494	15	6	
,, Salaries and Fees—Chairman and Commissioners			3,682	10	0	
,, Fitting up and equipping offices, including strong-room and electrical fittings			2,230	3	2	
,, Library			208	19	3	
,, Water-power investigations (including instruments, £95 11s. 6d.)			5,644	11	5	
,, General expenses—	£	s.	d.			
Postage and telegrams	313	0	5			
Printing and stationery	806	19	7			
Rents and Rates	1,037	10	11			
Lighting and heating	125	15	11			
Travelling expenses (including Electric Inspector's Branch)	1,140	14	6			
Advertising	283	10	0			
Office expenses	745	12	6			
Blue and photo. print, &c.	401	19	2			
Insurance	236	5	10			
			5,091	8	10	
,, Brown coal experimental expenses			2,953	6	10	
,, Licensing of wiremen			889	12	1	
,, Preliminary expenses briquetting, including visit to Europe of Mr. Herman			2,319	10	0	
,, Provision store, Yallourn			500	0	0	
			32,014	17	1	

	£	s.	d.	£	s.	d.
By Treasury Account—						
Division 70—1	9,574	16	8			
,, 2	16,261	19	5			
,, 3	2,745	11	0			
,, 4	500	0	0			
Special Appropriation Act No. 2996	1,432	10	0			
Special Appropriation Act No. 3104	1,500	0	0			
				32,014	17	1
				32,014	17	1

R. LIDDELOW,
Secretary,
State Electricity Commission of Victoria.

Audited and found correct—
J. A. NORRIS,
Auditor-General,
27th October, 1921.

STATE ELECTRICITY COMMISSION OF VICTORIA.

Receipts and Expenditure on Capital Account.

Dr. *Cr.*

—	Amount expended to 30.6.20.	Amount expended 1920–21.	Total.	—	—
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
To Expenditure—				By Receipts—	
Land ..	127 16 6	24,517 1 2	24,644 17 8	Capital authorized—	
Buildings ..	27 19 4	29,371 1 11	29,399 1 3	Loan Act 3029 .. 355,000 0 0	
Machinery and Plant ..	1,499 13 11	63,228 1 1	64,727 15 0	Loan Act 3101 .. 1,430,000 0 0	
Preliminary Expenses (see statement attached) ..	324 19 2	16,726 10 8	17,051 9 10		1,785,000 0 0
Horses, vehicles, and harness	..	4,163 9 8	4,163 9 8		
Implements and appliances ..	..	4,510 8 7	4,510 8 7		
Office furniture and equipment	..	1,864 17 10	1,864 17 10		
Scientific instruments and equipment ..	..	321 19 9	321 19 9		
Roads and bridges ..	..	2,452 3 3	2,452 3 3		
Water and Fire Service ..	..	1,401 11 2	1,401 11 2		
Telephone service ..	..	118 3 5	118 3 5		
Railway ..	..	237 13 0	237 13 0		
Stores on hand—					
Morwell ..	..	52,250 1 7	52,250 1 7		
Newport ..	..	830 1 11	830 1 11		
Melbourne ..	..	9,264 9 0	9,264 9 0		
	1,980 8 11	211,257 14 0	213,238 2 11		
Balance of Authority ..	..	..	1,571,761 17 1		
			1,785,000 0 0		1,785,000 0 0

STATEMENT OF PRELIMINARY EXPENSES.

Electrical Supply.

	£ s. d.	£ s. d.
Investigations High Tension Transmission Practice ..	1,009 13 0	
Preliminary Boring ..	320 0 0	
Preliminary Surveys ..	141 8 0	
Transmission Line Surveys	2,236 5 11	
Merz and McLellan (Consulting Fees)	500 0 0	
		4,207 6 11

Coal Supply.

	£ s. d.	£ s. d.
Boring, &c.	141 16 9	
Surveys, Estimates, &c. ..	311 14 7	
Drains	1,736 1 2	
Levee Bank	3,064 19 11	
Steam Shovel No. 1 R.P. ..	552 10 2	
Steam Shovel No. 2 R.P. ..	936 10 7	
Overburden Removal ..	1,798 13 7	
		8,542 6 9

Township.

	£ s. d.	£ s. d.
Surveys	718 4 5	
Investigating Preliminary Water Supply	214 5 7	
Sewerage Investigations ..	59 0 11	
Drainage	26 9 9	
Roads	18 4 3	
		1,036 4 11

Briquetting.

	£ s. d.	£ s. d.
Shaft Sinking	1,686 6 2	
		1,686 6 2

General.

	£ s. d.	£ s. d.
Quarry, Preliminary Expenses	690 2 7	
Overburden Removal ..	604 2 7	
Rock Winning	65 14 4	
Waggon Route to Sawmill ..	114 4 4	
Brickmaking, Shaft-sinking	91 12 5	
Brick Plant, Preliminary Investigation	9 14 7	
Drainage Extension, Temporary Accommodation ..	3 14 0	
		1,579 5 1
Total to June 30th, 1921		£17,051 9 10

RECONCILIATION WITH TREASURY BOOKS.

	£	s.	d.
Expenditure as per Treasury books to 30th June, 1921	185,043	6	0
Add accounts in Electricity Commission's books 1920–21 not in Treasury books till 1921–22	33,468	12	1
	218,511	18	1
Deduct accounts in Treasury books 1920–21 not in Electricity Commission's books till 1921–22	5,273	15	2
Expenditure in Electricity Commission's books to 30th June, 1921 ..	213,238	2	11

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By Authority: ALBERT J. MULLETT, Government Printer, Melbourne.