

1912.

VICTORIA.

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APPLICATION OF ELECTRIC TRACTION TO THE  
MELBOURNE SUBURBAN RAILWAY SYSTEM.

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REPORT

BY

CHARLES H. MERZ

ON

PROPOSED PROCEDURE IN REGARD TO  
SUPPLY OF POWER.

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RETURN to an Order of the *House*,

Dated 22nd October, 1912, for—

A COPY of the Report by Charles H. Merz on Proposed Procedure in regard to Supply of Power.

*(Mr. Watt.)*

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*Ordered by the Legislative Assembly to be printed, 22nd October, 1912.*

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# REPORT.

450 Collins-street,

Melbourne, 12th September, 1912.

*To the Honorable the Premier, the Treasury, Melbourne.*

SIR,

Referring to the interview which we had with the Minister for Railways and yourself yesterday, we beg to enclose herewith a copy of the Report which we have prepared as to the cost at which power can be generated at Yarraville, and showing what the Railways can afford to pay for power generated elsewhere.

This Report was prepared before the writer left England, but, since his arrival here, he has had an opportunity of considering the tentative proposals which the Government has received in support of brown coal areas other than those referred to in this Report. Therefore, we are now in a position to advise you as to the policy which we think should be pursued with regard to the supply of power for the Railways and for general power purposes.

In doing so we have in view three main considerations—

- (1) That it is essential that the Railways should obtain an absolutely reliable supply of electric power at a price no greater, or not materially greater, than that obtainable from any station or combination of stations that might be erected by the State themselves.
- (2) That it is desirable to take advantage of the large load which will be provided by the Railways to put at the disposal of manufacturers and others a supply of cheap electricity.
- (3) That investigation having shown that the brown coal resources in the State are a potential source of power, it is desirable that something should be done to encourage their development.

These matters were all dealt with at length in our former Power Report, and we, therefore, do not enlarge further upon them, except to again point out that a cheap supply of power is, for a great number of manufacturing processes, the first essential.

The letter summarizing the accompanying Report shows that in our view it is essential that a station should be erected at Yarraville, though we do not advise you in the first instance to place contracts for more than about half the plant that eventually will be required.

Our advice as to the station at Yarraville is based upon a most careful consideration of the whole question of power supply throughout a district represented by the area within a circle of 100 miles radius around Melbourne, and is entirely independent of whether the power station is to be erected or operated by the Government or a Company. It is solely the result of the study of the financial and technical problem based upon our experience of similar plants supplying electric power over correspondingly large areas.

We may say that we have always been much impressed with the difficulty of drawing up a contract that would protect the Railways sufficiently as regards security of supply without putting such conditions on a Company as would prevent their profitably embarking upon the enterprise.

As, therefore, our investigation is conclusive as to the necessity for a Power Station at Yarraville, we submit that the correct procedure is for the Government to at once announce the result of this investigation and their decision to erect the initial plant at Yarraville, the intention being that, if supplies of power from brown coal stations can be secured in terms of our advice, Yarraville should run primarily as a peak station, while at the same time acting as a reserve against breakdown or failure of supply from elsewhere, whether due to financial, economical, or technical reasons.

We advise therefore—

- (1) That the station at Yarraville be constructed for dealing with a peak load of 25,000 kw., and in an emergency of 40,000 kw.
- (2) That Tenders be invited on uniform conditions from all prospective suppliers for a delivery of power at Yarraville, or some other convenient point on the Suburban Railways to be settled by us, amounting to 25,000 kw. at from 50 per cent. to 75 per cent. load factor.

We would suggest that Tenderers should be asked to quote according to definite specifications to be issued by us, so that when the tenders come in they may represent a perfectly fair and accurate comparison as between the different tenderers, just in the same way as tenders have been invited and received in connexion with the system of traction to be adopted for the Railways themselves.

The policy which we recommend has the following advantages:—

- (1) It is technically and commercially correct.
- (2) It removes all risk of failure of power supply.
- (3) It removes all risk of delay in obtaining a proper power supply.
- (4) It is the cheapest way of dealing with peak loads, whether these are to be supplied by a Company or by the State.
- (5) It gives the most favorable load to the distant power stations, which is as it should be, as it would make long distance transmission commercially feasible.
- (6) It gives not only one but all the coal-fields a chance of development, which is clearly advantageous to the State, as, however superior one field may appear to another at the moment, it does not follow that, when it actually comes to be worked commercially, unforeseen difficulties may not arise. We contemplate that the whole 25,000 kw. would not necessarily be contracted for with one Company, but that from 5,000 to 10,000 kw. might be taken from any coal-field. A decision on this point, however, could only be arrived at after the tenders are received.

- (7) This policy greatly simplifies the making of any agreement, because the Government and the Railways run no risk, and if any particular tenderer does not fulfil his contract for any reason—financial, commercial, or technical—the Government will have ample time to make the necessary provision for the supply of power by simply installing another generating unit at Yarraville.

In conclusion, we wish to make it clear that we are strongly of the opinion that the brown coal resources of the State ought to be developed, and, we hope and believe that the procedure we have suggested is the best way of insuring proper consideration and a fair trial being given to the generation of electric power by brown coal without involving the community in any serious risk.

Should our advice be adopted, the Government would be left free—

- (1) To consider leasing the Yarraville Power Station itself in the future.
- (2) To develop the brown coal resources itself if no satisfactory tender is received.

We believe that there is now an opportunity of giving to the State of Victoria a supply of electric power unparalleled as to price, but it is essential, in our view, that there should be one system of transmission and distribution throughout the State.

We would, moreover, propose, in inviting tenders as above for the supply of power, that each Tenderer should state what he is prepared to do as regards local distribution in outlying districts not at present served by any electric lighting or power undertaking. In areas where such an undertaking exists, the supply authority would purchase in bulk from the common State power system which we have suggested.

After you have had time to consider our recommendations, we would be pleased, on receiving your instructions to that effect, to prepare the necessary form of tender.

We suggest that not less than three, and probably six, months should be allowed for the tenders to be sent in, and that in the meantime the Government announce its policy as regards the Yarraville Power Station by some such statement as the following:—

The Government has had under careful consideration the brown coal resources of the State, and the tentative proposals already received for their development.

As a result of various conferences with Mr. Merz, it has decided to erect forthwith a station at Yarraville for dealing with the peak loads for railway and other purposes, so designed as to consume brown or black coal, whichever may be proved to be the more efficient and economical. The Railway Commissioners will at once proceed to consider Mr. Merz's recommendations as to the details of the plant for the Yarraville Power Station. This station could eventually work in conjunction with stations erected at the coal-fields, if satisfactory offers are obtained.

Mr. Merz has, therefore, been instructed to prepare forms for inviting tenders for the balance of the power required, from any firms or companies who may wish to present offers to the Government, for the supply of electric power generated at the coal-fields. These offers may be for 5,000 kw. and upwards, not exceeding 25,000 kws., to be supplied at a load factor of from 50 per cent. to 75 per cent. per annum.

Tenderers will also be asked to state the price at which they are prepared to distribute power to manufacturers outside the existing Melbourne area.

The Government is satisfied that in adopting this policy it will insure the cheapest and most reliable supply of power for railway and other purposes, and will at the same time give every opportunity for the proper development of the brown coal resources of the State.

I have the honour to be, Sir,

Your obedient servant,

(Signed) CHARLES H. MERZ.