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State Electricity Commission of Victoria

REPORT

ON

CHARGES FOR ELECTRICITY

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STATE ELECTRICITY COMMISSION OF VICTORIA.

REPORT ON CHARGES FOR ELECTRICITY.

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SIR,

In view of the frequency with which, judging from reports in the press, demands are being voiced in the country districts and resolutions are being adopted by public meetings in favour of the proposal that there shall be a "flat rate" for electricity all over the State, it seems very important that the Government, and the public, should be made acquainted with the views of this Commission upon this matter. If a correct view of these proposals be not taken there is grave danger that the high hopes which have been centred in the Morwell Scheme will be falsified, and that the scheme will be asked to perform the impossible.

I.—THE NATURE OF THE AGITATION.

This demand is probably founded upon the perfectly honest belief that such an arrangement is feasible and practicable; that it needs but to be adopted as a policy to be capable of application; and that it will be beneficial to the State as a whole, and to the country districts in particular. It is imagined that a uniform price for electricity will reduce the cost throughout the and, that it will encourage the establishment of factories and industries in rural centres, and that it will therefore act as a decentralizing agent by drawing the industrial population from the cities

We propose to show that, however well-meaning such a propaganda, the principle of a flat rate is impossible of realization, and, even if it were possible, that it would speedily lead to the entire ruin of the State Electricity Scheme, that the net result would be a set-back to instead of an assistance to the industries of the State, that it is false in principle, that it really involves an attempt to secure benefits to a few at the expense of the many, and that it is, from a business point of view, fundamentally unsound.

The case for the flat rate proposal is, doubtless, capable of being presented in a plausible manner. It can be represented as a measure of an equitable and democratic character, under which all are treated alike, and the country will benefit equally with the city, thus eliminating the natural disadvantages, to trade and industry, of distance from the seaboard, from the larger markets, and from the sources of raw materials. It is a case, also, capable of grotesque exaggeration, even if the suggested basic principle were to be granted as feasible and desirable. It may, therefore, help to dispel much misunderstanding if it is shown that an attempt to apply the principle of a flat rate would operate to the very serious disadvantage of the whole State, but primarily of the whole of Gippsland, and indeed of all territories which lie nearer to the Morwell source of supply than any other territory further removed.

II.—SOME ARGUMENTS TO BE MET.

Among the arguments which have gained currency, the following are examples:—It is said that the whole of the people of the State are finding the money for the Morwell Scheme, and, therefore, that the whole of the people should benefit on equal terms; that the great deposits of brown coal which this State possesses are the common property of all, and that, therefore, all the electricity generated from it should be available to all at the same flat price; that the manufacturer or householder established in Bendigo, or Ballarat, or Warrnambool, or even in Serviceton or Mildura is entitled to buy his electricity for the same price as the resident in Melbourne, or in the Gippsland centres, as at Warragul, or even at Morwell itself; and that without such an equality of treatment throughout the State, the effect of cheapening the cost of electricity to the consumer in Melbourne would be to draw still more population away from the country and lead to a greater centralization of industry.

III.—THE TRUE BASIS OF CHARGES FOR ELECTRIC SUPPLY.

An attempt must first be made to understand what the advocates of a "flat rate" are really aiming at; in fact, what they mean by the term. Electricity is usually retailed to the public by the unit. Consequently the ordinary citizen is apt to think that electric energy is a commodity which can be equitably sold at a fixed price for a stated measure or quantity. Such a belief is general, but is fundamentally wrong. This misconception is due to a neglect to realize that

electricity cannot be economically stored, and that it must be generated at the very instant at which it is sold, contrary to all other products of commerce which can be manufactured at convenient times and held for subsequent sale. Hence, for every customer, plant must be available in the generating station to meet his largest rate of consumption at any one time during the 24 hours; that is, to meet his "maximum demand."

This may be made clearer by comparing two extreme cases. In the first case, consider a customer whose average rate of consumption is one kilowatt, but who requires during one hour daily a supply at the rate of 20 kilowatts (that is, a customer whose load factor is 5 per cent.). Here the supplier must always hold available at the generating station for this particular customer 20 kilowatts of generating plant, transformers, transmission plant, &c., which can only earn one-twentieth of the revenue of which it is capable.

In contrast to this, consider a customer engaged, say, in the chemical industry, whose maximum demand is also 20 kilowatts, but whose consumption is at the rate of 20 kilowatts for the whole 24 hours (that is, a customer whose load factor is 100 per cent.). In this case the 20 kilowatts of plant is continuously earning at its full capacity.

The above is only an indication of the first and fundamental difficulty in fairly adjusting electric rates. The complete problem is much more complicated, involving many other considerations, and it may be fairly claimed that only those who have made a special study of the subject can follow out clearly to their logical conclusion the many considerations involved in the equitable adjustment of such rates.

The comparison applies with equal force between a residential area containing a group of consumers of electricity for lighting purposes during the evening hours, and with a correspondingly low load factor; and an industrial area containing a group of users of electricity for power purposes with a correspondingly high load factor.

It would be clearly inequitable and unworkable to apply the principle of a "flat rate" to both of two customers whose needs are so widely at variance, or indeed to all the gradations of use which lie between the extreme cases which have been described. To apply a "flat rate" per unit supplied would entirely reverse the equities of the case, and would bring about the anomalous result that the customer with the high load factor would be paying much more than the cost of giving him a supply, while the customer with the low load factor would be paying much less than such cost.

IV.—HOW ELECTRIC TARIFFS ARE FRAMED.

The true method of calculating electric tariffs is based upon the principle of asking each customer to pay in exact accordance with the total cost of giving him the particular supply which he requires. It has regard not merely to the total number of units recorded by his meter, but also to the character of the supply, and the relationship which his "average" demand bears to his "maximum" demand; in other words, to his load factor. The application of a "flat rate" doctrine, in the sense of a uniform price to all for each and every unit consumed, would entirely destroy the possibility of discriminating between customers with due regard for the actual services rendered to each. It would involve the absurdity that the best customer would receive the worst treatment, while the indifferent customer would receive the best. Far from having put these two customers on equal terms, the better customer will have been penalized to the advantage of the inferior customer.

It is notorious that, in all electric undertakings, the electricity sold for lighting purposes is charged at rates two to three times as much as that sold for power purposes. This is not, as some imagine, because a different or cheaper kind of electricity serves the latter purpose than the former, but mainly for the reasons already given, that the power consumer, because of the nature of his consumption, provides a load factor which is several times better than that provided by the lighting consumer.

In a large community such as Melbourne, and omitting specially large private consumers, it is admittedly usual to base the retail charge of electricity for different purposes upon a uniform charge per unit as measured by the meter; but this is specially arranged for two reasons, the first being that simplicity is desirable in the rendering of periodical accounts, and the second that there is no wide variation in the nature of the utilization by a customer of any one group from the average of all similar customers comprising that particular group. Thus, all householders conveniently form a single group. Their average load factor is calculated, and all customers in that group are charged one and the same average price computed from the basic tariff with due regard to that average load factor. That is, however, a very different thing from a "flat rate" as advocated for the whole of Victoria, and can be applied only to a particular group in a single, limited community where all are approximately similarly situated as regards both conditions of supply and conditions of use.

Very different, however, is the transaction in the case of a **bulk** supply, by which is meant either an usually large supply to a single consumer, or a supply to a distributing authority such as a municipal council or a private corporation. In such a case, the payment to be made is based on a tariff which provides for two separate charges ; firstly, an annual payment for each kilowatt of " maximum demand," being by way of rental to recoup the generating authority for the capital expended in holding that amount of plant at all times at this particular customer's disposal ; and, secondly, a much smaller payment per unit actually consumed, being by way of paying for the costs in wages and fuel incurred in the actual process of electric generation. Such a tariff is conceived upon the idea of requiring each separate bulk customer to pay in exact accordance with the value of the services rendered to him. It is the very negation of a " flat rate," if that term is used in the sense here being discussed. To apply a " flat rate " in any such sense would, therefore, uproot the whole system upon which Electrical Economics are based, and would immediately lead to such an enhancement in the cost of electrical energy for power purposes as to compel its abandonment in favour of the direct use of steam.

Such is the case against the application of a " flat rate " of this nature, even in a single community like Melbourne. The case is infinitely stronger against the proposal to apply such a flat rate over an extensive territory like the State of Victoria. The consequences of such a policy would be even more disastrous ; but as the main arguments against such a course apply also to the impracticability of a " flat rate " in its more rational sense of a " uniform tariff " over the whole State, in which sense the proposal will be discussed below, it is not necessary to anticipate those arguments here.

V.—THE DEMAND FOR A " UNIFORM TARIFF."

There is no question that the majority of the advocates for a flat rate use that term in the very sense and intent that has been above assumed. They do really aim at a uniform price, all over the State, for each unit of electric energy supplied, regardless of location or conditions of use, or all the other factors which really determine the matter. When, however, it is pointed out that such an arrangement would inevitably destroy the very interests which it is intended to serve, there are some who are prepared to admit that what is aimed at is not a uniform or flat rate per unit of energy, but a uniform tariff for bulk supply applicable throughout the whole State, upon which the retail rates per unit to be charged can be calculated with due regard to the varying load factors of the different communities and individual consumers. This is really a very far-reaching admission ; but, if by " flat rate " they are to be taken to mean a uniform tariff applicable everywhere in Victoria, then the case against such a proposal is very much stronger, and for far more weighty reasons than any which have yet been referred to. The proposal in the sense first used can be disposed of on the ground that it is impracticable ; when put forward in its more restricted, but more rational, sense it must be attacked as a policy. Because it is perhaps more practicable of being attempted it is on that account more dangerous. It will be dealt with, therefore, on the grounds of public policy, and it will be shown that any attempt to apply it will mean the irretrievable ruin of the Morwell Scheme.

VI.—THE COMPETITORS OF THE MORWELL SCHEME.

One elementary consideration is to be borne in mind at the outset, and all the time. The Morwell Scheme will not and cannot have a monopoly of the electric supply of the State. It is a scheme which must justify its existence by its own merits. It must be able to survive, in the open market, against all competitors both as to quality and price. These competitors are many, both in character and number. This applies to all the various uses of electricity, whether for lighting, for heating, for metallurgical processes, for traction, or for driving machinery. Gas is a powerful competitor in the domain of lighting ; furnaces can only be electrically fired if the current can be supplied very cheaply indeed; there is no great margin between the power cost of a steam plant and of electric motors; while, in the field of cooking and domestic heating, firewood, gas, and steam have so far held their own against electricity at the prices for which it can be sold to-day. Indeed, in all directions, electricity has to fight commercially for its adoption and for the extension of its use. Its greater convenience and cleanliness would carry little weight, unless the price were right. It has gained a footing because it can, under suitable conditions as to fuel resources and location, be supplied at prices cheaper than other methods. It is because the Morwell Scheme holds a promise of a still further reduction of prices that a more intense competition against gas and coal and steam can be hoped for in the future, bringing about a more widely dispersed and a greater use of electricity than heretofore. A lowering of price is, however, an essential condition of the success of the scheme.

But the Morwell Scheme has competitors not merely in gas, steam, and fuel. It has powerful rivals in its own domain of electricity. The power-houses associated with the Morwell Scheme will not be the only ones in the State, nor is the possibility of other new power-houses, owned by

municipalities or by private concerns, to be excluded. The margin between the generating cost of the Morwell Scheme and that of such other large existing power-houses as those at Newport, Richmond, Spencer-street, or Geelong (to name only a few) is not so great that liberties dare be taken with the finances of the scheme of a nature which will artificially raise the cost of generation or distribution or both. In plain words, two conditions are essential to the success of the scheme and to its ability to compete successfully against the various rivals which have been mentioned. The first is that capital and operating costs must be kept down to the lowest possible limit, and the second is that the revenue from the sale of its products must be sufficient to cover those costs. The doctrine of a "flat rate" is destructive of both these conditions. Any attempt to apply it would lead infallibly to the failure of the scheme to compete commercially against other power-houses as well as against gas and steam.

Shortly put, the question will necessarily arise, in regard to every community in the State, whether such community can be better and more cheaply served by electricity transmitted from Morwell or by a generating station situated in the locality, and having no connexion at all with the Morwell Scheme. There are many factors bearing on this question. It is necessary to dwell briefly upon some of them, in order to make clear that any attempt to apply a uniform tariff throughout Victoria would directly lead to making it a cheaper and better proposition for any particular district to establish a local generating station than to base the supply upon the distant Morwell Power-house. In order to supply electricity to any given locality it must be first "generated" in a power-house, and then "transmitted" by conductors or wires to the place where it is to be used. Two considerations govern the matter. Of the total delivered cost of electricity, the cost of transmitting it is always a substantial proportion, often much the greater proportion. The greater the length of transmission, the more will the cost of transmission tend to overshadow the cost of generation. The best illustration of this is the Morwell Scheme itself, in which it will be found that the cost of the energy delivered at the Metropolitan sub-stations is just about double the cost of producing it at the Morwell Power-house, under equal "load factor" and other conditions. To deliver the same electricity, under the same conditions, at Geelong, or Ballarat, or Bendigo, would further substantially increase the cost; and the range of delivery has only to be pushed out far enough towards the limits of the State to make the delivered cost several times greater than the cost of its production at Morwell. It will be readily seen that it will, under some conditions as to distance, be cheaper to generate electricity at the place where it is to be used than to transmit it to that place from a distant power-house.

VII.—THE NATURE OF THE MARKET.

There is another consideration which has an important bearing upon the delivered cost of electricity. This is the nature of the market to be supplied, as to quantity and as to load factor. It is cheaper to serve a large community than a small one. The better the load factor, the lower will be the delivered cost per unit. An industrial area is cheaper to supply than a residential area. Where the market is relatively small and the load factor is relatively small, the balance swings more decidedly in favour of local generation as against transmission from a distance.

Works of transmission consist of towers, or poles, conductors, insulators, transforming sub-stations and switching gear; land is also required to be bought, or easements to be acquired. The provision of all these essentials means capital expenditure ranging from a few hundred pounds to one or more thousand pounds per mile of transmission, according to the size of the population to be served. The cost of these works, and the cost of maintaining and operating them, is necessarily a charge upon the resultant delivered cost of the electricity carried. It is a charge superadded to the original cost of generation at the power-house, or to the delivered cost at the starting point of the new transmission line. There is a rough analogy between the carriage of electricity and the carriage of merchandise. The longer the haulage the greater the delivered cost. But whereas in the case of most commodities, the freight charge is seldom a serious increment to the delivered cost, yet in the case of electricity, as has been stated, that portion of the cost which is due to the cost of transmission steadily grows as compared with the original cost of generation.

VIII.—THE EFFECT OF A "UNIFORM TARIFF."

With these preliminary explanations, the effect upon the finances of a great electricity scheme of attempting to apply a uniform tariff over a whole State can be examined, and the consequences realized. In what follows lies the crux of the matter.

When the Morwell Scheme has been completed as far as, say, Melbourne, the tariff for the Melbourne bulk consumer can be definitely fixed. It consists, as has been explained, of an annual charge per kilowatt of maximum demand, designed to pay the interest and sinking fund upon the

capital expended, and all fixed and constant charges incurred in installing and maintaining tha portion of the scheme required to supply his maximum demand—a charge which is entirely independent of the amount of electricity (measured in kilotwatt-hours or units) actually purchased; and also of a "unit" charge designed to pay for the actual cost of operation, covering wages, salaries, fuel and stores, which latter charge is made upon the actual deliveries effected, as shown on the consumer's meter.

If now, transmission lines and corollary works are demanded and constructed from Melbourne to Geelong, Ballarat, Bendigo and Benalla, costing in the aggregate, say, another million pounds sterling, the annual charges upon this extra expenditure, amounting to, say, £100,000 per annum, will have to be met. The rational business method of raising this additional annual revenue is, of course, to divide it up among all the consumers in the additional territory so served, in proportion to the actual use made by them of the additional works. That is to say, the tariff applicable to delivery in Melbourne must now be re-calculated in order to include the additional burden of £100,000 per annum incurred in order to carry electricity to the provincial centres named. The tariffs so re-calculated, according to the circumstances of each separate case, are the proper and equitable tariffs to be charged at those centres, representing as they do the actual cost of making the supply available.

But those who are advocating the "flat rate" intervene to say that this is all wrong, and that the tariff to be enforced at Ballarat, Bendigo, and elsewhere should be the same identical tariff as that charged, or to be charged, to the Melbourne consumer! What would be the inevitable financial result? Either that the additional revenue required to pay for the works of transmission could not be raised at all, in which case the scheme would have to operate to that extent at a dead loss, only to be made good out of the State coffers, or that the tariff for Melbourne would have to be revised and raised in order to bring in such additional revenue.

A rejoinder may here be anticipated to the effect that, of course, the provincial cities named would bear their fair share of such increased tariff. But, unfortunately for such an argument, the whole consumption of electricity of all those provincial cities put together would not in the aggregate amount at present to more than a tenth part of the consumption of Melbourne alone, so that the effect of such a revised "uniform" tariff would throw upon the shoulders of the Melbourne consumer nine-tenths of the added cost, while the country towns to be benefited would bear only one-tenth. Thus Ballarat, Bendigo, Geelong, and Benalla, and all intervening towns, would be obtaining their electric supply at a price which is less than the cost of providing it, while the loss would be made up out of the pockets of the Melbourne consumers, who would be called upon to pay more than the cost of supply and, in the aggregate, **much** more than their fair share of such an arbitrary burden.

Next let it be supposed that still further extensions are called for to Colac, Camperdown, and Warrnambool, to Ararat and Stawell, to Eaglehawk and Echuca, to Wangaratta and Wodonga, involving, say, another million or so of capital expenditure. Who is to bear the cost of this extra investment? Not solely the districts to be so benefited, according to the supporters of the "flat rate," but also all the places previously served. For the additional annual revenue to be collected must be found and can only be furnished by the whole of the consumers, old and new, collectively. The tariff must once again be revised and raised, but with this slight difference that the added burden will no longer fall solely upon the Melbourne consumer, but must also be borne (though in a smaller proportion), by the country centres already previously served. Thus the flat rate argument will remain very attractive to the resident, say, of Bendigo only so long as it is a question of taking money out of the pocket of the Melbourne manufacturer in order that Bendigo may get its supply more cheaply. But it will not be quite so attractive a doctrine to such a man when used by the resident of Echuca in order to get his supply cheaply at the expense of Bendigo.

The anomalous and chaotic consequences would not, however, stop there. When once the principle of a flat rate is accepted, it follows that every village and hamlet throughout the State, and indeed every individual farmer or resident will demand, and will be entitled to demand, a supply of electricity at the uniform rate applicable to all the dwellers of the State. There would be a clamour for the extension of the transmission scheme to every part of the State, to a canning factory here, to a small group of settlers there, even to the isolated farmhouse and the backblocks boundary rider. If it is true that the electric service is the common property of all at a uniform price, how can the supply of it be logically denied to each and every inhabitant of the State who is prepared to pay that price? The consequences have only to be regarded for a moment to enable it to be perceived how ruinous would be the result. As each new extension is made, the flat rate would have to be revised and raised to cover the increased annual charges; and so the price of electricity would climb and climb all over the State, until its cost became prohibitive to all.

IX.—HOW THE FINANCES WOULD BE AFFECTED.

The capital cost of the Morwell Scheme, in its present stage of development, will probably approach three million pounds sterling. For that investment, the cost of delivering energy to Melbourne will be such that the scheme can successfully compete against the existing large power-houses in the metropolis. But if the metropolitan market is called upon to carry the burden of an additional million pounds capital to be invested in country transmission schemes, it is certain that Morwell electricity will have a hard struggle to compete commercially with existing power-houses. If, in course of time, still further millions of capital burdens are imposed upon the Morwell Scheme by the continued extensions of transmission schemes into the remoter and less populous rural districts, it is equally certain that the scheme will lose all its customers, and that those who cannot, because of the limited output, buy electricity from the existing power-houses will prefer to use gas and steam or to put in plants of their own.

It must not be forgotten that, at the present time, a number of large factories possess their own generating plants upon their own premises. There is nothing to prevent many other factories which have as yet no electric plants from retaining their present steam plants or from installing new generating plants of their own-- nothing, that is to say, except the expectation that the State Scheme will be able to give them a cheaper supply. If, however, the cost of the Morwell electricity is artificially raised in the manner proposed, it follows, as a certain consequence, that all large manufacturers will prefer to put in their own private plants, thereby depriving the State Scheme of its best and most profitable customers, reducing the average load factor, and further increasing the cost of the service.

Thus the adoption of the flat rate proposal spells the doom of the Morwell Scheme, and, if such a proposal were to be passed into law, the Government would be well advised to stop further expenditure at Morwell, to cut its losses, and to sell such machinery as it has bought to the best advantage to existing electric undertakings throughout the State or elsewhere.

The matter is too vitally important to permit of anything but plain speaking. It is justifiable even to risk tedious reiteration of the essential considerations. The Morwell Scheme is a good scheme for the Metropolis, because it can, on its present basis, compete with every possible alternative for Metropolitan supply. It is also a good scheme for the country districts, provided that it is limited to the more important and populous communities, and provided that those communities each pay fairly in accordance with the cost of serving them; because the scheme can, even after exacting such fair charges, compete with every possible alternative in those particular country centres. But if the scheme is to be used to carry for the benefit of the minority artificial and unnatural burdens, the only result will be to destroy its value to the Metropolis without in the least really helping the country.

X.—OTHER CONSEQUENCES.

The proposal for a flat rate bears a territorial aspect also, inasmuch as it appears to set the interests of the country against those of the city. But what of all the country situated within more easy reach of the Morwell power-house than Melbourne? Is it seriously intended that the manufacturer who decides to establish himself at Morwell, or anywhere along the Gippsland Railway, is to pay the same price for his electricity as his colleague at Warrnambool, or Stawell, or Maryborough? What would become of the prophetic vision of a Gippsland throbbing with population and industry? Is that part of the State to be robbed of its birthright of proximity to these brown coal deposits? Must all the patient endeavour to secure the development of these resources have the unhappy result of discouraging the establishment of industry in that territory? As well might Bendigo and Ballarat ask for free railway transport from Melbourne and Geelong merely because those latter cities have the advantage of being seaports. If the position be rightly understood by them, it is inconceivable that the residents of Eastern, or Western, or Southern Gippsland, or of the Mornington Peninsula, or of the Yarra River Basin, or of the Metropolis itself and its environs—amounting in the aggregate to three-fourths of the population of the State—would support a principle calculated to work such ruin to their hopes. It is even inconceivable that the citizens of Ballarat and Bendigo, for example, would support that principle if they realized that it would inevitably lead to additional burdens upon them, in order to supply electricity at less than cost to those other districts lying beyond those cities and still further removed from Morwell.

Only broad consequences have been so far touched upon. There are many serious results of minor consequence which would also follow. One of these may be here referred to. If the tariff is to be uniform all over the State, it follows necessarily that it must be revised from year to year in the direction of progressive increase as the capital burdens of extending transmission schemes mount ever higher and higher. Now it is customary and necessary to make contracts for bulk supply of electricity for many years ahead, so that retail distributors may know how they stand, and can arrange their finances. How would it be possible to make such contracts if the

cost of supply were ever on the increase, and the cost a few years hence were an unknown quantity? On the contrary, the whole fabric of the business of electric supply, which is the result of many years of evolution, would be undermined, and would crumble in ruin. Scarcely less deplorable would be the situation of the individual manufacturer who would not be able to forecast the size of his power bill more than a few months ahead. The manufacturer requires stability of price no less than stability of supply.

XI.—SOME ARGUMENTS EXAMINED.

There remain to be examined some of the arguments that have been publicly voiced in support of the flat rate proposal. It is true that the money required for the Morwell Scheme is being borrowed upon the credit of the people of the State as a whole, but it is not true that the money so applied is used by the people of the State as a whole, or that they will have to bear the interest burden upon it, or the task of repaying it. The scheme is conceived on business lines, as a normal commercial undertaking, which has to pay its own way out of its own revenues. Those revenues are collected, not from the people of the State as a whole, but only from the persons who buy and pay for electricity. Those persons form in the aggregate only a moderate percentage of the whole population. It is the consumer of electricity, and he alone, who has to pay for the scheme, and for the sinking fund which will extinguish the debt incurred. The non-consumer has no direct interest in the matter, bears no burdens, and runs no risks.

It may be admitted that the brown coal deposits of the State, unique in quantity, quality, and accessibility, belong to the people of the State as a whole. But is that a rational argument for claiming that every person in the State is entitled to procure that coal for one uniform price, no matter where it may have to be delivered to him? The coal, when won, and loaded into railway trucks at Morwell, is available for every purchaser throughout the State at a uniform rate of so much per ton, to cover the bare cost of obtaining it and placing it there. But is there any argument in favour of the proposition that the Government should carry that coal by rail and road to any part of the State, and deliver it at one uniform rate per ton irrespective of the distance over which it has had to be hauled? Can it be seriously thought possible to sell coal or briquettes at the same price at Serviceton as at Sale, at Mildura as at Morwell, or at Warracknabeal as at Warragul? What, indeed, would be thought of the business sanity of a man who claimed that, because the railways of the State belong to the people, therefore every person was entitled to take a journey of any length he pleased at a uniform fare, or to transport his goods for any distance he pleased at a uniform flat freight rate? What would the resident of Morwell say if he were required to pay, per ton of coal, the same rate as had to be charged to the purchaser at Warrnambool? Would not any attempt to extort such a charge from him inevitably lead to his using firewood, which he would be able to purchase much more cheaply?

The analogy to electric supply is here complete. For there is no difference, either in principle or in practice in the proposal to sell electricity at a flat rate than to sell coal at a flat rate. It is almost as easy and cheap to carry coal by train from Morwell to Ballarat or Bendigo and use it there to generate electricity as it is to generate the electricity at Morwell and transmit it to Ballarat or Bendigo. In more remote and smaller country centres it would indeed be cheaper to carry the coal than to carry the electricity.

But, it is said, we already have a flat rate for electricity all over the metropolitan area, and have therefore accepted the principle of a uniform tariff. In the first place, this is not correct, for there is not only wide disparity in charges between the different districts of the Metropolis, but also there is considerable discrimination, founded on sound business reasons, between different consumers and groups of consumers in one and the same district. But even if it were true of such a comparatively restricted area covering a hundred square miles or so of dense population that, as a matter of expediency or convenience and not as a matter of principle, charges to all consumers of electricity are uniform, that would be no argument for extending such a principle to a whole State covering tens of thousands of square miles, much of which is sparsely peopled.

Again, it has been said, we have the example of water supply where the charge is uniform. This also is not correct, either of city supply or of urban or irrigation water supply. Each scheme has its own charges, strictly related to the actual cost of its own service, and it is only among the consumers served by any particular scheme that the charges are approximately uniform. The charges under different schemes, differently located and circumstanced, bear no relation to each other. If water supply charges are to be quoted as a proper precedent for a uniform electric tariff all over the State, it would be necessary in order to make the precedent valid to show that if, for the sake of argument, the Melbourne water supply could be and had to be extended by a pipe line to Bendigo, or *vice versâ*, it would be fair and proper and business-like to charge the same rates for both branches of the scheme. Such a precedent, however, does not exist, and therefore is not available in support of the contention.

XII.—THE PLEA FOR DECENTRALIZATION.

There remains to mention the argument that the Morwell Scheme will have the effect of further centralizing industry in the Metropolis to the disadvantage of the country districts. It is difficult to see how this proposition can be seriously entertained. The factors which determine the location of most industries depend far more upon proximity to raw materials, or labour supply, or markets, or ports, than upon the cost of power. In the case of those few industries where the cost of power is a dominating consideration, the effect of the Morwell Scheme will be to attract such industries to the vicinity of the Morwell Power-house, and therefore away from rather than into the Metropolis. If the proposition can be accepted so far as it applies to Castlemaine or Bendigo or Ballarat, it certainly cannot be true of the greater part of Gippsland, where the conditions of supply to large users will be far more favorable than in Melbourne. But, in so far as it may really be true of the more remote provincial centres named, that is surely no reason why the expansion of industry in Melbourne should be prohibited by inflated power costs, merely in order that these other centres should be served at rates much below the true cost of the service.

It is open to very serious question, however, whether the northern and western country districts will really be disadvantaged, as against the Metropolis, by the coming into operation of the Morwell Scheme. If rightly used, and soundly financed, transmission of electricity can, in due course, be made to pay at rates which will be relatively of much greater advantage to the country districts than to Melbourne. The savings in the power bill of the individual factory in the Metropolis will not be formidable as against the use of steam or gas for power, or even as against present prices of electricity. The advantages of the scheme lie much more in the aggregate saving in a very large number of factories taken collectively, in the greater amount and greater reliability of the supply of electricity, and in the independence which it will give to industry from the necessity to depend on imported coal. On the other hand, the savings in the power bill of individual factories at Bendigo or Ballarat, at just and fair rates for transmitted electricity, will be very appreciable indeed. The country factory owner stands to gain in price, relatively, much more than his Melbourne confrère ; he also becomes allied to a mammoth scheme of supply, having ample reserves of power and low overhead charges, instead of to small local generating schemes. He also gains in reliability of supply, and, if he has heretofore used a steam plant, he saves most of the heavy cost of railing coal from the seaboard. It is in no way correct to say, therefore, that the Morwell Scheme will have a centralizing influence, and there are many good reasons for believing that it will have exactly the opposite effect.

In this country of legislative and economic experiments, it may not be convincing to some to say that no precedent can be found anywhere in the world for the application of the principle of a uniform rate for electricity all over a territory so large as the State of Victoria. This is nevertheless the indisputable fact, and, as Victoria is young in electric development, its people may not be averse from drawing a conclusion and a lesson from the practice of older countries, in which the application of electrical economics has reached a high standard.

XIII.—A BETTER ALTERNATIVE.

The final and conclusive argument against the flat rate proposal is that the objective for which it has been conceived can be achieved in quite another manner, and on lines which, far from involving fatal injury to the Morwell Scheme, will assist it, and at the same time provide for substantial rate concessions to the country districts. This can be done without infringing sound economic or financial principles. The particular methods which are possible to such an end, and the reasons in support of them, it would be premature to discuss in detail, for the reason that they will doubtless form the subject of special legislation which the Government has definitely foreshadowed, but the details of which are still under discussion. Suffice it to say that the method is based upon a system of temporary subsidies to those transmission schemes which hold a promise of becoming self-supporting in the course of a decade or so, in order to make good the annual loss during their non-paying period of development. Such subsidies, instead of being borne almost wholly and exclusively by the Metropolitan users of electricity, as the flat rate advocates in effect desire, will be borne in an equitable proportion by the people of the State as a whole, by the territory to be benefited, and by the users of electricity throughout the State. Such a proposal, even if not ideal, is workable and just, and contains no threat of injury or destruction to the great electricity scheme on which the State has embarked.

Yours obediently,

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

R. LIDDELOW, Secretary.

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