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The London Electricity Inquiry.

THE inquiry into the electric supply for London, which was opened by the Electricity Commissioners on June 14, is still proceeding. Owing to the many conflicting interests of the companies and the local authorities, the question is very complicated; but as there is practical agreement on the engineering side it is hoped that an agreed scheme will be evolved. The Commissioners have to consider six proposals, but only three of them both cover (or nearly cover) the whole area and consider the appointment of a Joint Authority as contemplated by the Electricity Act of 1919. These three proposals were submitted by (1) the London County Council; (2) the conference of local authorities owning electricity undertakings in Greater London; and (3) the London Electricity Joint Committee, 1920, Ltd., which comprises nine of the leading London supply companies. In addition there are also proposals by (4) the Metropolitan Borough Council of Poplar, which asks that the East London supply should be considered as one district; (5) the Great Eastern Railway Co.; and (6) the London, Brighton, and South Coast Railway Co.

The first three proposals have much in common from the engineering point of view. It is recognised that, owing to the financial conditions prevailing at present, the proposals suggested in 1914 for the immediate erection of capital stations would not now be advantageous, although the demand for electric power is much in excess of the supply. At present prices it does

not pay to shut down even antiquated stations and to replace them by others more efficient. The L.C.C. scheme (1) is based on the retention and development of certain of the existing stations in the area, whilst the other stations gradually cease to be generating stations. In the original scheme the building of capital stations before 1925 was contemplated, but it is now thought inadvisable to hamper the "Joint Electricity Authority" with a large capital outlay. It is proposed to organise on a sound basis the present facilities in the area. In the first stage of the scheme as now modified eighteen of the existing sixty-one generating stations will be gradually shut down, and in the second stage a further twenty-six will disappear, leaving only seventeen, of which twelve are owned by private companies. In the first stage thirty-one of the stations would be interlinked by high-pressure cables, working pressures of 33,000 and 11,000 volts being used for the interconnecting mains. Considerable economies could thus be effected by diminishing the capital plant required and having engines running only at their most economical load. It will be seen that the proposal is a direct reversal of the earlier electrical legislation, which always contemplated having two competing companies in each district.

After 1925 the L.C.C. contemplates the building of four new capital stations each of 250,000 kilowatt capacity. It also proposes to reconstruct the existing stations at Stepney and Deptford on a much larger scale. All the new stations would be situated on the Thames. The one at Chiswick would be capable of supplying the whole of Middlesex at 33,000 volts. The remaining stations would be east of the Blackwall tunnel at Blackwall, Beckton, and Greenwich respectively. It is calculated that by extending existing stations and interlinking them there will be a total plant capacity of 577,000 kw. available in 1925, and this could supply a demand for 500,000 kw. It is thus possible to postpone the erection of these super-stations in the hope that money and plant will be cheaper after 1925. The maximum power available by extending existing stations is 760,000 kw., but it is probable that in four years' time the gain in lower working costs effected by building these large stations will more than offset the higher capital charges that would have to be met.

The companies (3) desire to restrict the area—at least in the first instance—within a radius of ten miles from St. Paul's. In their opinion it

would not be economical to supply the outlying districts until the demand increases. They differ also from the L.C.C. and the local authorities in the constitution of the "Joint Authority" which they propose. They suggest that it should consist of sixty-two members. As most of the work would have to be delegated to technical committees, we think that a council of this size is much too big and would prove unworkable.

Very divergent opinions are held by some of the County and Borough Councils interested in the schemes. For example, the Middlesex County Council wants to be excluded, while the Surrey County Council, although only part of its territory is involved, wants to be included. The representative of the Poplar Borough Council, which has a scheme (4) of its own, objected to all the first three schemes.

It was pointed out, when the 1919 Electricity Act was passed, that it would be to the mutual advantage of the Joint Authority and the railways that the former should supply electricity to the latter. Some of the railway companies, including (5) and (6), think that they will be able to generate electricity more cheaply themselves, one of the reasons adduced being that the Joint Authority would not be able to borrow money more cheaply than the railway companies can, and would be hampered by having to provide a sinking fund on its capital, no such necessity arising in the case of the railway companies. We think that this is a very doubtful reason. It seems probable, however, that in any agreed scheme consideration of any railway load will be excluded, at least for the first few years.

The brief account given above of the first results of the inquiry will show that the great expectations which some engineers based on the 1919 Electricity Act have still to be realised. Financial considerations and vested interests have proved stumbling-blocks. But it is very satisfactory to note the conciliatory spirit in which the engineers immediately affected by the proposals have considered them.

Supply engineers recognise that fuel economy is the most important problem they have to study. Recent tests show that in the boiler-house it is possible by scientific management to employ usefully from 80 to 85 per cent. of the calorific value of the fuel. It is heart-breaking, therefore, for some engineers to have to use old-fashioned engines which consume 40 to 50 per cent. more steam per horse-power developed than the best modern engines. In the national interest it is

necessary that these engines should be scrapped at the earliest possible moment. The great increase in electric power consumption is well exemplified in the case of the city of Sheffield. The 1914 consumption was 20 million units. It is now 172 million units, the coal consumption being 5000 tons per week. In this connection we hope that the use of raw coal for steam-raising will soon be a relic of barbarism. There is no difficulty in designing furnaces for utilising coke, and several are in everyday use. The economies effected by using powdered fuel are also worth considering.

A hopeful sign of the times is the increasing co-operation between the electricity and the gas industries. At the inquiry Mr. G. W. Partridge, giving evidence in support of the companies' scheme (3), said that arrangements had been made with the Gas Light and Coke Co. with regard to leasing part of that company's site at Beckton for erecting a super-station which it was proposed to build in sections as the demand grew. Owing to the large quantity of coke and coke breeze on the site, much of which at present goes abroad, the cost of fuel would be very appreciably cheapened. The gas company would also be willing to let to the companies the use of the existing wharves, piers, railway sidings, etc. There would thus be a great saving in capital outlay. Any of the improvements, which are hopefully looked forward to, in the carbonisation of coal, the utilisation of waste heat, and new by-products would be to the mutual advantage of the two interests.

The history of electric supply in this country is largely one of legislative interference with a flourishing industry. We are glad that the industry is now so largely dependent on private initiative. Engineers have no delusions about receiving large Government grants, although the supply of cheap electric power, bringing new industries to life, is vital to the prosperity of the country. The inquiry has proved that the supply engineers are willing to accept the best and, consequently, the most economical solution, even if at first it affects their private interests adversely.

Congress of Universities.

AT Oxford last week the second congress of the Universities of the Empire was held under perfect conditions as to weather and public and private hospitality. The large and distinguished assembly which forgathered in the examination halls on four successive days was drawn from fifty-nine universities widely