Director of Engineering

PARAGRAPH FOR BBC RECORD

ECONOMICS OF TELEVISION BROADCASTING

It is often suggested that on the grounds that the service in general is not so good in the remote country areas as it is in the large centres of the population, television licences should be lower in these areas. Support for this argument cannot, however, be maintained from an examination of the costs involved. The cost of the transmitter installation for providing a television service to a densely populated area works out at a very few shillings per head of the population served. Moreover because of the nearness of such transmitters to programme originating points and the fact that the running costs are shared over a service to so many people, the annual cost of these per head is very low. When, however, we come to consider the cost of providing transmitter facilities to the outlying areas particularly mountainous areas such as North West Scotland and Wales or Island areas such as the Orkneys and Shetlands the costs rise very remarkably. The transmitters in general serve only a very small number of people while the remoteness from the programme source means that special programme links have to be put in that can be as expensive as the transmitter. The result is that per head of population served the cost of providing the facilities can come to some tens of pounds per head of population served. The ratio of the cost can be in the order of 10 or even 20 : 1. Television in the more remote areas is, therefore, very expensive and the cost of providing the service can be higher than any possible licence revenue at the full licence rate. There is certainly no case on any economic grounds for reducing the licence fee, even if this were a practicable proposition. However, in spite of these costs the BBC have gone ahead in the provision of low power stations and already has 83 stations in service on its BBC-1 programmes with work in hand for a further 26.

However, these costs are not the final deterrent to an expansion of television coverage. The real limit of expansion comes from the limited availability of channels on which to put transmitters. Each time a transmitter is added to the existing network there is, of course, a gain to the people in the immediate vicinity of the transmitter, but because in its turn this transmitter causes some interference to viewers already getting a service there is some loss to the existing audience. We can, therefore, reach a stage when the immediate gain is more than offset by the overall loss and an addition becomes no longer justifiable.

FCMcL/EG
14.12.67

PRODUCTIVITY IN BROADCASTING TRANSMITTER SERVICE

The broadcasting transmitter is an installation of considerable complexity and is required to be kept operating within very close performance limits. If all transmitter operations are carried out manually a considerable number of men are required as broadcasting is virtually a 24-hour-a-day operation seven days a week. The use of automatic and unattended techniques were studied in the immediate post-war period and equipment was designed not only to work by itself but to include automatic means for maintaining the quality of the service.

The first unattended stations were low power medium-wave stations which went into service from 1946 onwards and are still operating successfully. By 1951 the techniques which had been developed permitted an unattended medium-wave high power station of 150 kW to be commissioned and since that date other automatic medium-wave stations have been put into service. In conjunction with this, development work was in hand to solve the much more difficult problem of unattended television station operation. The first of these stations for Band 1 television went into service in 1958. Since that date over 60 automatic and unattended installations for Band 1 television broadcasting have been commissioned. To achieve the same results in the UHF band and to ensure that satisfactory performance could be maintained within the even more stringent conditions of colour television further work was carried out. The whole of the BBC-2 network was designed with unattended operation in mind.

Unattended UHF stations suitable for colour television transmission have been designed up to the highest powers and all future installations which will carry BBC-2 and BBC-1 in colour will be constructed on this basis.

As a result, whereas in 1955 the BBC operated 134 transmitters using a total of 994 staff at these stations, in 1967 the number of transmitters operated was 419 and the number of staff had only increased by 1,062. The gain of this development giving an increase in output of over three times for a staff increase of less than 7% is quite clear. There is a large saving in operation expenditure and there has also been a saving in the size of the buildings required as office and canteen facilities are not required at unattended stations. The nature of the work for the men concerned has become much more rewarding and there is no question that had these steps not been taken it would have been well nigh impossible to recruit and train sufficient staff to man the BBC transmitter service from the already over-strained technical manpower resources of the country. At the present time we believe that the BBC developments in unattended transmitter working and its record of continuing improvement in productivity in this field leads the broadcasting world.

FCMcL/EG
13.12.67

11th December 1967

FROM: Chief Engineer, External Relations 602 H.W.H. PABX 5350

SUBJECT: ECONOMICS OF TELEVISION BROADCASTING

TO: D.E.

I have suggested some small changes to your draft paper and I should like to give some background information about the four points marked on the draft:

1. Our first five high power VHF television stations cost about £2,000,000 and serve 40,000,000 people, i.e. just one shilling per head.

2. A small remote relay station can easily cost £8 per head. This gives a ratio of 160 : 1.

3. The capital cost of a typical relay station with one micro-wave link serving 1,500 people is about £12,000, i.e. £8 per head. Interest and depreciation at £12,000 capital would be about £2000p.a. and running cost another £200 p.a. making the total annual cost £400. The maximum possible number of licences from 1,500 people would be 400, so that the cost of serving them with television only would be £1 per licence p.a. This does not justify your statement at the bottom of the page, but it might be possible to justify it if the word "far" is omitted. Of course it is entirely true, if the local people have to carry their share of the programme costs.

4. It might be worth adding the following paragraph:

   Successive Postmasters General have said that it would not be practicable to administer a differential licence fee. This is because of the virtual impossibility of grading the service, area by area, according to the quality of reception. This is especially true of UHF where the standard of reception can vary from one house to another in the same road.

(E. L. E. Pawley)

DA