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9 May 2002

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Dear Laurence,

On behalf of the European Broadcasting Union, I would like to congratulate Professor Cave and his team on their *“Review of Radio Spectrum Management”* issued in March 2002. The Report contains much thoughtful analysis and many stimulating ideas. It is obvious that spectrum pricing and spectrum trading are potentially powerful concepts for spectrum management. In practice, it may be difficult to translate these concepts into practical tools that will deliver the promised benefits of flexibility and improved utilisation of the radio spectrum.

### **Spectrum pricing as an incentive**

Spectrum pricing can undoubtedly be used as a tool to encourage users to be more efficient in their use of the spectrum. For example, traditional private mobile radio systems are widely used by taxi firms, but better spectrum utilisation could be achieved by use of more modern technologies (e.g. data rather than voice communication). The prospect of lower licence fees (or higher fees if they insist on using inefficient technologies) can encourage these taxi operators to change to more efficient technologies – especially if the cost of new equipment for their entire fleet of taxis can be recovered in, say, 3 years through reductions in the licence fees. In such cases, setting the price of the spectrum so as to ensure optimal use of the spectrum is relatively easy.

In the case of the transition from analogue to digital broadcasting, application of spectrum pricing is far more complex: firstly, broadcasters do not own the millions of receivers (which are, by far, the most expensive part of the broadcasting “network”) and, secondly, most broadcasters are obliged to simulcast (i.e. operate their analogue and digital transmitter networks in parallel) until their Government or regulator decides that the analogue broadcast services can be withdrawn.

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Paragraph 11.16 suggests “*it may be possible to use spectrum pricing to hasten achievement of the Government’s targets for switchover from analogue to digital terrestrial TV transmission*” but this seems to be based on a misunderstanding that broadcasters would prefer a slow transition from analogue to digital. In fact, most broadcasters would welcome a rapid transition because this would minimise the costs of simulcasting. However, the speed of this transition will be set by others, namely by the public and by Governments. In the USA, it has been suggested that the FCC should impose punitive spectrum licence fees on broadcasters if they continue to transmit analogue TV services after 2006 (the nominal date set some years ago for the closure of analogue TV). Paragraph 11.43 seems to suggest a similar process by proposing “*spectrum fees varying with the extent of digital take-up*”. Acceleration of the transition from analogue to digital is an important public goal, but it seems grossly unfair to penalise broadcasters who have little direct influence on the public’s adoption of digital TV services.

Paragraphs 11.26 and 11.27 consider the universal coverage obligations applied to public service broadcasters. In many European countries, the number of transmitters needed to achieve 99% coverage is 10 times the number required to achieve 90% coverage. This law of diminishing returns implies very significant costs for broadcasters. It also has a major impact in terms of the amount of spectrum required: 70% coverage can be achieved with, perhaps, 2 or 3 UHF TV channels, but 99% coverage requires between 7 and 10 UHF channels. Given that public service broadcasters are required to build extensive transmitter networks and to use large amounts of spectrum, it is curious that paragraph 11.27 rejects the importance of these practical constraints on public service broadcasters – not by any reasoned arguments but simply by stating the Review team’s belief that “*incentive pricing can play a useful additional role in helping to secure efficient use of spectrum by broadcasters*”.

Paragraph 11.32 notes that “*many users of spectrum for public services are constrained, at least in the short to medium term, by a combination of their past investment decisions and their obligation to provide services*” but adds the comment that “*In the longer term, it is likely that these constraints will either be relaxed or changed*”. It is important to understand that the concept of near-universal coverage is not confined to the UK: for example, one of the criteria for broadcasters wishing to join the EBU is that they must provide services to, at least, 98% of suitably-equipped households in their respective countries. Contrary to the assertion that this constraint will be relaxed or changed, the concept of near-universal coverage remains a crucial element of public service broadcasting throughout Europe.

Spectrum pricing can be used as an incentive to spectrum users to improve their use of the spectrum, but spectrum pricing will not be effective if the licensee is not in complete control of “its” spectrum (e.g. where Governments impose obligations that limit the freedom of the licensee to make rational choices about the use of spectrum).

## **The price of spectrum**

Over the years, various Governments have had serious problems in establishing the market price for spectrum. However, we cannot agree with Recommendation 7.7 – which states that auctions should “*become the default means of assigning licences between competing users*”. Although the National Audit Office Report on the UK’s 3G mobile auction (quoted on page 119 of the Cave Report) states that the NAO had not found “*strong evidence that the levels of the proceeds of the auction will have a negative impact on the*

*wider economic benefits of 3G in terms of taxation and employment in the UK*”, this “negative” finding can hardly be interpreted as strong evidence in favour of auctions. Indeed, this assessment contrasts sharply with the unfavourable assessments made in stock markets, both in the UK and in other European countries.

From the perspective of Governments and spectrum regulators, the primary attraction of spectrum auctions is that they avoid the problem of having to set prices for spectrum. It has long been argued that spectrum regulators should not set prices for spectrum because they had no idea how much spectrum is really worth on the open market. In practice, spectrum auctions merely transfer this problem to the prospective purchasers, who have to decide how much the spectrum is worth to them – or how much they will pay to deprive their competitors of access to spectrum. As a result of 3G auctions in the UK and elsewhere, the idea that the purchasers “know” the value of spectrum has been shown to be extremely naïve. In reality, telecoms companies’ valuations of 3G spectrum were made on the basis of scarcity value, rather than intrinsic value – in other words, some companies decided that they must have access to 3G spectrum and, thus, were prepared to pay any price! The uncomfortable fact that such decisions were made by some of Europe’s best business brains is reflected in the comment in the NAO Report that *“it was the bidders, not Government, who decided the price that was paid”*. Whilst this is entirely true, this comment reveals the narrow perspective of the NAO. As the NAO is mainly concerned with the spending of central government money, it is hardly likely to complain about a windfall of some £22.5 billion! The reality is now that most, if not all, of the “successful” bidders in the 3G auctions now admit publicly that they paid far too much.

The UK’s experience with auctioning commercial TV licences during the early 1990s is also relevant. Judged by any rational measure, it was bizarre that Central TV was awarded its licence with a bid of £2,000 whilst GMTV paid £50 million for a less valuable licence. Although it can be argued that these were not really spectrum auctions, the results failed to demonstrate the expected clarity of the “market place”. With such worrying precedents, it is not at all obvious that spectrum auctions should be the “default” solution to the problems of spectrum pricing.

### **Spectrum trading: practical limitations**

Spectrum trading could be very useful in certain circumstances. Spectrum trading implies that different uses can co-exist within the same spectrum. There are many examples of successful sharing, but some types of sharing would lead to undesirable results. For example, it is difficult for mobile services to share spectrum with fixed links – unless there are restrictions to prevent use of mobile radio transmitters near to the receiving stations for the fixed links.

Broadcasting services require protection at the receiving location. This implies protecting TV and radio reception in millions of individual homes – together with protecting radio reception in many other locations for mobile and portable users. The introduction of digital delivery means that TV reception may also need to be protected for mobile and portable users. As these requirements imply high reliability throughout the broadcast service area, it would be extremely difficult for broadcast services to share spectrum with, for example, mobile radio transmitters – except on a geographically separated basis.

As noted in several parts of the Report, it is necessary to take account of spectrum usage in adjacent countries. Different usage of the spectrum in adjacent countries may limit flexibility – which is inherent in the concept of spectrum trading. This is especially important in mainland Europe, where most countries are land-locked with many neighbouring countries.

In this respect, the UK has the advantage of being geographically isolated from the rest of Europe. Nevertheless, as the following example demonstrates, the UK must not ignore spectrum usage in adjacent countries. In 1984, UK broadcasters relinquished the use of VHF Bands I and III for TV services. At that time, there was much pressure from the mobile radio community for access to additional spectrum. The obvious solution adopted by the UK Government was to allocate the released bands for mobile radio. VHF Band I (41 – 68 MHz) was considered to be unattractive because of high noise levels and the need for large antennas. However, the mobile radio industry loudly proclaimed that VHF Band III (174 – 216 MHz) was “prime spectrum” for mobile radio.

Despite the passage of time since 1984, VHF Band III is still only lightly used for mobile radio in the UK. The biggest constraint has been the need to protect TV services in France and Ireland. Understandably, the regulators in France and Ireland were reluctant to accept significant interference to their TV services. Many so-called experts felt that the low power mobile radio services in London and the south-east of England would not cause any interference to TV services in France. In fact, they had not realised that each TV channel (7 MHz wide) could suffer interference from many mobile radio transmissions (each using a 12.5 kHz channel). As a result of the cumulative interference caused by many PMR channels within each TV channel, very strict limits had to be imposed on the use of VHF Band III for mobile radio, even in the London area. This episode illustrates the dangers of ignoring the need for careful coordination with adjacent countries – but it should also serve as a warning to those who believe that spectrum trading in its pure form will be easy to implement.

It is reassuring to see that the review team commissioned detailed calculations of the interference potential between different services. However, the results require careful analysis to identify whether the resulting sharing mechanism will result, in practice, in efficient use of the radio spectrum. It would be regrettable if spectrum trading increased the flexibility of spectrum utilisation whilst simultaneously reducing the capacity of the radio spectrum to meet the growing needs of users.

The EBU is grateful for the opportunity to comment on this Report. Please do not hesitate to contact me ([laven@ebu.ch](mailto:laven@ebu.ch)) if you need any clarifications or further information.

Yours sincerely



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