



# Future pricing of spectrum used for terrestrial broadcasting

A consultation

Consultation

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## Section 1

# Executive Summary

- 1.1 This consultation is concerned with the future pricing of spectrum used for terrestrial television and radio broadcasting. In particular it addresses the issue of whether, how and when the prices paid for spectrum used for terrestrial broadcasting should reflect the opportunity cost of using spectrum for that purpose, with the objective of ensuring, in the long term, that spectrum is used as efficiently as possible.

### **Spectrum is a valuable and scarce national resource**

- 1.2 The electro-magnetic spectrum is a major asset to the UK, contributing approximately 2-3% to UK GDP and underlying many aspects of our lives. Spectrum is the means by which all wireless communications devices communicate and is therefore critical to areas such as air travel, emergency services, cellular telephony, mobile multimedia and data, radio and television broadcasting, defence and our utilities.
- 1.3 At the same time the amount of spectrum available in the UK is limited. Each use of spectrum creates interference to other users using the same or similar frequencies, in the same or neighbouring areas. Unless use of spectrum is limited, significant interference would likely result, undermining the value of the spectrum to everyone and potentially disrupting services.
- 1.4 As a result of significant growth in demand for wireless applications and services over the last decade or more, most of the useful spectrum in the UK is now in use. Ofcom does not have large amounts of unused spectrum that it can make available for the expansion of existing applications and services, or the introduction of new applications and services (and that which it does have it is making available to the market as quickly as possible commensurate with an orderly process – see the Spectrum Framework Review: Implementation Plan for details). It is therefore increasingly important that all users of spectrum are encouraged to make the most efficient use possible of the spectrum they hold, or to release that spectrum to others who can make better use of it.

### **Ofcom is tasked with ensuring that optimal use is made of spectrum, for the benefit of UK citizens and consumers**

- 1.5 Ofcom is responsible for management of the spectrum for wireless communications in the UK, for all non-Crown users. Ofcom's key statutory duty in this regard is "to secure the optimal use for wireless telegraphy of the electro-magnetic spectrum" for the benefit of citizens and consumers.

### **Spectrum pricing is one tool that Ofcom can use to encourage efficient spectrum use**

- 1.6 Charging annual fees for the holding of spectrum (Wireless Telegraphy Act licence fees) is one way in which Ofcom can encourage current and prospective holders to make the right decisions to ensure efficient use of the spectrum.
- 1.7 Any use of spectrum imposes an opportunity cost on society – the value foregone of alternative use. This is because spectrum is finite and use is exclusionary – the use of spectrum for one purpose precludes its use for another. Therefore all decisions affecting current and future spectrum use should be made with a full and accurate

reflection of these opportunity costs, if those decisions are to lead to the socially optimal allocation of resources in the short and long term. If the opportunity costs of spectrum use are ignored or discounted, socially sub-optimal decisions will be made. One of the best ways of ensuring that the opportunity costs of spectrum are fully and accurately reflected by decision makers, is for those opportunity costs to be reflected in prices that have to be paid to hold spectrum.

- 1.8 This is the principle behind Ofcom's use of what is known as Administered Incentive Pricing, or AIP – the charging of annual fees for the holding of spectrum that reflect the opportunity cost of the holding of that spectrum.
- 1.9 It is important to understand in this context that Ofcom's primary purpose in applying AIP is not, in general, to achieve any specific short-term change in the use of spectrum. Rather, our aim is to ensure that the holders of spectrum fully recognise the costs that their use imposes on society by holding spectrum (or seeking to acquire additional spectrum), when making decisions. We fully appreciate that many holders of spectrum are not in a position to make rapid changes to their use of spectrum in response to the application of AIP, but note that in practically every case the holders of spectrum have opportunities to change their use of spectrum in the longer term, albeit in some cases the longer term may be many years away. The use of AIP is, in our view, justified by the benefits that should materialise in the longer term, as better decisions are made in light of increased awareness and appreciation of the value of spectrum – better decisions that should lead to more efficient use of the spectrum.
- 1.10 Ofcom also has some evidence of the success of this policy. In the last two years alone, significant amounts of spectrum have been returned to Ofcom for re-assignment, as a more or less direct result of AIP. 28MHz of the more valuable spectrum below 3GHz has been released by public and private sector users in response to AIP, as has 160MHz of the second-tier spectrum in the range 3-10GHz.
- 1.11 But to reiterate, it is not our aim, when applying AIP, for large amounts of spectrum to be returned to Ofcom in the short term; rather our aim is to ensure that, in the long term and over time, spectrum is being used as efficiently as possible, and is allocated to the most valuable uses, for the benefit of UK citizens and consumers.

## **AIP and spectrum trading**

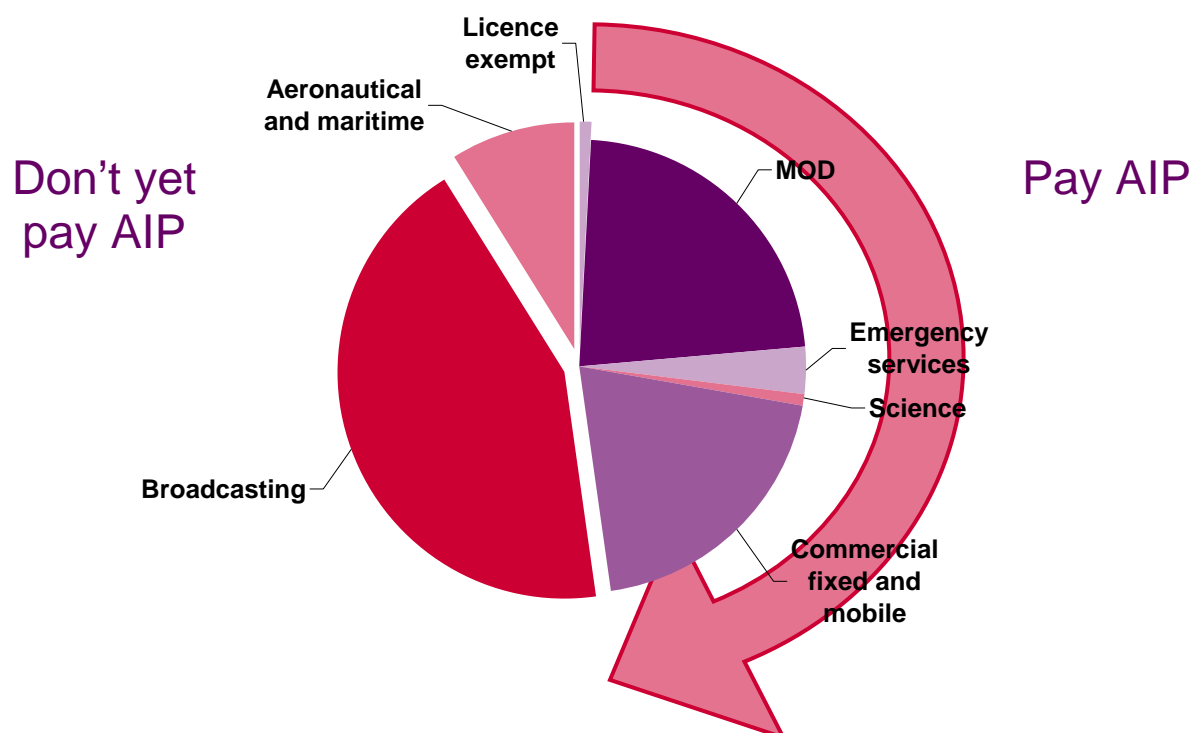
- 1.12 In addition to AIP, Ofcom also has a policy of encouraging the growth of secondary markets in spectrum, which we view as a further valuable tool in promoting efficient spectrum use. However, Ofcom views secondary markets as a complement to spectrum pricing rather than a substitute for it, at least for the time being. In the short term at least, the effectiveness of spectrum markets are likely to be limited by, for example, high transaction costs as a result of a lack of experience of the process, and limits to the availability of information.
- 1.13 The existence of wholesale markets in wireless capacity, such as the one for DTT multiplex capacity, while useful, do not generally create full incentives to use spectrum efficiently. For one thing the wholesale market in DTT multiplex capacity is limited to applications that can be carried on a DTT multiplex, and therefore lacks a mechanism for considering whether alternative uses of the spectrum could be more valuable. Moreover, it is unclear that trade in DTT multiplex capacity has been anything but thin over the past few years. The rate at which capacity has been made available has been lumpy, and it is not clear whether incentives to maximise the value of capacity have been working effectively.

## **A significant proportion of the most valuable spectrum in the UK is used for terrestrial broadcasting**

- 1.14 The spectrum currently of greatest value to the UK economy and society is that below 1GHz. These frequencies combine characteristics of coverage (propagation) and capacity (bandwidth) which make them suitable for a very wide range of different applications, including defence, broadcasting, private and public mobile communications, aeronautical and maritime communications and navigation. Terrestrial broadcasting is currently the largest single user of this spectrum.
- 1.15 Terrestrial television and radio broadcasting currently occupies around 400MHz or 40% of spectrum below 1GHz. Terrestrial television broadcasting alone currently occupies 368MHz of spectrum in the band 470-854MHz (UHF Bands IV and V), although the amount of spectrum reserved for DTT in these frequencies is expected to decline to approximately 256MHz by 2012, as a result of digital switchover (DSO). Analogue terrestrial radio currently occupies around 20MHz of spectrum below 1GHz, mainly in the band 87.5MHz-108MHz (VHF Band II). Similarly terrestrial digital radio broadcasting (DAB) currently occupies 12.5MHz in the band 217.5MHz-230MHz (VHF Band III). This is however expected to increase to approximately 19.5MHz following the Regional Radio Conference 2006, allowing gaps in the coverage of local DAB services to be filled in and an additional national DAB multiplex to be offered.
- 1.16 By contrast, 2G and 3G mobile telephony currently occupies only 70 MHz (7%) of spectrum below 1GHz, and only 350MHz of spectrum below 3GHz.

## **Broadcasting is almost unique among major spectrum users in not currently having to pay AIP**

- 1.17 To date terrestrial broadcasters, or more often than not their transmission service providers, have only had to pay administrative cost-based fees for their use of spectrum, although some commercial broadcasters have in addition paid Broadcasting Act fees that include an implicit charge for the use of spectrum, based on the value of that spectrum to the broadcaster in its current analogue use.
- 1.18 By contrast (and except where an auction has been used to assign spectrum) almost all other users of the radio spectrum having a specific spectrum assignment have to pay AIP. AIP, or its equivalent, is not only paid by most commercial users of spectrum, but also by many government and public agencies, including for example the police, fire and ambulance services, and the MoD. Broadcasting is one of the few remaining areas of spectrum use where AIP has not yet been applied.



**Terrestrial broadcasting is the largest user of spectrum below 1GHz that doesn't as yet pay AIP**

**The application of AIP to broadcast uses of spectrum was recommended by the 2002 Cave Review – a recommendation endorsed by the Government**

- 1.19 In his Independent Review of Radio Spectrum Management, published in 2002, Professor Martin Cave recommended that AIP be applied to the spectrum used for terrestrial broadcasting in the same way as it is applied to most other services. In its response, published in the same year, the Government endorsed this recommendation:

“The Government agrees that spectrum pricing is a tool which should be applied to all broadcasters to promote the most efficient use of the spectrum.”

- 1.20 At the same time both Prof Cave and the Government recognised the need for the manner and timing of the introduction of AIP on spectrum used for terrestrial broadcasting to take account of a number of factors, including for example the need to ensure that wider public policy is taken into account, and that extant regulatory agreements with broadcasters are respected (noting for example that the licence fees paid by some commercial broadcasters already encompass an implicit payment for access to spectrum).
- 1.21 In 2004 Ofcom put forward some initial ideas, for consultation, on how AIP might be applied to spectrum used for terrestrial broadcasting, as part of a wide ranging review of spectrum pricing<sup>1</sup>. A number of points were raised in response to this consultation

<sup>1</sup> Spectrum Pricing: A consultation on proposals for setting wireless telegraphy act licence fees, 29 September 2004

by both broadcasters and others; additional points have also been raised with us subsequently.

### **A number of objections have been raised to the application of full AIP to broadcasting uses of spectrum**

- 1.22 Some broadcasters have argued that because they are subject to significant constraints on their use of spectrum, and have limited flexibility to respond to incentive pricing, there is limited benefit in applying incentive pricing to broadcast use of spectrum. In addition it is argued, particularly by Public Service Broadcasters (PSBs), that they generate value for society and should therefore be given a discount on the normal level of AIP.
- 1.23 PSBs (in particular BBC and Channel 4) also argue that applying AIP will reduce the budget that they have available for programming and therefore impact on the delivery of PSB – arguing that it is more efficient to not apply AIP than it is to apply it and then have to provide additional funding for PSB. They argue that charging PSBs AIP, but off-setting the impact on PSB through other sources of funding may achieve the same impact as providing spectrum to PSBs for free, but is inferior because administrative costs are higher and it carries a greater risk of regulatory failure because of the need to calculate the level of funding required to off-set the impact of AIP on PSB.

### **Ofcom has carefully considered these and other relevant issues and provisionally concluded that, these arguments notwithstanding, AIP should be applied to broadcasting uses of spectrum in the same way as other uses.**

- 1.24 Following our initial consultation in 2004, and in light of responses received, Ofcom decided to commission a report from the consultants Indepen and Aegis, together with Dr Damian Tambini of Oxford University, looking specifically at the issues surrounding the application of AIP to spectrum used for terrestrial broadcasting. The consultants delivered their report to Ofcom in December 2005. Their main conclusions were:
- It is entirely appropriate, from an economic perspective, to apply AIP to broadcast uses of spectrum, notwithstanding the societal benefits that may be generated by broadcasting and the regulations that exist to ensure that broadcasting meets public policy objectives.
  - There is no economic merit in discounting the level of AIP applied to broadcasting uses of spectrum, notwithstanding that broadcasting delivers societal value in excess of the private value enjoyed by its providers.
  - The current methods of setting AIP (as used to set AIP in other sectors) remain appropriate, and fully reflect the level of output needed to deliver today's societal value of broadcasting, which is ensured by the wider broadcasting policy framework that Government and Ofcom have put in place.
- 1.25 Ofcom has carefully reviewed the analysis undertaken by the consultants and concluded, subject to the outcome of this consultation, that it is sound.
- 1.26 Ofcom has also considered the practicality of applying AIP to the spectrum used for terrestrial broadcasting, and the impact of doing so on various stakeholders. Ofcom has provisionally concluded, subject to the outcome of this consultation, that it is both



practical and appropriate to apply AIP to the spectrum used for terrestrial broadcasting, and we therefore propose to do so.

**There are numerous opportunities for action in other areas to reflect the charging of AIP for terrestrial broadcast uses of spectrum**

- 1.27 The most significant issue with applying AIP to spectrum used for broadcasting is its potential impact on the financial capacity of broadcasters to deliver PSB and other socially desirable, but perhaps commercially non-viable, broadcasting services. This raises the challenge of how to maintain the desirable level of such services once AIP has been introduced.
- 1.28 Ofcom was created as the converged regulator for communications in the UK, with duties encompassing both broadcasting and spectrum management, precisely because cross-sectoral issues, such as these, require a more holistic approach than the previous separate regulators could easily adopt. In considering our approach to the application of AIP to spectrum used for terrestrial broadcasting, we are therefore not constrained to think only within the narrow confines of spectrum management, and thereby forced to consider the current arrangements for the securing of broadcasting policy objectives as unchangeable, but rather can take a wider view, considering what might be the best way of simultaneously achieving both spectrum management and broadcasting policy objectives. In considering the introduction of AIP on spectrum used for terrestrial broadcasting, we have therefore not taken the current arrangements for the securing of broadcasting policy objectives as a given, but rather have considered the problem in the round, and sought to identify the best approach to securing optimal use of the electro-magnetic spectrum whilst simultaneously continuing to secure the fulfilment of broadcasting policy objectives.
- 1.29 Whilst we accept that the challenge of maintaining socially valuable broadcasting after the introduction of AIP exists, we believe that it can be better met through means other than the discounting of AIP – there is plenty of opportunity, between now and when we propose to introduce AIP for other policy reviews to reflect upon the likely impact of our proposals and to make appropriate provision to maintain the desired level of services or make alternative policy choices. Forthcoming policy reviews that will be able to consider and respond to the impact of our proposals include:
- Ofcom's work on the future of PSB in a digital world
  - Ofcom's next statutory Review of PSB in 2009
  - Ofcom's project on the Future of Radio Licensing
  - Future decisions on the establishment of a local television licensing regime
  - Ofcom's financial review of Channel 4
  - Future decisions on the TV licence fee
  - The Government's proposed review of public funding for PSB beyond the BBC
- 1.30 Given the timescales for implementation that we are proposing there would also be opportunity for new primary legislation if necessary, for example to permit new methods of funding of socially desirable broadcasting to be introduced.

### **Proposed timing of introduction**

- 1.31 In its response to the Independent Review of Radio Spectrum Management, published in 2002, the Government gave certain commitments as to the earliest dates from which broadcasters would have to pay AIP. In the interests of regulatory certainty Ofcom proposes to stand by those commitments. Meanwhile Ofcom has carefully considered the dates from which it would be most appropriate to apply AIP to the spectrum used by each of the different types of terrestrial broadcasting, depending upon the specific facts of the situation in each case.
- 1.32 Ofcom has reached the following conclusions and is therefore now consulting on the following specific proposals:

### **No AIP on analogue terrestrial television use of spectrum pre DSO**

- 1.33 Ofcom proposes not to charge the broadcasters (or their transmission service providers) AIP on spectrum used for current analogue terrestrial television broadcasts, prior to the switch off of those services as part of the DSO programme.
- 1.34 Timely achievement of DSO is key to more efficient use of the spectrum in UHF bands IV and V. Ofcom considers, however, that there are already sufficient incentives on the broadcasters (and their transmission service providers) to meet the DSO timetable, without need for the added incentive of AIP.
- 1.35 We note in particular that, were the broadcasters who hold Digital Replacement Licences (DRLs) or digital terrestrial television multiplex licences to fail to meet the timetable for Digital Switchover to be set out in those licences, for reasons within their control, Ofcom would be able to fine them up to 5% of annual qualifying revenue or multiplex revenue (as the case may be) for each year of delay. Such fines could amount to many tens of millions of pounds per annum per broadcaster if the DSO programme were materially delayed across the country.
- 1.36 In light of these incentives, and in view of the relatively short period of time between now and DSO, it does not seem proportionate to establish an AIP regime for the use of spectrum for analogue terrestrial television broadcasting at this time.
- 1.37 Ofcom does however intend to reserve the right to revisit any decision not to charge AIP on spectrum used for this purpose if the implementation of DSO is materially delayed or postponed indefinitely.

### **No AIP on digital terrestrial television use of spectrum until 2014**

- 1.38 Ofcom proposes not to charge the operators of digital terrestrial television multiplexes (or their transmission service providers) AIP on spectrum used to broadcast the current digital terrestrial television multiplexes until 2014.
- 1.39 In its response to the Independent Review of Radio Spectrum Management in 2002 the Government gave a commitment that current digital terrestrial television multiplex operators would not have to pay for their use of spectrum prior to the end of their first licence period (or equivalent in the case of the BBC), which is either 2010 or 2014 depending upon the multiplex. In the interests of consistency Ofcom now considers it best to settle on a single date for the introduction of AIP on spectrum used for the broadcasting of the existing digital terrestrial television multiplexes, and proposes that this be 2014 (being the earliest such date that is consistent with the Government's commitment).

- 1.40 The level of AIP to be applied will need to be calculated nearer the time, on the basis of the best information available at that time.

**Existing system of population-based spectrum fees for independent national and local analogue radio stations to be extended to the BBC**

- 1.41 In the case of analogue radio, existing spectrum fees (Wireless Telegraphy Act licence fees) already reflect AIP principles to a significant extent for independent broadcasters. They are already based on population coverage, and therefore reflect at least in part the amount and value of spectrum used. Ofcom proposes to extend this existing system of population-based spectrum fees to the BBC. Ofcom also proposes to consider the merits and practicality of enhancing this existing system to reflect differences in the amount of spectrum used to broadcast different analogue radio services. These two proposals alone will, in large part, bring existing spectrum fees for analogue radio broadcasting into line with AIP principles. Since we do not anticipate these changes having a large impact on any broadcaster apart from the BBC, we propose introducing these changes in 2008, following further consultation on detailed proposals during 2007.

**No AIP on existing and already planned digital terrestrial radio use of spectrum until 2012**

- 1.42 Ofcom proposes not to charge the operators of current and already planned terrestrial digital radio multiplexes (or their transmission service providers) AIP on the spectrum used to broadcast those multiplexes until 2012. This proposal extends to the eventual acquirers of the additional local and national digital radio multiplexes that Ofcom intends to start advertising later this year (following Ofcom's decision in December 2005 on the licensing of VHF Band III, Sub-band 3), as well as to the operators of the existing local and national digital radio multiplexes. This proposal mirrors our proposal with regard to the application of AIP to DTT, which is itself based on the Government response to the Cave Review, which committed to not charging AIP on spectrum used for DTT until the end of the initial licence period of the DTT mux operators. In the case of terrestrial digital radio (DAB) the end of the initial licence period for the first national multiplex is in November 2011.
- 1.43 The level of AIP to be applied will need to be calculated nearer the time, on the basis of the best information available at that time.

**AIP to apply immediately to any spectrum acquired for any new terrestrial broadcast service, unless acquired at auction**

- 1.44 Ofcom proposes, however, that AIP should, in principle, apply immediately to any spectrum acquired for the purpose of broadcasting any new terrestrial service, unless such spectrum is acquired through an auction. At this time of intense interest in spectrum, for a wide range of different purposes, it is essential that any new allocation of spectrum to terrestrial broadcasting is made in full recognition of the opportunity costs that such allocation will impose. Applying AIP is one of the best ways of ensuring that this happens.

**In the interim, Ofcom intends to update existing cost recovery prices to reflect Ofcom's costs**

- 1.45 Irrespective of the outcome of this consultation, Ofcom intends to update the cost recovery fees currently charged to certain broadcasting users of spectrum to reflect

our current costs. These fees have not been updated since they were set by the RA in 1997. We intend to consult on changes to these fees during 2007.

### Other related activities

- 1.46 In addition to the policy reviews set out above, Ofcom is currently undertaking, or has plans to undertake, work in a number of other related areas including:
- Work to develop proposals for the application of AIP to aeronautical and maritime uses of spectrum – two other major areas of spectrum use to which AIP does not currently apply;
  - Consideration of the options by which Recognised Spectrum Access (RSA) might be made available to satellite users of spectrum, with a view to giving receive-only users equivalent rights of protection as terrestrial service users, but also equivalent incentives to make efficient use of the spectrum that such protection requires.

### Responding to this consultation

- 1.47 Stakeholders are invited to submit their written views and comments on the issues raised in this consultation, and on the analysis presented in the associated consultants' report, **by 5pm on Friday 27 October 2006.**

## Section 2

# Background

### The significance of spectrum to the UK

- 2.1 The electro-magnetic spectrum is a major asset to the UK, contributing approximately 2-3% to UK GDP and underlying many aspects of our lives. Spectrum is the means by which all wireless communications devices communicate and is therefore critical to areas such as air travel, emergency services, cellular telephony, mobile multimedia and data, radio and television broadcasting, defence and our utilities.
- 2.2 At the same time the amount of spectrum available in the UK is limited. Each use of spectrum creates interference to other users using the same or similar frequencies, in the same or neighbouring areas. Unless use of spectrum is restricted, significant interference would likely result, undermining the value of the spectrum to everyone and potentially disrupting services.
- 2.3 As a result of significant growth in demand for wireless applications and services over the last decade or more, most of the useful spectrum in the UK is now in use. Ofcom does not have large amounts of unused spectrum that it can make available for the expansion of existing applications and services, or the introduction of new applications and services (and that which it does have it is making available to the market as quickly as possible commensurate with an orderly process – see the Spectrum Framework Review: Implementation Plan for details). It is therefore increasingly important that all users of spectrum are encouraged to make the most efficient use possible of the spectrum they hold, or to release that spectrum to others who can make better use of it.

### Ofcom's role and approach to spectrum management

- 2.4 Ofcom is responsible for management of the spectrum for wireless communications in the UK, for all non-Crown users. Ofcom's key statutory duty in this regard is "to secure the optimal use for wireless telegraphy of the electro-magnetic spectrum" for the benefit of citizens and consumers.

### Administered Incentive Pricing in theory and practice

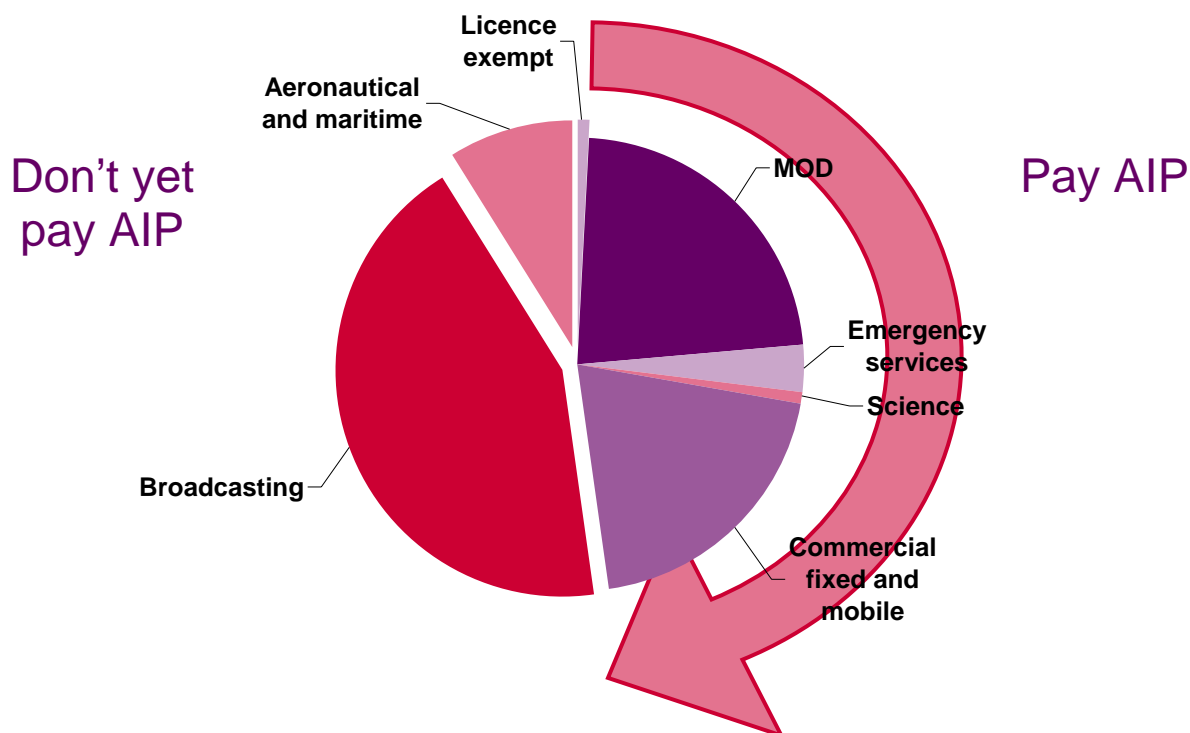
- 2.5 Charging annual fees for the holding of spectrum (Wireless Telegraphy Act licence fees) is one way in which Ofcom can encourage current and prospective holders to make the right decisions to ensure efficient use of the spectrum.
- 2.6 Any use of spectrum imposes an opportunity cost on society – the value foregone of alternative use – because spectrum is finite and use is exclusionary – use of spectrum for one purpose precludes its use for another. All decisions affecting current and future spectrum use should be made with a full and accurate reflection of these opportunity costs, if those decisions are to lead to the socially optimal allocation of resources in the short and long term. If the opportunity costs of spectrum use are ignored or discounted, socially sub-optimal decisions will be made. One of the best ways of ensuring that the opportunity costs of spectrum are fully and accurately reflected by decision makers, is for those opportunity costs to be reflected in prices that have to be paid to hold spectrum.

- 2.7 This is the principle behind Ofcom's use of what is known as Administered Incentive Pricing, or AIP – the charging of annual fees for the holding of spectrum that reflect the opportunity cost of the holding of that spectrum. By charging such fees, Ofcom seeks to ensure that the opportunity costs of holding spectrum are fully and accurately reflected by decision makers when decisions are made that could affect future spectrum use – not only decisions about the allocation, assignment and continued holding of spectrum, but also decisions about related matters, such as investment in R&D to develop more spectrum efficient technologies. This has been the rationale behind Ofcom's use of Administered Incentive Pricing (AIP) of spectrum since 1998.
- 2.8 It is important to understand in this context that Ofcom's primary purpose in applying AIP is not, in general, to achieve any specific short-term change in the use of spectrum. Rather, our aim is to ensure that the holders of spectrum fully recognise the costs that their use imposes on society by holding spectrum (or seeking to acquire additional spectrum), when making decisions. We appreciate that many holders of spectrum are not in a position to make rapid changes to their use of spectrum in response to the application of AIP. The use of AIP is none the less, in our view, justified by the benefits that should materialise in the longer term, as better decisions are made in light of increased awareness and appreciation of the value of spectrum – better decisions that should lead to more efficient use of the spectrum.
- 2.9 Ofcom also has some evidence of the success of this policy. In the last two years alone, significant amounts of spectrum have been returned to Ofcom for re-assignment, as a more or less direct result of AIP. 28MHz of more valuable spectrum (<3GHz) and 160MHz of second-tier spectrum (3-10GHz) has been released by users. Examples reflecting the existence of AIP include:
- 12MHz of spectrum between 2290 MHz and 2302MHz, returned by the MoD, saving them spectrum fees of nearly £3m per annum;
  - 76MHz of spectrum returned by private sector licensees, saving them significant licence fees;
  - Reduction of 50% in number of fixed links in 11GHz band reflecting a move to more efficient technology; and
  - Acceleration of technology change in utility, transport and other sectors with consequent reduction in spectrum demand.
- 2.10 But to reiterate, it is not our aim, when applying AIP, for large amounts of spectrum to be returned to Ofcom in the short term; rather our aim is to ensure that, in the long term and over time, spectrum is being used as efficiently as possible, and is allocated to the most valuable uses, for the benefit of UK citizens and consumers.
- 2.11 In addition to AIP, Ofcom also has a policy of encouraging the growth of secondary markets in spectrum, which we view as a further valuable tool in promoting efficient spectrum use. However, Ofcom views secondary markets as a complement to spectrum pricing rather than a substitute for it, at least for the time being. In the short term at least, the effectiveness of spectrum markets are likely to be limited by the presence of transaction costs, e.g. if several users need to coordinate in order to effect a spectrum trade, and lack of full information on the part of buyers and sellers may also hamper effective trading. Ofcom therefore intends to continue using AIP, as a tool to encourage more efficient spectrum use, for the foreseeable future.

## Use of spectrum for terrestrial broadcasting

- 2.12 The spectrum currently of most value to the UK economy and society is that below 1GHz. These frequencies combine characteristics of coverage (propagation) and capacity (bandwidth) which make them suitable for a wide range of different applications, including defence, broadcasting, private and public mobile communications, aeronautical and maritime communications and navigation. Terrestrial broadcasting is currently the largest single user of this spectrum.
- 2.13 Terrestrial television and radio broadcasting currently occupies around 400MHz or 40% of spectrum below 1GHz. Terrestrial television broadcasting alone currently occupies 368MHz of spectrum in the band 470-854MHz (UHF Bands IV and V), although the amount of spectrum reserved for DTT in these frequencies is expected to decline to approximately 256MHz by 2012, as a result of digital switchover (DSO). Analogue terrestrial radio currently occupies around 20MHz of spectrum below 1GHz, mainly in the band 87.5MHz-108MHz (VHF Band II). Similarly terrestrial digital radio broadcasting (DAB) currently occupies 12.5MHz in the band 217.5MHz-230MHz (VHF Band III). This is however expected to increase to approximately 19.5MHz following RRC06, allowing gaps in the coverage of local DAB services to be filled in and an additional national DAB multiplex to be offered.
- 2.14 By contrast, 2G and 3G mobile telephony currently occupies only 70 MHz (7%) of spectrum below 1GHz and only 350MHz of spectrum below 3GHz.
- 2.15 To date terrestrial broadcasters, or more often than not their transmission service providers, have only had to pay administrative cost-based fees for their use of spectrum, although some commercial broadcasters have in addition paid Broadcasting Act fees that include an implicit charge for the use of spectrum, based on the value of that spectrum to the broadcaster in its current analogue use.
- 2.16 By contrast (and except where an auction has been used to assign spectrum) almost all other users of the radio spectrum having a specific spectrum assignment have to pay AIP. AIP, or its equivalent, is not only paid by most commercial users of spectrum, but also by many government and public agencies, including for example the police, fire and ambulance services, and even the MoD. Broadcasting is one of the few remaining areas of spectrum use where AIP has not yet been applied.





**Terrestrial broadcasting is the largest user of spectrum below 1GHz that doesn't as yet pay AIP**

### **Deliberations to date on the application of AIP to terrestrial broadcasting**

- 2.17 In his Independent Review of Radio Spectrum Management, published in 2002, Professor Martin Cave recommended that AIP be applied to the spectrum used for terrestrial broadcasting in the same way as it is applied to most other services. In its response, published in the same year, the Government endorsed this recommendation:

“The Government agrees that spectrum pricing is a tool which should be applied to all broadcasters to promote the most efficient use of the spectrum.”

- 2.18 At the same time both Prof Cave and the Government recognised the need for the manner and timing of the introduction of AIP on spectrum used for terrestrial broadcasting to take account of a number of factors, including for example the need to ensure that wider public policy is taken into account, and that extant regulatory agreements with broadcasters are respected (noting for example that the licence fees paid by some commercial broadcasters already encompass an implicit payment for access to spectrum).
- 2.19 In 2004 we put forward some initial ideas, for consultation, on how AIP might be applied to spectrum used for terrestrial broadcasting, as part of a wide ranging review of spectrum pricing<sup>2</sup>. A number of points were raised in response to this consultation by both broadcasters and others; additional points have also been raised with us subsequently.

<sup>2</sup> Spectrum Pricing: A consultation on proposals for setting wireless telegraphy act licence fees, 29 September 2004



- 2.20 In light of responses received to this initial consultation, Ofcom decided to commission a report from the consultants Indepen and Aegis, together with Dr Damian Tambini of Oxford University, looking specifically at the issues surrounding the application of AIP to spectrum used for terrestrial broadcasting. The consultants delivered their report to Ofcom in December 2005. It is being published by Ofcom alongside this consultation document. Much of the analysis presented here is drawn from that report, and the reader should refer to that report if they require further detail. Where stakeholders have views and comments on the analysis in that report they are welcome to include them in their written responses to this consultation.
- 2.21 Subsequent to the receipt of that report, Ofcom has undertaken further analysis, and consulted with the relevant Government departments, in preparation for the publication of this consultation document.
- 2.22 The remainder of this consultation document is structured as follows:
- In section 3 we discuss the issues that have been raised to date with the application of AIP to spectrum used for terrestrial broadcasting, and present our analysis of them;
  - In section 4 we consider a range of options for the timing of the introduction of AIP on spectrum used for terrestrial broadcasting, both in general and for each major class of terrestrial broadcast service – television and radio, analogue and digital – and present our proposals for consultation; and
  - In section 5 we note some other related matters.
  - Annex 1 provides details of how to respond to this consultation; and
  - Annex 5 provides an assessment of the impact of our proposals (an IA).
- 2.23 The closing date for responses to this consultation is **5pm on Friday 27 October**. Ofcom would welcome views and comments on any aspect of the issues raised in this consultation, where possible supported by evidence and analysis. Ofcom would also welcome views and comments on the analysis presented in the associated consultants' report.

## Section 3

# Issues with the extension of AIP to spectrum used for terrestrial broadcasting

3.1 A number of issues have been raised with the extension of AIP to spectrum used for terrestrial broadcasting:

- That the terrestrial broadcasters are subject to regulatory constraints on their use of spectrum that prevent them from changing their spectrum use, and hence it would not be appropriate to apply AIP to the spectrum they hold;
- That trading in broadcast multiplex capacity provides the same incentive for efficient spectrum use as does AIP, and that AIP is therefore unnecessary;
- That broadcasting in general, and certain types of broadcasting in particular (e.g. PSB television) generate value for society in excess of the value to the individual broadcaster, and that broadcasters (in general or in particular) should therefore receive a discount on the level of AIP;
- That applying AIP to certain broadcasters (e.g. the BBC and Channel 4) without a corresponding increase in funding will lead to a reduction in the provision of socially desirable programming, and that applying AIP and then providing such funding is less efficient than not applying AIP at all.

3.2 More generally it is clear that AIP needs to be applied to spectrum used for broadcasting in a way that allows other public policy objectives to continue to be delivered, albeit not necessarily without change to the arrangements in place to secure the achievement of those objectives. In this regard we agree with points made in the Government's response to the Cave Review, including:

- "The Government agrees that spectrum pricing is a tool which should be applied to all broadcasters to promote the most efficient use of the spectrum."
- "However, the way in which spectrum pricing is introduced and the timetable for its introduction will depend on a number of factors, including practical constraints – for example, extant regulatory agreements between broadcasters – and policy considerations, including the take-up of digital TV, competition concerns and the legitimate expectations of commercial licensees, and other objectives, including universal availability, of broadcasting policy."

3.3 Ofcom was created as the converged regulator for communications in the UK, with duties encompassing both broadcasting and spectrum management, precisely because cross-sectoral issues, such as these, require a more holistic approach than the previous separate regulators could easily adopt. In considering our approach to the application of AIP to spectrum used for terrestrial broadcasting, we are therefore not constrained to think only within the narrow confines of spectrum management, and thereby forced to consider the current arrangements for the securing of broadcasting policy objectives as unchangeable, but rather can take a wider view, considering what might be the best way of simultaneously achieving both spectrum management and broadcasting policy objectives. In considering the introduction of AIP on spectrum used for terrestrial broadcasting, we have therefore not taken the

current arrangements for the securing of broadcasting policy objectives as a given, but rather have considered the problem in the round, and sought to identify the best approach to securing optimal use of the electro-magnetic spectrum whilst simultaneously continuing to secure the fulfilment of broadcasting policy objectives.

- 3.4 In the remainder of this section we consider each of the issues raised in turn, but first we reprise the fundamental rationale behind AIP and confirm that this rationale is as relevant to broadcasting as it is to other uses of spectrum.

### **The fundamental rationale behind AIP and its applicability to terrestrial broadcasting**

#### **AIP creates an incentive to use spectrum efficiently**

- 3.5 Any use of spectrum imposes an opportunity cost on society – the value foregone of alternative use – because spectrum is finite and use is exclusionary – use of spectrum for one purpose precludes its use for another. All decisions affecting current and future spectrum use should be made with a full and accurate reflection of these opportunity costs, if those decisions are to lead to the socially optimal allocation of resources in the short and long term. If the opportunity costs of spectrum use are ignored or discounted, socially sub-optimal decisions will be made – for example insufficient investment will be made in the development and deployment of innovative and more spectrally efficient technologies, inappropriate decisions will be taken about the relative merits of different delivery platforms (using more or less spectrum), current and prospective users of spectrum will not be encouraged to efficiently reduce their spectrum demand, and spectrum may be inefficiently allocated to lower value uses because the value of spectrum to other uses (the opportunity cost) is not properly recognised.
- 3.6 One of the best ways of ensuring that the opportunity costs of spectrum are fully and accurately reflected by decision makers, is for those opportunity costs to be reflected in prices that have to be paid to hold spectrum.
- 3.7 If spectrum were a freely and efficiently traded good, with sufficient liquidity and transparency that prices in the market were known at all times, and were a good reflection of market value (say like land), and if all users of spectrum had to acquire the spectrum that they needed through the market, then users would have to pay a price for spectrum (the price of acquisition) that reflected the (forward looking) opportunity cost at that time. Since they would also be able to generate a revenue by selling the spectrum they held, and would forego this revenue by continuing to hold the spectrum, there would also be a 'price' associated with holding spectrum on an ongoing basis (a price that would reflect the value of the spectrum to other users i.e. the opportunity cost).
- 3.8 However in the absence of such an efficient market, charging the holders of spectrum an annual fee for doing so, that reflects the opportunity cost to society of them holding that spectrum, is another very effective and efficient way of ensuring that those opportunity costs are fully and accurately reflected in decisions made about spectrum use – decisions made not only by those that currently hold spectrum, but also by potential holders, by those that supply products to (potential) holders, and by policy makers whose policy decisions may affect future spectrum use.
- 3.9 This is the rationale behind Administered Incentive Pricing of spectrum in the UK – the charging of annual fees for the holding of spectrum that reflect the opportunity cost to society of the spectrum held. By charging AIP, decision makers are

encouraged to take the opportunity costs of spectrum fully and accurately into account in their decision making, whether those decisions are directly about spectrum use, or are about other matters that will, none the less, affect demand for spectrum in the future, whether in the short or long term.

- 3.10 Were spectrum a freely, efficiently and transparently traded good in the UK, then it might not be so important to charge AIP, since the opportunity costs of holding spectrum would be more obvious to decision makers. None the less, even in such a scenario it might still be desirable to apply AIP to ensure that opportunity costs are fully recognised and internalized by all decision makers (for example those in the public sector that may be more sensitive to cash costs than opportunity costs).
- 3.11 It is important to understand in this context that the application of AIP is not designed to achieve any particular change in spectrum use in either the short or long term, other than the general objective of securing optimal use. The application of AIP is one of the principal tools of Ofcom's market-led approach to spectrum management, which aims to leave many decisions about future spectrum use to the market. The purpose of AIP is to ensure that the market has the right signals about the opportunity costs of spectrum use, to ensure that the decisions taken are in the best interests of UK citizens and consumers.
- 3.12 Applying AIP to the holders of spectrum is intended not only to ensure that current holders look seriously at whether they can make more efficient use of the spectrum they hold, or look to release spectrum to some other user who can make better use of it, in both the short and long term, but also to ensure that all current and prospective users of spectrum, their suppliers, and relevant policy makers, are aware of, and take due account of, the opportunity cost of spectrum in all relevant decisions that could affect both short and long term spectrum use.
- 3.13 This policy is entirely consistent with Ofcom's statutory duties and the legal framework within which Ofcom is permitted to charge annual fees for spectrum use in excess of the costs of administration.
- 3.14 Ofcom's power to prescribe wireless telegraphy license fees derives from the Wireless Telegraphy Act 1998, as amended by the Communications Act 2003. Section 2(2) of the 1998 Act, as amended by the 2003 Act, states:

"OFCOM may, if they think fit in the light (in particular) of the matters to which they are required to have regard under section 154 of the Communications Act 2003, prescribe sums which would be greater than those that would be necessary for the purposes of recovering costs incurred by them in connection with functions under the enactments relating to management of the radio spectrum."

- 3.15 Section 154(2) of the Communications Act 2003 states:

"It shall also be [Ofcom's] duty, in carrying out their functions under [the enactments relating to the management of the radio spectrum] to have regard, in particular, to the desirability of promoting –

- (a) the efficient management and use of the part of the electro-magnetic spectrum available for wireless telegraphy;
- (b) the economic and other benefits that may arise from the use of the wireless telegraphy;

- (c) the development of innovative services; and
- (d) competition in the provision of electronic communications services.”

3.16 Ofcom’s view is that charging AIP does indeed promote the efficient management and use of the spectrum available for wireless telegraphy, and through more efficient use, promotes the economic and other benefits that may arise from that use. Since AIP also encourages those that hold spectrum to look for ways to make better use of it, and to release spectrum that they no longer need, it should also reduce spectrum scarcity and thereby promote the development of innovative services and competition in the provision of services.

### **Terrestrial broadcasting imposes opportunity costs on society like any other spectrum use**

3.17 The reservation and holding of spectrum for terrestrial broadcasting imposes opportunity costs on society in exactly the same way as does the reservation or holding of spectrum for any other purpose – the value lost to society of the alternative uses that are denied access to that spectrum. Those opportunity costs arise irrespective of whether broadcasting is the most socially desirable use of the spectrum, or how efficiently broadcasting makes use of the spectrum it holds. In all cases society is being denied the value that could be generated through alternative use of that spectrum, and it is essential that that value is fully and accurately recognised when decisions are made that could affect future spectrum use.

3.18 Ofcom has reviewed the evidence available to it at this time, and estimates that the opportunity cost of spectrum currently reserved for terrestrial broadcasting is of the order of:

- In the case of analogue terrestrial television, approximately £40 million per annum for each of the four main analogue TV channels (BBC1, BBC2, ITV1 and Channel 4) and approximately £24 million per annum for Five;
- In the case of digital terrestrial television, approximately £16-24 million per annum for each of the three PSB multiplexes, and approximately £10-20 million per annum for each of the three commercial multiplexes, based on their anticipated use of spectrum post DSO;
- In the case of digital terrestrial radio (DAB), approximately £650,000 per annum for each national multiplex, or group of local multiplexes sharing a common frequency block;
- In the case of analogue radio, Ofcom does not currently have reliable estimates of opportunity cost, but believes that demand for this spectrum for alternative uses is low.

3.19 It should be emphasised that these are only Ofcom’s current estimates of the opportunity cost and are subject in some cases to quite large degrees of uncertainty. Before we bring forward proposals for the actual implementation of AIP in any particular area, we will need to refine these estimates by reference to the best information available to us at the time. By then it may well be the case that there will have been a number of spectrum auctions, and also transfers in the spectrum market, which could provide additional information as to the opportunity cost of

spectrum in the relevant bands, and which any such price setting review will be able to take into account.

### **Terrestrial broadcasters face a number of decisions that will affect future spectrum use – decisions that should be taken with a full and true appreciation of the opportunity cost of spectrum**

- 3.20 Terrestrial broadcasting differs from other types of spectrum use in a number of respects, in particular it is subject to a raft of regulation, put in place through the various Broadcasting Acts, designed to promote broadcasting policy objectives, which place more or less constraints on the freedom of the broadcasters to decide, amongst other things, how they use the spectrum they hold.
- 3.21 None the less, broadcasters individually, and the broadcasting sector more generally, are faced with a number of decisions that will ultimately affect future spectrum demand and use. Decisions such as:
- How to make best use of existing terrestrial broadcast capacity, including decisions about matters such as picture quality (bit rate) and intensity of capacity use (degree of statistical multiplexing);
  - What investment to make in the development and deployment of new technologies that might improve spectrum utilization, such as new coding techniques, or require additional capacity, such as HDTV; and
  - Over which platforms to offer what services, including DTT, satellite, cable, mobile and broadband (IPTV).
- 3.22 If the outcome of these and other decisions are to be in the best interests of citizens and consumers in the UK, they need to be taken with a full appreciation of the opportunity cost of spectrum. Applying AIP to the holding of spectrum for broadcasting purposes, in the same way as it is already applied to most other uses of spectrum in the UK today, is one of the best ways of ensuring this outcome.

### **Issues raised with the application of AIP to spectrum used for terrestrial broadcasting**

#### **Terrestrial broadcasters are unable to react to AIP because of regulatory constraints**

- 3.23 Ofcom acknowledges that terrestrial broadcasters currently have to operate under a range of regulatory constraints that limit the freedom they have to change their spectrum use in the short term. None the less, as noted above, broadcasters individually, and the broadcasting sector more generally, face a number of decisions that will affect their future spectrum use, directly or indirectly. Broadcasters themselves are also free to press for a relaxation of the technical and other constraints on their use of spectrum – or to put it a different way, perhaps a refocusing of the constraints they operate under to focus on the delivery of socially desirable outcomes rather than dictating the means of achieving them.
- 3.24 As previously discussed, Ofcom's use of AIP is intended to create incentives for efficient use of spectrum in the long term, not just to encourage more efficient use of spectrum in the short term. Ofcom therefore does not accept that the current

regulatory constraints on spectrum use imposed on broadcasters are sufficient reason not to apply AIP.

### **Wholesale markets in broadcast multiplex capacity remove the need for AIP**

- 3.25 It has been argued that the trading of broadcast multiplex capacity between broadcasters creates a strong incentive for efficient spectrum use, and that AIP is therefore unnecessary.
- 3.26 The existence of wholesale markets in wireless capacity, such as the one for DTT multiplex capacity, while useful, do not generally create full incentives to use spectrum efficiently. For one thing the wholesale market in DTT multiplex capacity is limited to applications that can be carried on a DTT multiplex, and therefore lacks a mechanism for considering whether alternative uses of the spectrum could be more valuable. Secondly, some multiplex operators are vertically integrated, and the potential increase in competition that might arise from them selling capacity may dilute their incentive to sell to the person who values it most.
- 3.27 Thirdly, it is unclear that trade in DTT multiplex capacity has been anything but thin over the past few years. The rate at which capacity has been made available has been lumpy, and it is not clear whether incentives to maximise the value of capacity have been working effectively. Moreover, it is recognised that information asymmetry between buyers and sellers can prevent secondary markets from operating efficiently. There appears to be some evidence of this in the DTT multiplex capacity market, e.g. multiplex operators are likely to have had much better information about the feasibility and costs of freeing up additional channel capacity than most potential buyers and this may underscore the lack of vigour in the market.
- 3.28 Ofcom therefore does not accept that trading in multiplex capacity alone is a sufficient incentive to efficient spectrum use to remove the need for AIP.

### **The social value of (public service) broadcasting warrants a discount on the level of AIP**

- 3.29 It has been argued that broadcasting in general, and certain types of broadcasting in particular (such as public service broadcasting), generate a value for society in excess of the private value enjoyed by the broadcasters concerned. It is argued that this justifies a discount in the level of AIP applied to spectrum used for broadcasting, either in general, or as used by those broadcasters delivering socially valuable output. In particular it is argued that since individual broadcasters only capture a part of the total value of broadcasting, they will not be able to afford the cost of the spectrum they need and will therefore, inefficiently, have to exit the market, or at least deliver less output than would be socially optimal.
- 3.30 Ofcom accepts that some broadcasting does generate a value for society in excess of the value to the individual broadcaster. Ofcom notes, however, that the same could also be said for a number of other uses of spectrum, most notably for example use by the emergency services. It is also worth noting that mobile telephony, which has transformed much of our lives, has generated significant benefits in terms of consumer welfare over and above the profits earned by the mobile operators. None of these services receives a discount on the level of AIP that they pay.
- 3.31 A key point is that in all of these cases the additional value to society derives not from the allocation of spectrum per se (no value is derived from simply giving spectrum to particular users), rather the value derives from the outputs produced

through the use of spectrum – in the case of broadcasting, the delivery of certain content to citizens and consumers, in some cases universally.

- 3.32 A considerable amount of economic research has been done into the efficiency of different methods of securing socially desirable outcomes in the presence of externalities (costs and benefits affecting parties other than those making the decisions). This research concludes that, in the case of positive externalities (benefits) arising from the delivery of outputs, it is generally better to intervene in the market for the delivery of such outputs (for example by subsidising the production of such goods) than to intervene in input markets (e.g. subsidising the price of an input) – better in the sense that the result is more likely to be economically efficient.
- 3.33 The logic behind this is that the production of most goods requires a number of different inputs – e.g. in the case of broadcasting it requires land, buildings, electronic equipment, electricity, staff and presenters, as well as spectrum. Discounting the price of one of these inputs will not by itself ensure that the socially desirable outcome is achieved – e.g. if the price of spectrum is discounted that may merely allow broadcasters to deliver more commercial programming, not encourage them to deliver socially desirable programming.
- 3.34 At the same time discounting the price of one input will almost certainly lead to inefficient decisions being made about the use of other inputs. Since producing the socially desirable level of broadcasting involves several inputs, the most efficient way of achieving this output would be to apply discounts to all inputs in relation to their marginal impact on output. If only spectrum is discounted a broadcaster is likely to use more spectrum than would be efficient, and invest too little in other inputs to achieve the desired level of output. Moreover, discounting the price of an input to one class of user may also create competitive distortions in downstream markets if those users compete with others that are not offered the same discount (and may thereby give rise to inefficient results). It soon becomes apparent that a potentially large number of input subsidies would need to be calculated in order to sustain production of the socially optimal broadcasting output without creating additional distortions in the economy.
- 3.35 Securing socially desirable outcomes is therefore better achieved through interventions targeted directly at the achievement of those outcomes. To the extent that it is necessary to provide funding in order to offset the costs of achieving those outcomes, it is better for that funding to be linked directly to the delivery of the desired outcomes, rather than provided in the form of a discount on the price of an input. Such an approach is moreover more transparent, and allows greater scrutiny of the costs of intervention.
- 3.36 In the case of broadcasting it is also important to recognise that the context for the delivery of socially valuable broadcasting has and is changing radically. In the old world of analogue broadcasting there was a one-to-one relationship between the service to be broadcast, be it a television channel or radio station, and the spectrum used to deliver it. Moreover, there were few ways of receiving broadcast content other than over the air – i.e. broadcasters did not really compete with those in other markets. Discounting the price of spectrum given to broadcasters as a quid pro quo for them taking on obligations to deliver socially desirable broadcast content universally, was therefore a relatively easy and not overly distortive intervention (although we would argue that it none the less did risk creating distortions).
- 3.37 In the new digital world this is no longer the case – broadcast content is now delivered, increasingly both in real time and on demand (including download for later



consumption), over a wide range and increasing variety of platforms, not just the new digital terrestrial broadcast platforms of DTT and DAB, but also over satellite, cable, mobile and broadband networks, all of which are multi-channel, multi-service platforms, capable of flexibly meeting the evolving needs of consumers and citizens in future, delivering the content that they want at the time they want it. The relationship between access to spectrum and the delivery of specific content to citizens and consumers is therefore now more tenuous than it was in the past, and becoming increasingly so. Intervention in the market for spectrum is therefore a blunter instrument now than it was then, and at the same time one that is far more likely to distort important decisions about future spectrum use and competition between players and platforms.

- 3.38 In the interests therefore of both transparency and economic efficiency, we consider that it is better, wherever possible, to focus interventions to secure socially desirable outcomes on the downstream market for outputs, rather than through interventions in the allocation and use of spectrum. We therefore are not minded to accept that the social value of broadcasting, over and above its private value to broadcasters, warrants a discount on the level of AIP charged on spectrum used for broadcasting.

### **Applying AIP will reduce the quantity and/or quality of (public service) programming**

- 3.39 Ofcom acknowledges that an important issue with applying AIP to spectrum used for broadcasting is its potential impact on the financial capacity of broadcasters to deliver PSB and other socially desirable, but perhaps commercially non-viable, broadcasting services. Were this impact likely to be material, it would be important to identify means by which the socially desirable level of such services could be maintained after the introduction of AIP, including the option of not introducing AIP if that was determined to be the most efficient way of achieving this end.
- 3.40 It is important however to put this issue in perspective. On the basis of our current estimates of the opportunity cost of spectrum used for DTT, the cost of AIP to the BBC and Channel 4, for the purpose of delivering their core PSB channels post DSO, would almost certainly amount to less than 2% of the total costs of PSB production and transmission. For example Channel 4 (the core PSB channel) currently occupies approximately one eighth of the capacity of multiplex 2. On the basis of our current estimate of opportunity cost, the spectrum fee associated with this capacity, post DSO, is unlikely to exceed £3 million per year. Comparing this with the total cost of programming and transmission for Channel 4 (the core PSB channel), which is around £600 million per year, we see that the cost of AIP on this basis would amount to less than 1% of the total cost of Channel 4's core PSB channel. A similar calculation can be done for the BBC<sup>3</sup>. The spectrum fee associated with the capacity required to broadcast each of Channel 4's other digital terrestrial channels, although similar in absolute terms, is likely to represent a more significant addition to their costs, since the total costs of these channels are lower.

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<sup>3</sup> A key issue in the calculation for the BBC concerns the amount of DTT capacity that the BBC will need to transmit its channels post DSO. Currently it occupies two whole multiplexes, but only broadcasts four channels per multiplex, as compared with the eight channels currently broadcast on multiplex A. If we assume that the BBC could deliver all of its existing channels on a single multiplex post DSO, then the cost of AIP would amount to about 1% of total costs; if we assume that they need more capacity than this, then the percentage would increase; but even if they continued to use two whole multiplexes the cost of AIP would still be no more than 2% of total costs.

- 3.41 The impact of the introduction of AIP on digital radio broadcasters may be proportionally greater than on digital television broadcasters. If so, this matter will have to be given particularly careful consideration in the context of upcoming policy reviews, in particular Ofcom's project on the Future of Radio Licensing. None the less, as set out above, Ofcom is of the view that, even where the cost of AIP is material, it would in general be more transparent and efficient to focus intervention on the downstream market for outputs, rather than discount the level of spectrum fees.
- 3.42 Thus, whilst we accept that the challenge of maintaining socially desirable broadcasting after the introduction of AIP exists, we believe that it can be met through relatively low cost and efficient means, other than the discounting of AIP – in particular, Ofcom is of the view that there is plenty of opportunity, between now and when we propose to introduce AIP, for other policy reviews to reflect upon the likely impact of our proposals and to make appropriate provision to mitigate its impact or make alternative policy choices.
- 3.43 Forthcoming policy reviews that will be able to consider and respond to the impact of our proposals include:
- Ofcom's work on the future of PSB in a digital world
  - Ofcom's next statutory Review of PSB in 2009
  - Ofcom's project on the Future of Radio Licensing
  - Future decisions on the establishment of a local television licensing regime
  - Ofcom's financial review of Channel 4
  - Future decisions on the TV licence fee
  - The Government's proposed review of public funding of PSB beyond the BBC
- 3.44 Given the timescales for implementation that we are proposing there would also be opportunity for new primary legislation if necessary, for example to permit new methods of funding of socially desirable broadcasting to be introduced.
- 3.45 We note in passing that this challenge has already been dealt with in the context of other public services, including for example defence, police, fire and ambulance services, which have all been paying for the spectrum they hold for a number of years now.

**It is more efficient to not apply AIP than to apply it and provide additional funding to support socially desirable broadcasting**

- 3.46 Ofcom acknowledges that the application of AIP may have an impact on the financial capacity of broadcasters to deliver broadcasting policy goals. We do not accept, however, that that impact will necessarily be pound-for-pound, and are also of the view that there are plenty of opportunities for any such impact to be assessed, and changes made to other policy instruments to address that impact, and ensure the continued fulfillment of broadcasting policy objectives, provided that adequate time is available before the introduction of AIP.
- 3.47 Options for dealing directly with the financial impact of AIP include:

- Funding from Government to broadcasters to cover some or all of the costs of AIP on an ongoing basis;
  - Indirect funding through e.g. an increase in the TV licence fee;
  - A lump sum upfront payment by the Government, to broadcasters, based on the forecast level of future AIP payments.
- 3.48 Any action would need to be consistent with the provisions relating to state aid, to the extent that these are applicable.
- 3.49 The options also include, for example, relaxation of the constraints on broadcasters that limit their ability to raise revenues, and relaxation of the constraints on broadcasters that limit their ability to make more efficient use of the spectrum.
- 3.50 In some cases the effect of these changes will be to shift part of the incentive effect of AIP from the broadcasters themselves to policy makers – e.g. policy makers may have to decide how much funding they are willing to provide or allow, and in so doing will have to take the opportunity cost of spectrum into account in their policy decision making.
- 3.51 This does not undermine the rationale for applying AIP. The objective of applying AIP is to secure optimal use of the spectrum. To the extent that the decisions made by policy makers can have an influence on future spectrum use, it is not undesirable that they should have to face some of the cost of those decisions. Furthermore, it is clear that broadcasting policy decision makers do not have unlimited freedom to fund whatever level and type of broadcasting output they wish to see delivered. Policy makers are therefore unable to simply ignore the cost of their decisions to the extent that they may have to contribute to, or make decisions about, the funding of those costs; in other words AIP can and should influence public policy decision makers, as well as the broadcasters themselves.
- 3.52 Some broadcasters argue that gifting spectrum to them could be more efficient than charging AIP and then providing funds to off-set its impact on PSB (and other socially desirable broadcasting services). Reasons for this view include the following:
- it is claimed that policy makers will need to predict future spectrum prices in order to determine the funding needed to off-set the impact on PSB which is likely to be costly and difficult to calculate accurately
  - gifting or granting for free a fixed amount of spectrum to broadcasters is a lump sum subsidy which does not distort broadcasters' decisions over spectrum use and is not therefore inefficient. Charging AIP and funding the impact on PSB is also equivalent to a lump sum subsidy, but is inferior to gifting spectrum because it is potentially inaccurate and costly to administer.
- 3.53 Taking these arguments in turn, firstly Ofcom does not agree that it would be impractical or costly to take into account future spectrum prices in setting funding arrangements for PSB. These arrangements already take account of many inputs whose prices fluctuate over time, and some such as energy prices have been subject to much greater fluctuations in the past than is likely with spectrum. If it is possible to agree forward looking funding arrangements covering these inputs, Ofcom sees no reason why the same should not be true for spectrum.

- 3.54 Secondly, we do not accept that the gifting of spectrum to broadcasters is equivalent to a lump sum payment. Whilst this might be true if the gifting of spectrum to broadcasters were a one-off event, in reality the amount of spectrum that has been gifted to the broadcasters has changed over time, not least in response to additional demands from the broadcasters themselves. Another way of looking at this is to say that if broadcasters were always given sufficient spectrum to meet their demands for free, they would be likely to expect that their demands will always be met for free, and would have no incentive to consider actions that would economise on spectrum use. The gifting of spectrum to broadcasters on an ongoing basis is therefore, in Ofcom's view, not the same as a lump sum subsidy.
- 3.55 Finally, the gifting of spectrum to broadcasters also risks distortion of decisions by policy makers. Since the opportunity cost of gifted spectrum is, in the absence of spectrum pricing, only a shadow cost, it is far easier for policy makers to inappropriately discount this cost when making policy decisions, than it would be if the cost were a real (cash) cost.
- 3.56 In summary, Ofcom is of the view that charging terrestrial broadcasters AIP and providing funding to off-set its impact on PSB is superior to granting spectrum for free. Firstly, funding the impact of AIP on PSB does not necessarily involve significant costs. Secondly, broadcasters are involved in a range of decisions that will affect future spectrum use, and are unlikely to make the right decisions – the ones that will lead to the socially optimal outcome – if they are not subject to the discipline of paying for the spectrum they use. Finally the transparency of a system that requires broadcasters to pay for their spectrum use, and other methods to be found to fund the provision of socially valuable outputs if desired, should ensure that future public policy decisions are made with a full appreciation of the opportunity costs of spectrum use.

## Summary of conclusions

- 3.57 Ofcom therefore continues to be of the view that the Government was right when it said in 2002:
- “The Government agrees that spectrum pricing is a tool which should be applied to all broadcasters to promote the most efficient use of the spectrum. This should be done within a framework that allows the Government and Parliament to ensure that wider public policy is taken into account.”
- 3.58 Ofcom is moreover of the view that all broadcasters should, in principle, pay a spectrum fee that reflects the full opportunity cost of the spectrum they hold, notwithstanding that the service they provide may be of social value, or that they may be subject to constraints on their freedom to change their spectrum use in the short term.
- 3.59 In line with Ofcom's previously stated position, as set out in our Spectrum Framework Review, Ofcom is also of the view that, in general, the securing of public policy goals, in particular where they relate to securing the provision of particular outputs, should not be achieved through intervention in the allocation and use of spectrum, but rather should be focussed on the delivery of the desired outputs. This is not only more transparent, but economically more efficient.
- 3.60 Ofcom is furthermore of the view that, given a reasonable period of time before the introduction of AIP on spectrum used for terrestrial broadcasting where this will likely

result in a material increase in spectrum fees, there is ample opportunity for alternative policy instruments to be put in place to secure the continued fulfilment of public policy objectives for broadcasting after its introduction.

*Question 1: Do you agree with Ofcom's conclusion that AIP should, in principle, be applied to all terrestrial broadcasting uses of spectrum, as to other spectrum uses? Please set out the reasons for your view, and any evidence or analysis that you can provide in support of your position.*

## Section 4

# Proposals for the timing of introduction of AIP on spectrum used for terrestrial broadcasting

- 4.1 In this section we set out a range of options for the timing of the introduction of AIP on spectrum used for terrestrial broadcasting, and consider the general merits of each. We then consider the situation with regard to each type of terrestrial broadcasting – analogue and digital, television and radio, existing and new services – and identify what we consider to be the most appropriate timing for the introduction of AIP to spectrum used for each such type of terrestrial broadcasting.
- 4.2 Of particular significance in Ofcom's consideration of these matters are the commitments made by the Government in its response to the Independent Review of Radio Spectrum Management, published in 2002. In that response the Government gave certain commitments as to the earliest dates from which broadcasters would have to pay AIP, specifically:
- That AIP would not apply to spectrum used to broadcast the existing analogue terrestrial television services prior to 2006;
  - That AIP in particular, and spectrum pricing more generally, would not apply to spectrum used to broadcast the six existing digital terrestrial television multiplexes prior to the end of the first licence term of each (or equivalent date in the case of the BBC) – being 2010 in the case of the multiplexes 1, 2 and A, and 2014 in the case of multiplexes B, C and D.
- 4.3 The Government made no specific commitments as to the earliest dates from which AIP might be applied to spectrum used for radio broadcasting, whether analogue or digital, although it did note the need for further work to assess the scope for spectrum pricing to apply to sound (radio) broadcasters.
- 4.4 Whilst Ofcom considers that it should make its own judgement as to the most appropriate date for the introduction of AIP to spectrum used for terrestrial broadcasting, maintenance of regulatory certainty is clearly important, and so due regard must clearly be given to the commitments made by the Government in 2002.

## Timing options

- 4.5 Ofcom considers that there is in principle a wide range of options for the date from which AIP could be applied to spectrum used for terrestrial broadcasting, including:
- Immediate introduction – implementation as soon as possible commensurate with the proper legal process;
  - Introduction from the earliest dates compatible with the commitments given by the Government in its response to the Cave Review;
  - Introduction from the earliest dates compatible with the principles of the commitments given by the Government in its response to the Cave Review, but

using a common date for all services of the same type – e.g. postponing the introduction of AIP on spectrum used to broadcast the DTT multiplexes 1, 2 and A until 2014;

- Postponing the introduction of AIP until some later date e.g. 2020;
- Postponing the introduction of AIP indefinitely i.e. until a date to be determined through some later review.

- 4.6 Before considering the specific circumstances of each different type of broadcasting, and hence the most appropriate timing for the introduction of AIP in each case, we first consider the pros and cons of each of these options in general.
- 4.7 The advantage of introducing AIP immediately is that it immediately increases the incentive to use spectrum efficiently, and is therefore more likely to generate benefits sooner than an approach which postpones the introduction of AIP. However, introducing AIP sooner than the earliest dates committed to by the Government in its response to the Cave Review would almost certainly increase regulatory uncertainty, which could lead to inefficient under-investment and other adverse consequences for citizens and consumers. Only if the additional benefits of early introduction were likely to be material might it be desirable to go back on the commitments made by the Government in 2002<sup>4</sup>. Ofcom does not however believe this to be the case here, and therefore is inclined to reject this option.
- 4.8 Introducing AIP as quickly as possible compatible with the commitments made by the Government in its response to the Cave Review achieves both the relatively early introduction of AIP and the maintenance of regulatory certainty. However, at least in the domain of digital terrestrial television, it also implies that AIP would be introduced earlier for some broadcasters (multiplex operators) than for others. This is not Ofcom's standard approach to the introduction of AIP. Ofcom normally applies AIP consistently to all holders of a particular class of WT licence. There are good reasons for this – not only is it legally and administratively convenient, since it is not necessary to distinguish between different holders of the same class of licence, it also avoids the creation of artificial incentives in favour of one licensee over another, which have the potential to distort competition. Ofcom would therefore prefer, if possible, to introduce AIP to all licences in a particular class at a common date.
- 4.9 For this reason our currently preferred approach is to introduce AIP as soon as possible commensurate with the principles of the commitments given by the Government in its response to the Cave Review, but using a common date for all services of the same type.
- 4.10 Postponing the introduction of AIP to some later date, such as 2020, merely delays the realisation of the additional incentive to make efficient use of the spectrum, and hence is less likely than options that introduce AIP earlier to achieve benefits as soon as possible. The only reason that we can see for such a postponement would be if there was some other change that was necessary to ensure that the application of AIP did not have significant adverse consequences for citizens and consumers, that it was impossible to introduce in time for an earlier introduction of AIP – for example if

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<sup>4</sup> No commitment by Government or Ofcom should be considered binding in perpetuity. Circumstances change, and if the merits of a change in policy are sufficiently great as compared with the costs, then it is entirely appropriate and in the case of Ofcom may actually be required in the light of our statutory duties, to make such a change, notwithstanding that it runs contrary to a commitment given earlier.

it was considered necessary to put in place some new system of funding for public service broadcasting and it was impossible to do so before 2020. Even then, Ofcom would only be inclined to postpone the introduction of AIP if its application in advance of other changes was likely to give rise to an immediate and material disbenefit for citizens and consumers. We do not currently consider this situation to be likely, and are therefore not minded to pursue this approach.

- 4.11 Finally, we see no merit in postponing the introduction of AIP indefinitely. Not only will this in all likelihood mean that the benefits of introducing AIP in terms of more efficient spectrum use be foregone for quite some time, but also it leaves the industry unsure as to when, if ever, AIP is to be introduced – another instance of increased regulatory uncertainty that is unlikely to be in the best interests of citizens and consumers. Ofcom is therefore inclined to reject this option also.
- 4.12 Having considered these options in general, we now consider the specific facts of the situation as they relate to each different type of broadcasting today, and identify what we consider to be the best option in each case.

### Existing analogue TV

- 4.13 The key to more efficient use of the spectrum in UHF bands IV and V, as currently used for the broadcasting of analogue TV, is the switch off of analogue television broadcasting. This will allow the same spectrum to be used to deliver a much larger number of television channels to a very similar audience using digital terrestrial television, whilst at the same time freeing up a proportion of this spectrum for the provision of further services<sup>5</sup>.
- 4.14 In the interests of ensuring that this process of Digital Switchover (DSO) happens in a timely and coordinated manner, the Government and Ofcom have decided to mandate a switchover timetable, and to impose obligations on the broadcasters and their transmission service providers to meet that timetable. It will therefore shortly be a requirement of the Broadcasting Act licences held by these organisations that they meet the milestones in the detailed DSO timetable, and they will face sanctions if they do not.
- 4.15 In particular, were the broadcasters who hold Digital Replacement Licences (DRLs) or digital terrestrial TV multiplex licences to fail to meet the timetable for Digital Switchover set out in those licences, Ofcom would be able to fine them up to 5% of annual qualifying revenue or multiplex revenue (as the case may be) for each period of delay – provided it was appropriate and proportionate to do so. Such fines could amount to many tens of millions of pounds per annum per broadcaster if the DSO programme were materially delayed across the country.
- 4.16 Ofcom is therefore of the view that digital switchover is the most significant improvement in spectrum efficiency that the broadcasters of analogue terrestrial television, and their transmission service providers, will be able to effect, and that there are already sufficient obligations and incentives on them to achieve switchover in a timely fashion without the need for the added incentive of AIP. In view therefore of the relatively short period of time between now and DSO, it does not seem

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<sup>5</sup> The coverage of digital terrestrial television is currently restricted by the fact that it has to fit in between the existing analogue terrestrial television broadcasts. Only with the switch off of those analogue broadcasts will it be possible to increase the coverage of digital terrestrial television to match that of analogue.



proportionate to establish an AIP regime for the use of spectrum for analogue terrestrial television broadcasting at this time.

- 4.17 Ofcom therefore proposes not to charge the broadcasters (or their transmission service providers) AIP on spectrum used to broadcast current analogue terrestrial television services, prior to the switch off of those services as part of the DSO programme. Ofcom does however intend to reserve the right to revisit any final decision on this matter if the implementation of DSO is materially delayed or postponed indefinitely.

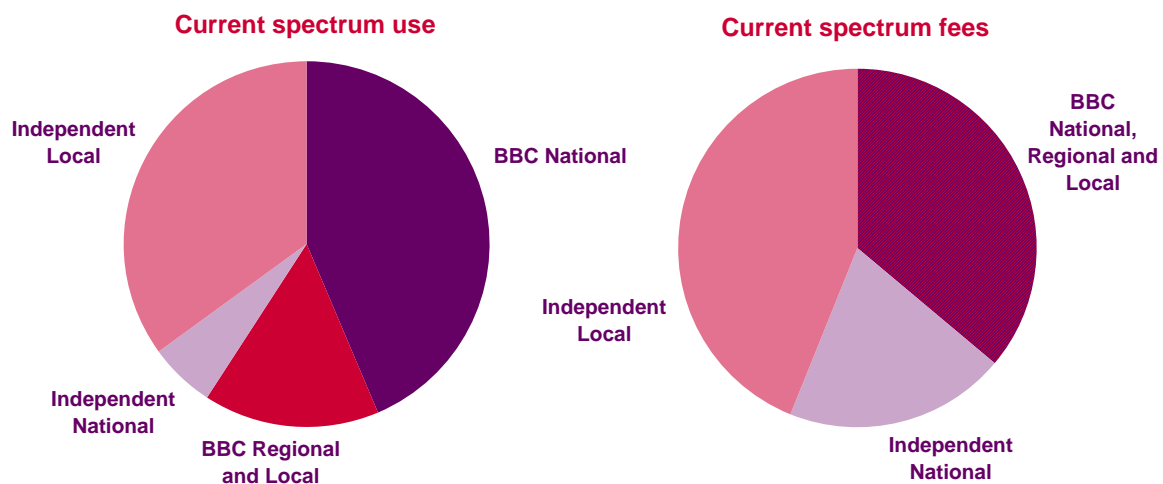
### Existing digital TV

- 4.18 In the case of the existing digital terrestrial television multiplexes, the key issue around timing is the extent to which the introduction of AIP is aligned with the timetable set out by the Government in its response to the Cave Review, namely that AIP be applied to the spectrum used to broadcast multiplexes 1, 2 and A from 2010, and to the spectrum used to broadcast multiplexes B, C and D from 2014, or is introduced earlier or later.
- 4.19 On the one hand, as noted above, the longer that the introduction of AIP is postponed, the more likely it is that the benefits of its introduction will be lost or delayed. On the other hand introducing AIP earlier than the dates committed to by the Government in its response to Cave is likely to increase regulatory uncertainty, with potentially adverse consequences. At the same time, and for the reasons set out above, Ofcom would prefer to introduce AIP on all WT licences in a particular class at the same time, rather than introduce it earlier for some licensees than for others.
- 4.20 Ofcom therefore proposes not to charge the operators of the existing digital terrestrial television multiplexes (or their transmission service providers) AIP on spectrum used to broadcast the current digital terrestrial television multiplexes until 2014, being the earliest date at which AIP can be introduced for all such licensees whilst continuing to abide by the commitments made by the Government in its response to the Cave Review.
- 4.21 The level of AIP to be applied from 2014 will need to be determined nearer the time, on the same basis as the level of AIP is determined for other uses of spectrum at that time. By the time this is necessary we can expect there to have been a number of spectrum auctions, and also transfers in the spectrum market, which may provide additional information as to the opportunity cost of spectrum in the relevant bands, and which any price setting review will be able to take into account.
- 4.22 Nonetheless, if the level of AIP in 2014 were to be similar to Ofcom's current estimates of opportunity cost, the charges would likely be of the order of £16-24 million per year for each of the three PSB multiplexes (of which two are currently held by the BBC and one by Digital 3&4) and of the order of £10-20 million per year for each of the commercial multiplexes (of which two are currently held by National Grid Wireless and one by SDN), making a total in the range £78-132 million per year.
- 4.23 To the extent that any broadcaster is, at that time, still paying a Broadcasting Act fee that includes an implicit sum for access to spectrum, it will be necessary to ensure that any such broadcaster is not required to pay twice for the same spectrum access.
- 4.24 We note that, if these proposals are implemented, the BBC will not have to pay any spectrum fees for DTT prior to 2014. The estimate of £300 million for spectrum fees,

in their submission to Government in support of an increase in the TV licence fee, appears therefore to be something of an over estimate.

### Analogue radio in existing frequency bands

- 4.25 In the case of analogue radio, existing spectrum fees (Wireless Telegraphy Act licence fees) already reflect AIP principles to a significant extent for independent national and local radio stations, in that they are based on population coverage, and therefore reflect at least in part the amount and value of spectrum used. By contrast the BBC pays a WT licence fee that is, on the face of it at least, entirely unconnected with the amount of spectrum that it uses, and is also rather less than that paid by the independent radio broadcasters for equivalent services.



### A comparison of current spectrum use and current spectrum fees for analogue radio

- 4.26 Given that there appears to be little demand from other uses for access to the spectrum currently used for analogue terrestrial radio, and considerable complexity involved in the accurate calculation of opportunity costs given the interwoven nature of analogue radio assignments, Ofcom is not minded to increase generally the level of spectrum fees charged to analogue terrestrial radio stations. Ofcom does however believe that the BBC should be subject to the same level of fees as independent radio stations, to ensure that they are subject to the same level of incentive toward efficient spectrum use, including the incentive not to demand more spectrum than is socially optimal.
- 4.27 Ofcom therefore proposes to extend the existing system of population-based spectrum fees to the broadcasting of all national, regional and local analogue radio stations, including the BBC, but not including RSLs (Restricted Service Licences) and Community Radio stations. At the same time Ofcom intends to consider the merits and practicality of reflecting differences in the amount of spectrum used to broadcast different analogue radio services in spectrum fees. These proposals will, in large part, bring existing spectrum fees for analogue radio broadcasting into line with AIP principles.
- 4.28 RSL and Community Radio stations serve only limited populations in relatively small areas, and in the case of short-term RSLs for only limited periods of time. Their use of spectrum is therefore of limited impact on others. The costs of administering a population-based system of spectrum fees for these licensees would also be material, given the relatively large number of them. Ofcom therefore considers it

more proportionate to only charge RSL and Community Radio stations a flat fee for their use of spectrum, and is indeed currently consulting on the introduction of just such a flat fee for Community Radio licences<sup>6</sup>. Ofcom is therefore not proposing any changes to the WT licence fees payable in respect of these licences, other than those already being consulted on separately.

- 4.29 WT licence fees for VHF radio stations serving populations of more than 100,000 adults are currently set at £509 per year per 100,000 adults covered (rounded down to the nearest multiple of 100,000). If these fees were applied to the BBC we estimate that the BBC would have to pay fees of the order of £220,000 per year in total in respect of its VHF regional and local radio stations, and a similar amount again in respect of each of its four VHF national radio stations – Radio 1, Radio 2, Radio 3 and Radio 4. The figure for Radio 5 Live would be lower, approximately £145,000 per year, since the current fee for AM radio stations is £339 per year per 100,000 adults covered.
- 4.30 However, whereas the independent VHF national radio station, Classic FM, provides coverage to a population of 40 million adults using 2.1MHz of spectrum that is shared with numerous independent local radio stations, each of the BBC's four national VHF radio stations has almost exclusive use of 2.2MHz of spectrum nationwide, albeit they provide coverage to a population of approximately 42 million adults. In the interests of ensuring efficient use of the spectrum in the long term, it seems desirable to Ofcom to reflect such differences in spectrum use in WT licence fees, and Ofcom intends to consider the merits and practicality of doing so, as part of its future work to implement the changes to licence fees proposed here. By way of example, if the BBC were required to pay a WT licence fee for its VHF national radio stations that more fully reflected the spectrum reserved for each, the fee for each would likely be closer to £400,000 per year.
- 4.31 Ofcom does not expect these changes to have a large impact on any broadcaster apart from the BBC and their transmission service provider National Grid Wireless, and even in the case of the BBC/National Grid Wireless anticipates that the changes will amount to an increase of no more than £1.5 million per annum in the total Wireless Telegraphy licence fee payable in respect of BBC analogue radio services. We therefore propose introducing these changes in 2008. Further consultation on detailed proposals, including a full assessment of the impact on licensees, will be undertaken during 2007, before any changes are introduced.

### **Existing and already planned digital radio services**

- 4.32 Unlike the case of digital terrestrial television, in its response to the Cave Review the Government made no specific commitment to not apply AIP to spectrum used for digital terrestrial radio prior to any particular date. None the less, some of the same broadcasting policy objectives that apply to DTT also apply to digital radio.
- 4.33 At the same time, there clearly is demand from other applications for access to the spectrum that is currently reserved for DAB (part of VHF Band III).
- 4.34 Ofcom is therefore minded to identify a specific date from which AIP will apply to spectrum used to broadcast existing and already planned DAB digital radio services. For the same reasons as discussed above, Ofcom would much prefer to identify a single date from which AIP would apply to all such services, irrespective of when they originally acquired spectrum, or the status of the broadcaster (e.g. independent or

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<sup>6</sup> Modifications to Spectrum Pricing, July 2006

BBC). In light of the clear demand from other applications for access to the spectrum currently reserved for DAB, and also the increasing use of DAB capacity to carry non-sound broadcast services, Ofcom is minded to make this date sooner rather than later. At the same time we consider that it would be undesirable to introduce AIP immediately, given that digital radio broadcasters have been given to believe that they will continue to enjoy privileged access to spectrum for some time to come.

- 4.35 Therefore, and in line with the principle adopted by the Government in its response to the Cave Review as regards the timing of the introduction of AIP on digital terrestrial television, Ofcom proposes not to charge the broadcasters of current and already planned digital terrestrial radio multiplexes (or their transmission service providers) AIP on the spectrum used to broadcast those multiplexes until 2012 – the first national digital radio multiplex licence currently expires in November 2011.
- 4.36 This proposal extends to the eventual acquirers of the additional local and national digital radio multiplexes that Ofcom intends to begin advertising later this year, following Ofcom's decision in December 2005 on the licensing of VHF Band III, Sub-band 3, as well as to all operators of existing local and national digital radio multiplexes.
- 4.37 As in the case of DTT, the level of AIP to be applied from 2012 will need to be determined nearer the time, on the same basis as the level of AIP is determined for other uses of spectrum at that time. By the time this is necessary we can expect there to have been a number of spectrum auctions, and also transfers in the spectrum market, which may provide additional information as to the opportunity cost of spectrum in the relevant bands, and which any price setting review will be able to take into account.
- 4.38 In the mean time all we can say is that if the level of AIP in 2012 were to be similar to Ofcom's current estimates of opportunity cost, the charge for each national DAB multiplex (for example as currently held by the BBC and Digital One) would likely be of the order of £650,000 per year. The charges for local DAB multiplexes would likely be based on this overall fee level, but scaled in proportion to population coverage.
- 4.39 Also, to the extent that any broadcaster is, at that time, paying a Broadcasting Act fee that includes an implicit sum for access to spectrum, it will be necessary to ensure that any such broadcaster is not required to pay twice for the same spectrum access.

### **Any new broadcast service**

- 4.40 Ofcom's general approach to the award of spectrum that has become available for new use, is to rely as far as possible on market-based assignment mechanisms, in particular spectrum auctions, to identify the use and user able to make best use of the spectrum. Ofcom does not, therefore, in general, expect to be making additional spectrum available for terrestrial broadcast use, other than through such a market mechanism. None the less, Ofcom considers it desirable to set out its proposed position with respect to the application of AIP to any spectrum that might be acquired for terrestrial broadcast use, other than by means of an auction, in order to give greater clarity as to the fees that would apply.
- 4.41 Ofcom sees no reason why AIP should not, in principle, apply immediately to any spectrum acquired for the purpose of broadcasting any new terrestrial broadcast service (apart from new analogue radio services made available by Ofcom using spectrum already allocated to analogue radio, which Ofcom would expect to be subject to the same level of fees as other analogue radio services), unless such

spectrum is acquired through an auction. At this time of intense interest in spectrum, for a wide range of different purposes, it is essential that any new allocation of spectrum to terrestrial broadcasting is made in full recognition of the opportunity costs that such allocation will impose. Applying AIP is one of the best ways of ensuring that this happens.

- 4.42 Were this to happen, Ofcom would be minded to set the level of such AIP by reference to the full opportunity cost of the spectrum acquired, using the best information available to it at the time. In particular information from both the results of spectrum auctions, and transfers in the spectrum market, might well reveal information about the value and hence opportunity cost of similar spectrum that would be highly relevant to such a pricing decision. Ofcom would however have to take a full range of factors into consideration, including, for example, the level of spectrum fees charged to other spectrum users in the same situation.

*Question 2: Do you agree with Ofcom's proposals for the timing of introduction of AIP on spectrum used for terrestrial broadcasting? Please set out the reasons for your view, and any evidence or analysis that you can provide in support of your position.*

## Section 5

# Other matters

### Updating of cost recovery fees

- 5.1 Irrespective of the outcome of this consultation, Ofcom intends to update the cost recovery fees currently charged to certain broadcasting users of spectrum to reflect our current costs. These fees have not been updated since they were set by the RA in 1997 (except for Community Radio where Ofcom are currently consulting on some simplifications). Ofcom intends to consult on changes to these fees during 2007.

### Other related activities

- 5.2 In addition to the broadcasting policy reviews set out above, Ofcom is currently undertaking, or has plans to undertake, work in a number of other related areas including:
- Work to develop proposals for the application of AIP to aeronautical and maritime uses of spectrum – two other major areas of spectrum use to which AIP does not currently apply;
  - Consideration of the options by which Recognised Spectrum Access (RSA) might be made available to satellite users of spectrum, with a view to giving receive-only users equivalent rights of protection as terrestrial service users, but also equivalent incentives to make efficient use of the spectrum that such protection requires.

## Annex 1

# Responding to this consultation

## How to respond

- A1.1 Ofcom invites written views and comments on the issues raised in this document, to be made **by 5pm on Friday 27 October 2006**.
- A1.2 Ofcom strongly prefers to receive responses using the online web form at <http://www.ofcom.org.uk/consult/condocs/futurepricing/howtorespond/form>, as this helps us to process the responses quickly and efficiently. We would also be grateful if you could assist us by completing a response (see Annex 3), to indicate whether or not there are confidentiality issues. This response coversheet is incorporated into the online web form questionnaire.
- A1.3 For larger consultation responses - particularly those with supporting charts, tables or other data - please email [BroadcastSpectrumPricing@ofcom.org.uk](mailto:BroadcastSpectrumPricing@ofcom.org.uk) attaching your response in Microsoft Word format, together with a consultation response coversheet.
- A1.4 Responses may alternatively be posted or faxed to the address below, marked with the title of the consultation.
- Diana Kennedy  
Floor 03:10  
Spectrum Policy Group  
Riverside House  
2A Southwark Bridge Road  
London SE1 9HA
- Fax: 020 7981 3333
- A1.5 Note that we do not need a hard copy in addition to an electronic version. Ofcom will acknowledge receipt of responses if they are submitted using the online web form but not otherwise.
- A1.6 It would be helpful if your response could include direct answers to the questions asked in this document, which are listed together at Annex 4. It would also help if you can explain why you hold your views.

## Further information

- A1.7 If you want to discuss the issues and questions raised in this consultation, or need advice on the appropriate form of response, please contact Graham Louth on 020 7783 4120.

## Confidentiality

- A1.8 We believe it is important for everyone interested in an issue to see the views expressed by consultation respondents. We will therefore usually publish all responses on our website, [www.ofcom.org.uk](http://www.ofcom.org.uk), ideally on receipt (when respondents confirm on their response coversheet that this is acceptable).



- A1.9 All comments will be treated as non-confidential unless respondents specify that part or all of the response is confidential and should not be disclosed. Please place any confidential parts of a response in a separate annex so that non-confidential parts may be published along with the respondent's identity.
- A1.10 Ofcom reserves its power to disclose any information it receives where this is required to facilitate the carrying out of its statutory functions.
- A1.11 Please also note that copyright and all other intellectual property in responses will be assumed to be licensed to Ofcom to use in order to meet its legal requirements. Ofcom's approach on intellectual property rights is explained further on its website at <http://www.ofcom.org.uk/about/account/disclaimer/>

### Next steps

- A1.12 Following the end of the consultation period, Ofcom intends to publish a statement in the first half of 2007.
- A1.13 Please note that you can register to receive free mail Updates alerting you to the publications of relevant Ofcom documents. For more details please see: [http://www.ofcom.org.uk/static/subscribe/select\\_list.htm](http://www.ofcom.org.uk/static/subscribe/select_list.htm)

### Ofcom's consultation processes

- A1.14 Ofcom seeks to ensure that responding to a consultation is easy as possible. For more information please see our consultation principles in Annex 2.
- A1.15 If you have any comments or suggestions on how Ofcom conducts its consultations, please call our consultation helpdesk on 020 7981 3003 or e-mail us at [consult@ofcom.org.uk](mailto:consult@ofcom.org.uk) . We would particularly welcome thoughts on how Ofcom could more effectively seek the views of those groups or individuals, such as small businesses or particular types of residential consumers, who are less likely to give their opinions through a formal consultation.
- A1.16 If you would like to discuss these issues or Ofcom's consultation processes more generally you can alternatively contact Vicki Nash, Director Scotland, who is Ofcom's consultation champion:

Vicki Nash  
Ofcom  
Sutherland House  
149 St. Vincent Street  
Glasgow G2 5NW

Tel: 0141 229 7401  
Fax: 0141 229 7433

Email [vicki.nash@ofcom.org.uk](mailto:vicki.nash@ofcom.org.uk)



## Annex 2

# Ofcom's consultation principles

A2.1 Ofcom has published the following seven principles that it will follow for each public written consultation:

### Before the consultation

A2.2 Where possible, we will hold informal talks with people and organisations before announcing a big consultation to find out whether we are thinking in the right direction. If we do not have enough time to do this, we will hold an open meeting to explain our proposals shortly after announcing the consultation.

### During the consultation

A2.3 We will be clear about who we are consulting, why, on what questions and for how long.

A2.4 We will make the consultation document as short and simple as possible with a summary of no more than two pages. We will try to make it as easy as possible to give us a written response. If the consultation is complicated, we may provide a shortened version for smaller organisations or individuals who would otherwise not be able to spare the time to share their views.

A2.5 We will normally allow ten weeks for responses to consultations on issues of general interest.

A2.6 There will be a person within Ofcom who will be in charge of making sure we follow our own guidelines and reach out to the largest number of people and organizations interested in the outcome of our decisions. This individual (who we call the consultation champion) will also be the main person to contact with views on the way we run our consultations.

A2.7 If we are not able to follow one of these principles, we will explain why. This may be because a particular issue is urgent. If we need to reduce the amount of time we have set aside for a consultation, we will let those concerned know beforehand that this is a 'red flag consultation' which needs their urgent attention.

### After the consultation

A2.8 We will look at each response carefully and with an open mind. We will give reasons for our decisions and will give an account of how the views of those concerned helped shape those decisions.

## Annex 3

# Consultation response cover sheet

- A3.1 In the interests of transparency, we will publish all consultation responses in full on our website, [www.ofcom.org.uk](http://www.ofcom.org.uk), unless a respondent specifies that all or part of their response is confidential. We will also refer to the contents of a response when explaining our decision, without disclosing the specific information that you wish to remain confidential.
- A3.2 We have produced a coversheet for responses (see below) and would be very grateful if you could send one with your response (this is incorporated into the online web form if you respond in this way). This will speed up our processing of responses, and help to maintain confidentiality by allowing you to state very clearly what you don't want to be published. We will keep your completed coversheets confidential.
- A3.3 The quality of consultation can be enhanced by publishing responses before the consultation period closes. In particular, this can help those individuals and organisations with limited resources or familiarity with the issues to respond in a more informed way. Therefore Ofcom would encourage respondents to complete their coversheet in a way that allows Ofcom to publish their responses upon receipt, rather than waiting until the consultation period has ended.
- A3.4 We strongly prefer to receive responses via the online web form which incorporates the coversheet. If you are responding via email, post or fax you can download an electronic copy of this coversheet in Word or RTF format from the 'Consultations' section of our website at [www.ofcom.org.uk/consult/](http://www.ofcom.org.uk/consult/).
- A3.5 Please put any confidential parts of your response in a separate annex to your response, so that they are clearly identified. This can include information such as your personal background and experience. If you want your name, address, other contact details, or job title to remain confidential, please provide them in your coversheet only so that we don't have to edit your response.

## Cover sheet for response to an Ofcom consultation

### BASIC DETAILS

Consultation title:

To (Ofcom contact):

Name of respondent:

Representing (self or organisation/s):

Address (if not received by email):

### CONFIDENTIALITY

What do you want Ofcom to keep confidential?

Nothing

☐

Name/contact details/job title

☐

Whole response

☐

Organisation

☐

Part of the response

☐

If there is no separate annex, which parts?

### DECLARATION

I confirm that the correspondence supplied with this cover sheet is a formal consultation response. It can be published in full on Ofcom's website, unless otherwise specified on this cover sheet, and I authorise Ofcom to make use of the information in this response to meet its legal requirements. If I have sent my response by email, Ofcom can disregard any standard e-mail text about not disclosing email contents and attachments.

Ofcom seeks to publish responses on receipt. If your response is non-confidential (in whole or in part), and you would prefer us to publish your response only once the consultation has ended, please tick here.

☐

Name

Signed (if hard copy)

## Annex 4

# Consultation questions

- A4.1 The specific questions raised in this consultation on which Ofcom is seeking stakeholder views are as follows:

*Question 1: Do you agree with Ofcom's conclusion that AIP should, in principle, be applied to all terrestrial broadcasting uses of spectrum, as to other spectrum uses? Please set out the reasons for your view, and any evidence or analysis that you can provide in support of your position.*

*Question 2: Do you agree with Ofcom's proposals for the timing of introduction of AIP on spectrum used for terrestrial broadcasting? Please set out the reasons for your view, and any evidence or analysis that you can provide in support of your position.*

## Annex 5

# Impact Assessment

## Introduction

- A5.1 The analysis presented in this annex represents an impact assessment, as defined in section 7 of the Communications Act 2003 (the Act).
- A5.2 Impact assessments provide a valuable way of assessing different options for regulation and showing why the preferred option was chosen. They form part of best practice policy-making. This is reflected in section 7 of the Act, which means that generally we have to carry out impact assessments where our proposals would be likely to have a significant effect on businesses or the general public, or when there is a major change in Ofcom's activities. However, as a matter of policy Ofcom is committed to carrying out and publishing impact assessments in relation to the great majority of our policy decisions. For further information about our approach to impact assessments, see the guidelines, Better policy-making: Ofcom's approach to impact assessment, which are on our website:  
[http://www.ofcom.org.uk/consult/policy\\_making/guidelines.pdf](http://www.ofcom.org.uk/consult/policy_making/guidelines.pdf)

## The citizen and/or consumer interest

- A5.3 Promoting the efficient use of spectrum through the introduction of AIP on spectrum used for broadcasting will benefit both citizens and consumers. More efficient spectrum use could enable terrestrial broadcasters and others to increase quality and introduce new services, to the benefit of consumers. More efficient spectrum use could also enable better or greater provision of public service broadcasting and other socially valuable services, which would benefit citizens.

## Ofcom's policy objective

- A5.4 Ofcom is seeking to secure optimal use of the spectrum for the benefit of citizens and consumers, by ensuring that the opportunity cost of spectrum is taken into account in decisions regarding spectrum use by broadcasters, while maintaining consistency with wider public policy objectives in broadcasting.
- A5.5 The impact assessment below is a mainly qualitative assessment of the policy options open to Ofcom. Ofcom believes that quantitative analysis in this specific area is unlikely to provide a sufficiently robust basis for assessment. This is because we would need to estimate the potential impact of spectrum pricing on future decisions regarding spectrum use, the specifics of which are as yet uncertain and in some case unknowable e.g. if they rely on future technology or service innovation.

## Should AIP be applied to broadcasting

- A5.6 The table below summarises the assessment of Ofcom's proposal that AIP should be applied to terrestrial broadcasting against the alternative of not applying AIP to terrestrial broadcasting. The specifics of whether AIP should be applied to all terrestrial broadcasting uses of the spectrum and when it should be applied are assessed in the section after this one.

Proposed options and alternatives	Benefits	Costs
AIP is applied to terrestrial broadcasting vs. terrestrial broadcasting is exempt from AIP	<p>Applying AIP will incentivise terrestrial broadcasters to take decisions that promote efficient spectrum use in the short, medium and long term. The incentives may work directly on broadcasters and/or they may cause broadcasters to negotiate with policy makers for example to reduce constraints on spectrum use (without affecting provision of social benefits).</p> <p>Such decisions may generate consumer benefits if more efficient use of spectrum leads to the delivery of new services or improves the quality of existing services. Companies in the broadcasting sector will have an opportunity to generate higher revenues from service improvements and reduce costs e.g. through the use of new coding techniques.</p> <p>AIP will also have an impact on the future demand for spectrum by terrestrial broadcasters, in particular their demand for additional spectrum to deliver additional services. Additional welfare benefits may therefore arise indirectly if spectrum scarcity for other uses is reduced as a result of more efficient broadcasting use of spectrum.</p>	Applying AIP to terrestrial broadcasters does not necessarily detract from the achievement of broadcasting policy goals. Many tools are available to policy makers to ensure the continued delivery of broadcasting policy goals. Provided that there is sufficient time for the implications of AIP to be taken into account within the wider broadcasting regulatory framework (where necessary), the social benefits of broadcasting should continue to be delivered.

- A5.7 In conclusion, it is Ofcom's view that it is appropriate to apply AIP to the use of spectrum for terrestrial broadcasting. This will create strong incentives for efficient use of the spectrum, in particular that the opportunity cost of spectrum is taken into account in decisions that affect broadcasting spectrum use. In addition, AIP can be introduced in a manner that will not detract from the continued delivery of the social benefits of broadcasting and be consistent with the wider public policy framework for broadcasting.

### Proposals for introducing spectrum charging

- A5.8 The table below summarises Ofcom's assessment of the impact of its proposals on the timing of the introduction of AIP to terrestrial broadcasting as set out in section 4 of this Consultation. In each case, Ofcom's proposal is discussed in relation to the main alternatives.

Proposed options and alternatives	Benefits	Costs
Analogue television: no AIP before digital switchover vs. apply AIP as soon as possible	<p>DSO has been put in place by the government and this provides a strong incentive for broadcasters to move to digital which would lead to a major increase in the efficiency of spectrum use. Only if the measures available to secure DSO were not effective might there be a benefit in applying AIP pre DSO.</p> <p>Not applying AIP pre DSO also avoids disrupting digital switchover, whereas if AIP were applied, it is not certain that disruption to DSO could be avoided in all circumstances.</p> <p>A related source of potential disruption to consumers is also minimised; If AIP were applied it could create incentives for analogue TV broadcasters to hand back their analogue licences early. Although digital penetration is rising quickly, those consumers who had not yet switched would lose out.</p> <p>If analogue broadcasting continued post DSO, the above arguments might not apply.</p>	In theory, some economic efficiency could be foregone under the proposed option of not applying AIP, but in practice moving to digital transmission is the best way for TV broadcasters to improve the efficiency of spectrum use. Digital Switchover provides the opportunity and the policy mechanism for analogue broadcasters to achieve this.
Digital television: apply AIP from 2014 <sup>7</sup> vs. apply AIP as soon as possible	Regulatory certainty is promoted by waiting until 2014 to apply AIP. Breaking the Government commitment not to apply AIP before the end of the initial licence periods of the DTT multiplexes would create regulatory uncertainty and could reduce the effectiveness of future regulation in broadcasting and spectrum management. This could have a detrimental effect on future investment, efficiency and consumer welfare.	Some economic efficiency will likely be foregone by waiting until 2014 to apply AIP, particularly in terms of the allocation of spectrum between television broadcasting and other potential uses of the spectrum.
Digital television: apply AIP from 2014 vs. postpone the introduction of AIP e.g. until 2020	The benefit from postponing AIP beyond 2014 is only likely to be significant if introducing AIP in 2014 would be likely to disrupt the market. This would imply that there had not been sufficient time for broadcasters and policy makers to put any necessary adjustments into place. The probability of this happening is likely to be very low.	Delaying the introduction of AIP beyond 2014 will likely be costly in terms of delaying the efficiency benefits that should arise from multiplex operators and broadcasters taking the opportunity cost of spectrum into account in investment and other decisions affecting spectrum use. The longer the delay the greater the likely cost.

<sup>7</sup> The government gave a commitment not to apply AIP to DTT before the expiry of the initial licence period for DTT multiplexes. The last of the licences to expire do so in 2014.

<p>Analogue radio: continue to apply population based charges to independent commercial radio and extend to the BBC vs. apply AIP on the basis of full opportunity cost immediately</p>	<p>Since there is little demand from other services to use this spectrum, little benefit would be gained by trying to set AIP on the basis of its value to alternative uses. In not applying the full opportunity cost, Ofcom avoids creating an administrative burden on the industry and avoids incurring cost of attempting to estimate opportunity cost.</p> <p>Using population served appears to be a reasonable proxy for the value of the spectrum to a radio broadcaster. Therefore, economic benefits similar to those that would be generated by applying AIP will arise from continuing to charge independent radio stations on this basis.</p> <p>Extending the current system of population based charges to include the BBC will ensure that all analogue radio broadcasters with the ability to influence spectrum usage have incentives to promote its efficient use.</p>	<p>A more precise estimate of the opportunity cost to analogue radio could in theory promote more efficient spectrum use (potentially benefiting consumers and broadcasters). However, Ofcom's preliminary analysis has shown that calculating opportunity cost for analogue radio would involve substantial additional complexity (risking potential inaccuracies) arising largely from the interwoven nature of analogue radio spectrum assignments. It is also unclear whether calculating opportunity cost would add much over using population served as a proxy for AIP.</p> <p>Community radio stations and RSLs use only small amounts of spectrum. The economic cost, therefore, of not extending population based charges to these categories is likely to be minimal, and the administrative costs are likely to be material.</p>
<p>Digital radio: apply AIP from 2012<sup>8</sup> for existing and planned spectrum use vs. apply as soon as possible</p>	<p>To the extent that there may be an expectation that AIP would not be applied to digital radio before a certain date (similar to the expectations for digital TV) digital radio broadcasters could face difficulty in the short term adjusting to the application of AIP. It is difficult to calculate precisely the appropriate transition period, however, applying AIP from 2012 would seem to provide sufficient time for digital radio broadcasters to adjust and for any changes in other arrangements necessary to ensure that public policy objectives are upheld to be implemented.</p>	<p>Some economic efficiency will likely be foregone by waiting until 2012 to apply AIP, particularly in terms of the allocation of spectrum between radio broadcasting and other potential uses of the spectrum.</p>
<p>Digital radio: apply AIP from 2012 for existing and planned spectrum use vs. postpone the introduction of AIP e.g. until 2020</p>	<p>The benefit from postponing AIP beyond 2012 is only likely to be significant if introducing AIP in 2012 would be likely to disrupt the market. This would imply that there had not been sufficient time for broadcasters and policy makers to put any necessary adjustments into place. The probability of this happening is likely to be very low.</p>	<p>Delaying the introduction of AIP beyond 2012 will likely be costly in terms of delaying the efficiency benefits that should arise from multiplex operators and broadcasters taking the opportunity cost of spectrum into account in investment and other decisions affecting spectrum use. The longer the delay the greater the likely cost.</p>

<sup>8</sup> 2012 is the end of the initial licence period for the first national terrestrial digital radio multiplex.



<p>New terrestrial broadcasting services: apply AIP immediately vs. apply at same time as digital broadcasting</p>	<p>No prior regulatory commitments have been given to the application of AIP to new broadcast services and its immediate application will therefore not disrupt any existing businesses. Applying AIP immediately will also enable the benefits of AIP to be realised more quickly and, because it is consistent with Ofcom's overall approach to spectrum, will not run the risk of damaging regulatory credibility.</p>	<p>For a period, AIP could be charged on new terrestrial broadcasting services but not on existing terrestrial broadcasting services. This disparity could introduce a disincentive to invest in new terrestrial broadcasting services. However, this is only likely to affect services which are marginally more profitable than existing ones. Therefore this effect seems unlikely to outweigh the benefits of applying AIP immediately.</p>
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A5.9 In conclusion, the impact assessment suggests that in each case Ofcom's proposals on the timing of the introduction of AIP in broadcasting are likely to have a better economic impact than the main alternative options.