



Future pricing of spectrum used for terrestrial broadcasting

A statement

Statement

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Section 1

Executive Summary

1.1 This Statement follows Ofcom's consultation on the future pricing of spectrum used for terrestrial broadcasting. It sets out our intentions in respect of:

- implementing charging for spectrum used for digital terrestrial broadcasting of television and radio; and
- extending the current charging regime for analogue commercial sound broadcasting to the spectrum used by the BBC for its radio services.

Ofcom's decision

1.2 In July 2006, we consulted on proposals to implement administered incentive pricing (AIP) for spectrum used for terrestrial broadcasting. We did so on the principle that 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.

1.3 The consultation produced a number of responses, which this Statement outlines and which we have considered fully. Our overall conclusions are that:

it is right that broadcasting use of spectrum should be subject to appropriate charges in future, in the same way as almost all other uses are or will be;

the right time to introduce charging for spectrum used for digital broadcasting – both television and radio – is the end of 2014;

the right time to extend the existing charging regime for commercial analogue radio spectrum to that used by the BBC is 2008;

before introducing any charges, we will consider carefully any potential effects on broadcasting output, and the right options to address or mitigate them.

Spectrum is a valuable and scarce national resource

1.4 The electro-magnetic spectrum is a major asset to the UK, contributing approximately 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 utilities.

1.5 At the same time, the amount of spectrum available in the UK is limited. 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. 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

- 1.6 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

- 1.7 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. Spectrum use is exclusionary: use of spectrum for one purpose precludes its use for another. Decisions affecting current and future spectrum use should therefore be made with a full and accurate reflection of the opportunity cost that such use imposes, if those decisions are to lead to the socially optimal allocation of resources in the longer term.
- 1.8 One of the best ways of ensuring that these opportunity costs are fully and accurately reflected by decision-makers is for them to be reflected in prices that have to be paid to hold spectrum.
- 1.9 This is the principle behind Ofcom's use of what is known as Administered Incentive Pricing, or AIP – the charging of annual fees for holding spectrum that reflect the opportunity cost of holding that spectrum.

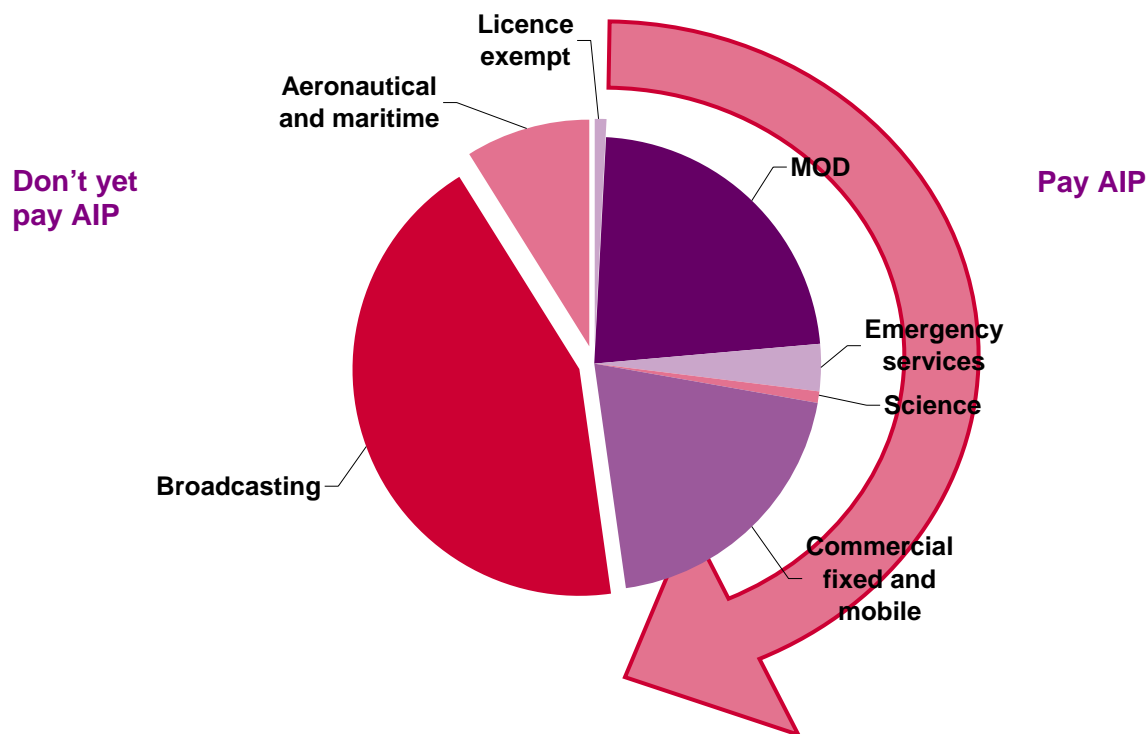
Terrestrial broadcasting is almost unique among major spectrum users in not currently having to pay AIP

- 1.10 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.
- 1.11 Terrestrial television and radio broadcasting currently occupies around 400MHz or 40% of spectrum below 1GHz. By contrast, 2G and 3G mobile telephony currently occupies only 70 MHz (7%) of spectrum below 1GHz and only 350MHz of spectrum below 3GHz.
- 1.12 To date terrestrial broadcasters, or more often than not their transmission service providers, have paid only administrative cost-based fees explicitly for their use of spectrum. In addition, some commercial broadcasters have paid certain Broadcasting Act fees ("Additional Payments") 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, as well as other elements that reflect the overall package of rights and obligations in their Broadcasting Act licences¹.
- 1.13 By contrast, most other users of the radio spectrum who hold a specific spectrum assignment have to pay for its use, either through AIP or through having acquired

¹ For further discussion of Additional Payments, please see Section 3.

the spectrum at auction. 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.

Figure 1. Terrestrial broadcasting is the largest user of spectrum below 1GHz that does not as yet pay AIP



AIP for spectrum used for broadcasting has been widely recommended for some years

- 1.14 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.”

Ofcom's 2006 consultation

- 1.15 In our consultation document² we made a number of proposals:

² *Future pricing of spectrum used for terrestrial broadcasting*, July 2006, <http://www.ofcom.org.uk/consult/condocs/futurepricing/>

- no AIP on analogue terrestrial television use of spectrum pre-digital switchover (DSO) – subject to Ofcom reserving the right to revisit this decision if the implementation of DSO is materially delayed or postponed indefinitely;
- no AIP on digital terrestrial television use of spectrum until 2014;
- existing system of population-based spectrum fees for independent national and local analogue radio stations to be extended to the BBC;
- no AIP on existing and already planned digital terrestrial radio use of spectrum until 2012;
- AIP to apply immediately to any spectrum acquired for any new terrestrial broadcasting service, unless acquired at auction.

Responses to the consultation, and other representations

- 1.16 Ofcom received 18 responses to its consultation. Of these, three were broadly and strongly supportive of the proposal that AIP should be applied to broadcasting uses of spectrum in the same way as other uses.
- 1.17 In the responses objecting to our proposals, there was both opposition in principle, and concern about specific implementation aspects. The objections in principle covered three main themes:
- that AIP was not needed to incentivise efficient use of spectrum;
 - that multiplex operators, or broadcasters, would not be able to respond to a pricing signal because of specific terms in their licences, set by Ofcom and/or Government;
 - that the effects on broadcasting output of charging broadcasters and multiplex operators for spectrum would be undesirable for citizens and/or consumers.
- 1.18 Ofcom has considered these points, and concluded that:
- there are considerable incentive benefits from introducing price signals associated with spectrum use, that apply to broadcasting use as much as to any other use;
 - spectrum users – and Ofcom, and Government – can respond, albeit over the longer term, to the incentives created by AIP. AIP has the potential not only to incentivise more efficient behaviour by spectrum users, but more efficient decision-making by regulators too;
 - a range of ways exists to mitigate any detrimental effects on consumers or citizens. There is considerable time available for spectrum users and others to identify potential effects and consider a response.
- 1.19 As a result, Ofcom has decided to proceed along the lines of its original approach, that is, a pre-announced programme of introducing AIP for broadcasting uses of spectrum, in the same way as other uses. At the same time, we recognise that there could be potential effects on broadcasting output that could justify changes either to the regulatory or funding structures. We are therefore making clear that in light of our specific interests in, and duties in relation to, broadcasting, we are ready to discuss

whether any such changes are appropriate, while noting that certain changes including decisions on public funding are not in our gift, but a matter for the Government and Parliament.

1.20 There were concerns expressed over implementation, or over specific details:

- a range of alternative proposals on timing, in relation to both DTT and DAB;
- concern about the potential disparity between two proposed approaches to deriving spectrum charges for local DAB multiplexes;
- specific objections to the treatment of Community Radio and RSL radio, particularly in comparison with small analogue commercial radio stations.

1.21 On timing, on further review Ofcom has decided:

- to confirm its proposal to implement AIP for spectrum used for digital television broadcasting from the end of 2014;
- to amend its proposal for the timing of AIP on digital terrestrial radio spectrum, so that this will now be introduced from the end of 2014.

1.22 On the apportionment of fees for local DAB, we have noted the concerns expressed and will take them into account in drawing up the proposals on which we will consult before introducing charging to spectrum used for DAB services, nearer the time.

1.23 Ofcom's approach to both Community Radio and RSL Radio has been separately consulted on previously, and has been confirmed. We do not propose to revisit this in response to comments received in this consultation.

1.24 There was also a general concern among respondents that the level of AIP for any of this spectrum is not yet known. Ofcom recognises that in any business, certainty about future costs is preferable to uncertainty. However, it is not currently possible to forecast spectrum demand in 2014 sufficiently well to predict the prices that would reflect the opportunity costs. The only certainty we would have in doing so would be that any such prediction would be wrong.

1.25 Ofcom will undertake to conduct a transparent process to derive the opportunity cost of spectrum used for DTT and DAB broadcasting. We will ensure that all stakeholders, in particular the licensees, have the opportunity to make representations before we set the administered prices.

1.26 We have also taken into account points made in other representations, including day-to-day correspondence and meetings with stakeholders, and points made in response to other consultations such as the Digital Dividend Review.

Working with broadcasting users of spectrum

1.27 We recognise that AIP for spectrum use is a substantive change for most broadcasters and multiplex operators. Some broadcasters – such as commercial radio analogue broadcasters – already operate under a charging regime and so have assimilated these costs, and are used to including these in their decision-making.

1.28 But the BBC's radio arm, and the DTT and DAB multiplex operators, have hitherto had free spectrum, assigned in fixed quantities by government, the Radio Authority,

or the ITC. The opportunity costs of their marginal use of spectrum, or other options for delivering content, have not automatically figured in their decisions. The introduction of AIP, on whatever terms, is a material change to their operating environment.

1.29 It is worth noting, in relation to this change:

- the expected charges under a system of AIP are not expected to be large in comparison with other costs – and we will consult further before confirming these;
- we are building in a significant time for multiplex operators to consider the potential effects of charging, and to discuss these with us or with government;
- we are ready, at all times, to work with broadcasters and/or multiplex operators, to consider whether, and how, the broadcasting regulatory or funding regimes should be changed in response to spectrum charging.

1.30 If it seems likely that there could be material detriment to citizens or consumers from the effects of AIP on broadcasting output, there are a number of ways available to Ofcom, government and spectrum users to address this. For example, changes to regulation could be made, or additional public support made available, to ensure that the required output was safeguarded if this was thought necessary. Finally, as we made clear in the consultation document, these means could include potentially not introducing AIP, or levying it at a reduced rate, if this was necessary to ensure public service broadcasting requirements could be met.

1.31 It also is important to note that Ofcom's aim in setting AIP charges is simply to ensure that spectrum users face the full opportunity cost of the spectrum they are using. In any case where a licensee is already fully exposed to this cost by different means, for example by having paid market value for the spectrum, or where there is an effective secondary market in the spectrum, or a regime of Broadcasting Act fees³ has already been put in place that effectively means the licensee faces the full opportunity cost of spectrum, then there is no need for an additional AIP charge. However, if the licensee is not facing this cost, then an AIP charge is justified.

Next steps

1.32 We will publish a consultation document on the detailed implementation of spectrum pricing for spectrum used by the BBC's analogue radio services, and commercial analogue radio services, later this year.

1.33 Work on setting prices for spectrum used for digital broadcasting will commence nearer the time of implementation. Following that work, spectrum users will be notified of our charging principles, the prices that will apply, and detailed arrangements for issuing charge notices and handling payment.

³ Under the Broadcasting Act 1996, both Ofcom and the Secretary of State have powers to set Additional Payments, in the form of a Percentage of Multiplex Revenue, for both DTT and DAB licences. These potential charges for Broadcasting Act licences are discussed in Section 3.

Section 2

Background to this statement

- 2.1 In September 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 pricing⁴. A number of points were raised in response to this consultation, and subsequently, by broadcasters and other parties.
- 2.2 In July 2006, Ofcom published a consultation document “Future pricing of spectrum used for terrestrial broadcasting”, in which we made a number of proposals for introducing Administered Incentive Pricing (AIP) for this spectrum.
- 2.3 This Statement sets out Ofcom’s conclusions and decisions following the public consultation on these proposals.

Policy developments since 1998

- 2.4 Since 1998, the Government and then Ofcom have used AIP for a growing proportion of spectrum licences. We have done so on the basis of a rationale set out in the July 2006 document, namely that:

“2.6 ...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...”

2.7... 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.”

- 2.5 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.”⁵

- 2.6 Following Ofcom’s 2004 consultation, and in light of consultation responses and other representations made to Ofcom regarding spectrum pricing and terrestrial broadcasting, we commissioned specific further analysis from the consultants Indepen and Aegis, together with Dr Damian Tambini of Oxford University, before

⁴ *Spectrum Pricing: A consultation on proposals for setting Wireless Telegraphy Act licence fees*, 29 September 2004, http://www.ofcom.org.uk/consult/condocs/spec_pricing/spec_pricing/

⁵ *Government Response to the Independent Review of Radio Spectrum Management*, October 2002, <http://www.ofcom.org.uk/static/archive/ra/spectrum-review/index.htm>, paragraph 8.12

publishing detailed proposals. We published those proposals for public consultation, accompanied by the report prepared by the consultants, last July.

July 2006 proposals

2.7 Ofcom's specific proposals on future pricing for spectrum used for terrestrial broadcasting were:

- that in principle, AIP should be applied to all terrestrial broadcasting uses of spectrum, as to other spectrum uses;
- that AIP should not be charged to broadcasters (or their transmission providers) on spectrum used to broadcast the current analogue terrestrial television services, prior to the planned switching off of those services as part of the DSO programme. Ofcom does, however, reserve the right to revisit any final decision on this matter, if the implementation of DSO is materially delayed or postponed indefinitely;
- that AIP on spectrum used to broadcast the current digital terrestrial television multiplexes should not be charged to the operators of the existing digital terrestrial television multiplexes (or their transmission service providers) until 2014, when the later group of digital multiplexes come to the end of their first term;
- that in analogue radio broadcasting, the existing system of population-based spectrum fees (with some enhancements) should apply to all national, regional and local analogue radio stations including the BBC from 2008, but not including Restricted Service Licences (RSLs) or Community Radio stations. For RSLs and Community Radio stations, a flat fee for use of the spectrum has been set following previous consultation;
- that AIP for terrestrial digital radio services should not be charged until 2012, which is just after the end of the first term of the national DAB licence;
- that AIP should apply immediately to any spectrum used for broadcasting any new terrestrial broadcast service, unless such spectrum is acquired through an auction. In the case of any new analogue radio services using frequencies in the spectrum already allocated to analogue radio, the WT Act fees would be set in the same way as the existing stations using this spectrum. For commercial stations, these fees already approximate to AIP.

Consultation responses

2.8 We received 18 responses to the consultation. A list of responses (where the respondent agreed to have this information published) is provided at Annex 1, and a summary is set out in Annex 2.

2.9 Ofcom has considered these responses in detail. A number of the points raised by respondents are re-statements of arguments raised before the consultation document was drafted, and which were analysed in that document. However a number of respondents raised new points in relation to these arguments. In Section 3 we set out these new points, along with those that were considered in our consultation document, and our response to all these points.

- 2.10 Two parties submitted very detailed papers, which raised a number of points about Ofcom's analysis. Some of the points made concerned the theory of pricing, markets and broadcasting regulation, and how these interact. Section 3 also covers these points, and sets out our response in brief. We are also publishing, in Annex 3, a more detailed consideration of the points raised in these detailed submissions.
- 2.11 None of the responses raised issues that we felt substantially altered the analysis in the Impact Assessment published last summer. As a result, we have not revisited that Assessment. In every instance where we are proposing to institute charging for a class of licences, we will consult again specifically on that proposal, and produce an Impact Assessment that reflects our estimated charging levels at that time.
- 2.12 We have reproduced the text of the Impact Assessment from 2006 as Annex 4 to this Statement, for ease of reference.

Other developments affecting the timing of this Statement

- 2.13 Although the issues raised in many of the responses were closely linked to the issues covered in the original document, we have delayed the publication of this statement to take account of a number of changes in the broadcasting market and the evolution of Ofcom policy in the period since last October, when the consultation closed. Many of these are initial publications, serving as the beginnings of longer-term projects that could have a material impact on the allocation of spectrum and the broadcasting market.
- 2.14 In December, Ofcom published its consultation on the Digital Dividend Review. This document elaborated the rationale and roadmap for our approach to releasing spectrum that would become available for new uses following digital switchover. Services that could make use of this spectrum include, but are not limited to, terrestrial broadcasting. We have received a very large volume of responses, and we hope to publish a Statement of our decisions, as well as a further consultation document on some proposals we have developed since December, later this year.
- 2.15 While the DDR proposals are not directly linked to the application of AIP to existing users of spectrum, we felt that it would be unhelpful to publish a statement relating to AIP while the DDR consultation was still under way.
- 2.16 Some of the responses we have received following publication of the Digital Dividend Review consultation document have made points in relation to AIP applied to spectrum used for terrestrial broadcasting. We have considered carefully whether these points raise new arguments or evidence in addition to the AIP responses, and have sought to ensure that they are taken into account in Section 3.
- 2.17 In January, the BBC licence fee for the next six years was announced, giving financial clarity to parts of the broadcasting sector. A number of the proposals in the original document relate to the costs incurred by the BBC, and the financial settlement is likely to have a material impact on the rest of the industry. We have therefore taken account of this announcement in this Statement.
- 2.18 Ofcom is currently considering new approaches to radio regulation which take account of the transition from analogue to digital platforms, and we recently published our proposals as "The Future of Radio"⁶. In reaching final decisions on

⁶ Ofcom, *The Future of Radio, The Future of FM and AM services and the alignment of analogue and digital regulation*, 17 April 2007, <http://www.ofcom.org.uk/consult/condocs/futureradio/>

these issues, we will be able to take into account the planned introduction of AIP for spectrum used for digital radio.

Section 3

Points raised in the consultation

Summary of arguments, and Ofcom's assessment

- 3.1 In many cases, the points raised in response to our consultation were re-statements, or re-presentations, of those which had been raised before and analysed in that document. However, we have considered these arguments again, alongside any new arguments, and set out all of our responses below.
- 3.2 The points made by respondents are summarised in a table at Annex 2. In addition, our full response to the more detailed or theoretical arguments submitted by some respondents is published as Annex 3 to this Statement.
- 3.3 We have grouped the points made under the following broad headings:
- General points about the nature of terrestrial broadcasting markets;
 - The effect of licence obligations on multiplex operators' ability to pay AIP, or to respond to AIP;
 - Concerns relating to Public Service Broadcasting, or broadcasting output more generally;
 - Concerns relating to the DTT or DAB platforms;
 - The relation between AIP and the Additional Payments regime(s) in the Broadcasting Act;
 - Other general policy objections and arguments;
 - Concerns about the methodology for setting charges, and our specific policy for applying charges to certain users;
 - Timing.

Overall point about broadcasting concerns

- 3.4 As well as the numerous individual points made, we noted an overall concern about the potential effects that introducing charging for this spectrum could have on the provision of broadcasting services, specifically but not limited to PSB services, in the UK.
- 3.5 Many respondents were concerned at what they saw as an over-emphasis on our spectrum policy framework, at the expense of our broadcasting responsibilities.
- 3.6 We have been fully conscious of our broadcasting responsibilities in drawing up these specific proposals for spectrum used for broadcasting. We understand that there are potential effects on broadcasting output from introducing a new charging system. As broadcasting regulators with a number of explicit duties in relation to the provision of broadcast services, and the delivery of PSB aims, we have given these effects considerable thought, and we will continue to do so, in discussion with

broadcasters and multiplex operators, so that we are well-placed to respond as needed.

- 3.7 In a number of the cases set out below, we accept the point made that there are potential effects on broadcasting output. However, after full consideration, we do not agree that these effects point to free spectrum as the right policy response.
- 3.8 Rather, we think the right policy response to a broadcasting issue is to use the specific tools of broadcasting policy: those at our disposal, and those at the disposal of the Government, and Parliament. These tools include not only regulation such as the provisions of the BBC Charter, or the contents of licences, but also decisions as to funding.
- 3.9 Addressing potential broadcasting effects through broadcasting policy decisions has the advantage of being more focused than simply providing free spectrum, and thereby having a better chance of delivering the desired effects.
- 3.10 We intend to take our intentions on AIP fully into account across our whole programme of broadcasting policy reviews, and we will welcome any input to these in relation to AIP, or any other matter.
- 3.11 Our responses below in relation to broadcasting effects should therefore be taken in light of this overall commitment, to take account of AIP and AIP-related issues in considering decisions about the most appropriate future regulation, and funding, of broadcasting.

Incidence of AIP costs

- 3.12 It is perhaps worth setting out how AIP charges are expected to fall on various licensees. AIP is a spectrum charge, levied in support of our spectrum duties, and is therefore charged on Wireless Telegraphy Act (spectrum) licences⁷. The charge is in respect of spectrum use, not in respect of any specific activity such as broadcasting. This means that in digital broadcasting, there will not be a “BBC1 charge”, nor any charge for any particular service broadcast on either a television or radio multiplex: the charge will be levied on the multiplex, which is the user of spectrum.
- 3.13 If a multiplex operator carries only their own services on a multiplex, then the full charge will be paid by them. If other services are carried, then some of the spectrum charge can be recovered from those service-providers. Both commercial multiplex operators and the BBC carry other people’s services on their multiplexes. The ability to multiplex services, which is created by digital broadcasting technology, means that the AIP cost per spectrum channel can be shared by a number of services, thereby reducing the costs attributable to each individual service. So the cost per PSB

⁷ At present, Wireless Telegraphy Act licences associated with the use of spectrum for broadcasting are in some cases held by the person holding the relevant Broadcasting Act licence, and in some cases by the transmission providers (i.e. NGW or Arqiva). Ofcom is currently in the process of amending the named licensees on broadcasting-related WT Act licences, so that in future the person who holds the Broadcasting Act licence will also be the person named on the WT Act licence. In the case of the BBC, most of its broadcasting activities are not subject to BA licences; one exception is its operation of Multiplex B. The BBC’s transmission providers hold WT Act licences relating to the spectrum used for BBC services. In future, under arrangements similar to those proposed for other, BA-licensed broadcasters, it is intended that the BBC will hold the WT Act licence or licences identifying the spectrum it uses as a multiplex operator.

service – for example, the cost that might be expected to feed through to ITV1 from the charge levied on the spectrum associated with the licence for Multiplex 2 – is only a proportion of the expected cost per multiplex.

- 3.14 In analogue radio broadcasting, only one service can be carried on each set of frequency assignments, so the AIP cost associated with that spectrum will feed directly through to the service concerned. As confirmed in this statement, Ofcom has no proposals to introduce AIP in analogue television broadcasting. However, as set out in the consultation document, we reserve the right to revisit this decision if the implementation of DSO is materially delayed, or postponed indefinitely.

General points about the nature of terrestrial broadcasting markets

Sufficient incentives already exist

- 3.15 The first of these arguments was that broadcasting users of spectrum already have incentives to use spectrum efficiently. Respondents variously argued that:
- multiplex operators have commercial incentives to use spectrum efficiently (either by reducing operating costs or adding to the number of services carried on a multiplex). These incentives apply not only to commercial broadcasters but to the BBC as well;
 - the BBC Trust will have a responsibility to ensure the BBC's efficient use of spectrum, so a pricing incentive is not needed;
 - the market in multiplex capacity ensures efficient use of digital broadcasting spectrum without AIP.
- 3.16 Ofcom agrees that multiplex operators face commercial incentives over the wide range of inputs they use. With the exception of spectrum, all of these inputs are priced, so changes which either reduce the need for one or more priced input, or increase the output from the same inputs, are beneficial to the operator. For a commercial multiplex operator profits are increased, while for a non-commercial operator achievement of other aims is advanced – either by achieving more with the same input, or releasing money to put towards other aims.
- 3.17 However, as long as spectrum is not priced, licensees do not face the opportunity cost of their spectrum use. Their incentives will be distorted because they will obtain more value from improving efficiency in the use of a priced input (they can make cost savings, or increase their output) than from the same, or bigger, improvement in efficiency in the use of the free input (they already pay nothing so there is no cost saving to make). In practical terms, one potential result from this would be under-investment in technological improvements which could reduce the need for spectrum. Even where such investment would result in an overall saving in input costs, because a major part of that saving – in spectrum costs – would be invisible to the spectrum user, it would be unlikely to factor in the decision-making process.
- 3.18 In the case of the BBC, the Trust has a number of specific duties, including a general duty “to secure the efficient use of the radio spectrum that is available for use by the BBC or its contractors”. The Trust also has a number of objectives which are aimed at ensuring value for the licence fee payer. Those objectives will in part have the same effect as the commercial incentives described above, and therefore have the potential to strengthen those incentives already existing within the BBC.

- 3.19 However, if spectrum use is not priced, there is no cost information for the Trust to weigh up spectrum efficiency against efficiency gains in respect of other inputs. The distorting effect of free spectrum is not necessarily addressed by the existence of the Trust. If almost all of the BBC's inputs cost licence money, but one does not, it is rational for the Trust, and in line with its duty to licence fee payers, to seek to make savings on the priced inputs even where that would not improve overall efficiency as much as making changes that saved on spectrum use.
- 3.20 Further, in considering the efficient use of the radio spectrum, there is no reason for the Trust to consider whether any of the spectrum might be more efficiently used other than for and by the BBC. That is, the Trust is not charged with managing spectrum on behalf of society's wider interests. For comparison, Ofcom has a specific duty "to secure the optimal use for wireless telegraphy of the electro-magnetic spectrum", for the benefit of all UK citizens and consumers.
- 3.21 Were AIP applied to BBC spectrum, the Trust's oversight and objectives relating to value and stewardship of public money would come into play, leading to more informed decision-making and thus increasing the likelihood of a socially efficient outcome.

Trading in spectrum used for terrestrial broadcasting

- 3.22 Some respondents considered that trading is a more effective way of securing efficient use of the spectrum than AIP.
- 3.23 Ofcom considers that if:
- spectrum were a freely and efficiently traded good, with sufficient liquidity and transparency that there was good information in the market about prices, and those prices were a good reflection of market value (as is the case for, say, land); and
 - all users of spectrum had to acquire the spectrum that they needed through the market;
- then users would pay a price for spectrum 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 – conversely – forgo this revenue by continuing to hold the spectrum, there would also be a 'price' associated with holding spectrum on an ongoing basis. This price would reflect the value of the spectrum to other users, i.e. the opportunity cost, and would create incentives for efficient use of the spectrum.
- 3.24 However, in the absence of such an efficient market, charging the holders of spectrum an annual fee that reflects the opportunity cost to society of their holding that spectrum, is another effective and efficient way of ensuring that those opportunity costs are reflected in decisions made about spectrum use.
- 3.25 At present, broadcasting multiplex licences – and as a result, their accompanying Wireless Telegraphy Act licences – may be transferred, on a restricted basis. All of the rights and obligations in the licence must be transferred at once – so precluding any partial transfer, for example of the rights to use only some of the frequencies. This also means that the new licensee continues under the same restrictions on how the spectrum is used, that is, for a DTT or DAB multiplex, and how the multiplex capacity is used. Further, the transfer must have the consent of Ofcom, and Ofcom

must satisfy itself that the prospective new licensee is in a position to comply with all of the conditions.

- 3.26 It is possible that in future, licences will be issued that readily permit uses including terrestrial broadcasting but which are not Broadcasting Act licences, as allowed under sections 241 and 258 of the Communications Act 2003. These licences can be fully tradable, allowing for both full and partial transfers of the spectrum use rights. In line with Ofcom's general approach to new spectrum licences, we would expect that these licences would also be liberalised, that is they would allow for changes in use. The spectrum rights in these licences would, therefore, be capable of transfer in any quantity and for any purpose, enabling trades in the secondary market that should lead to the most efficient use or combination of uses.
- 3.27 However, at present this is not the case. It follows that there is no market in the spectrum currently used for terrestrial broadcasting that could meet the criteria set out above.

Trading in capacity

- 3.28 It has been suggested, in response to our consultation and in other representations, that trading in multiplex capacity – that is, the contractual rights to be carried on a particular multiplex – creates sufficient market signals in relation to spectrum used for multiplexed, digital broadcasting, to mean that AIP is unnecessary.
- 3.29 In our consultation document, we considered that there were three reasons why capacity trading was not sufficient to obviate the need for AIP:
- because the capacity being traded is constrained to a narrow range of uses: depending on the type of multiplex, the services carried must be either television or radio, or possibly a data service, if there is room on the multiplex within the existing licence restrictions. Because of this, the parties to the trade are only those who consider they can obtain value from such uses. As a result, there is no opportunity for the spectrum holder to assess the value of alternative services using this capacity;
 - lack of evidence that this market is in fact liquid. The rate at which capacity has been made available has been lumpy, and it was not clear to us in summer 2006 whether incentives to maximise the value of capacity have been working effectively. Respondents who disagreed with our analysis of this market did not, in our opinion, introduce compelling evidence that either the DTT or DAB multiplex capacity markets are operating efficiently;
 - in the consultation document, we noted that some multiplex operators are vertically integrated – that is, in certain cases a multiplex operator is also a service provider, whose services are carried on the multiplex. Such vertically integrated multiplex operator/broadcasters might have incentives to hold onto capacity rather than sell it to someone whose service will compete with their own. While Ofcom still considers that this is a potential issue for competition in the multiplex capacity market, we accept, as has been pointed out by one respondent, that this point would not be addressed by AIP. However, it is a potential reason why the market is not as liquid as it might be, as noted in the point above.
- 3.30 Ofcom also notes that the number of services offered to viewers and listeners differs across different multiplexes, with some multiplex operators utilising available

capacity more intensively than others. Ofcom does not believe that this is simply a matter of the use of different transmission modes (e.g. 64QAM versus 16QAM): even where multiplexes are operated by the same operator, using the same transmission modes, the number of services can differ. For instance, Multiplexes C and D, both operated by NGW, currently support different numbers of television and radio services. The multiplexes operated by the BBC, using the same transmission mode, carry different numbers of services again.

- 3.31 As a result, Ofcom continues to consider that multiplex capacity trading may be a complement to AIP, providing a mechanism that can facilitate some short-run efficiency gains in use of this spectrum. We do not consider that it is a sufficient incentive to efficient spectrum use to remove the need for AIP.

The effect of gifted spectrum on incentives and/or competition

- 3.32 Some respondents did not accept that gifted spectrum would distort the incentives applying to decision-makers. For the reasons set out above and in Annex 3, and previously in the consultation document and the accompanying consultants' report, we consider that there is a strong likelihood that free spectrum distorts incentives.
- 3.33 Some respondents argued that gifted spectrum has the effect, in economic terms, of a "lump sum subsidy" and so does not distort competition between multiplex operators in receipt of this gifted spectrum, and other broadcasting platform operators who are not.
- 3.34 In the first instance, we do not agree that gifted spectrum is equivalent to a lump sum subsidy. Making one input free to any user does distort that user's choices between inputs, because there is no reason for the user to consider trade-offs between a free input and other inputs.
- 3.35 However, it is also important to note that we are not proposing AIP as a means of securing, safeguarding or increasing competition. The justification for AIP is not related to competition between operators or between platforms, but arises from the potential for efficiency gains as a result of operators facing the full opportunity costs of their spectrum use, just as their other inputs.

Broadcasters cannot respond by adjusting end-user prices

- 3.36 Some respondents said that since broadcasting service providers cannot adjust their end-user prices, their ability to pass on AIP costs is compromised. As noted above, multiplex operators – who will, in the first instance, pay AIP levied on spectrum used for digital broadcasting – will be able to pass on some or all of this cost to the broadcasters whose services they carry.
- 3.37 However, it is not necessary for service providers – either multiplex licensees or their customers – to be able to adjust their prices in order to be able to respond to spectrum charging, and nor would we suggest that this was the only or even an appropriate response. As discussed in the consultation document and elsewhere in this Statement, there are a number of responses available to multiplex operators, broadcasting service providers and, where relevant, their regulators.

If implemented, AIP should be imposed on all broadcasting platforms, including satellite

- 3.38 Some respondents considered that it would distort competition between broadcasting platforms if AIP were introduced for spectrum used for terrestrial broadcasting, but not that used by satellite broadcasters.
- 3.39 Transmitters carried on satellites are, by definition, not located within UK jurisdiction, but operate under internationally agreed arrangements. Our WT Act licensing – and hence licence charging – powers are not applicable to their operation. However, as noted in our consultation document, Ofcom is considering options by which grants of Recognised Spectrum Access (RSA) might be made available to satellite users of spectrum, including incentive pricing for spectrum management purposes.
- 3.40 No decision has been taken by Ofcom on whether to introduce RSA for satellite services generally, or satellite broadcasting in particular. We would conduct a separate public consultation before deciding to proceed with the introduction of RSA for satellite services. Even if AIP were introduced for spectrum used for satellite broadcasting, it does not automatically follow that the incentive pricing would be the same as that for spectrum used for terrestrial broadcasting. This is because satellites typically transmit at higher frequencies. The opportunity cost associated with the use of these frequencies is less than that associated with UHF spectrum as, for example, they cannot be used for terrestrial mobile communications.
- 3.41 In addition, broadcasters using other transmission means, such as digital cable and IPTV, that do not require spectrum, would continue to pay no AIP whatsoever.
- 3.42 Differences in charges for inputs, such as spectrum, do not represent a distortion of competition but simply reflect the different characteristics of alternative delivery platforms and the fact that some impose higher opportunity costs than others. It would be economically inefficient and unjustified to charge all broadcasters the same AIP price irrespective of the frequency band, if any, that they use; or to refrain from imposing AIP on broadcasters whose use of spectrum does impose high opportunity costs.
- 3.43 Accordingly, Ofcom does not consider that the potential for different pricing treatment of spectrum used for terrestrial broadcasting, compared with that used for satellite broadcasting, creates a reason not to go ahead with AIP for the former, as proposed.

Broadcasters are not able to respond to incentives, because of the regulatory framework

- 3.44 A number of respondents objected to the application of AIP to this spectrum on the grounds that broadcasting users (digital and analogue) are unable to respond to pricing incentives, because their use of spectrum is determined by the terms of their Broadcasting Act licences⁸.

⁸ Multiplex operators also hold Wireless Telegraphy (WT) Act licences, which also contain restrictions as to the use of spectrum. However, this is the case for all licensed spectrum users, including the vast numbers who already pay AIP. The general WT Act-type restrictions may be changed following a request to Ofcom, provided changes would not have unacceptable effects on consumers or citizens, other spectrum users, or would be in conflict with our international obligations. The particular additional restrictions in relation to the terrestrial broadcasting users of spectrum, are those which stem from the Broadcasting Act 1996 and are contained in the BA licences. This Statement concentrates on these restrictions, since they are specific to terrestrial broadcasting uses.

- 3.45 Ofcom has always accepted that both digital and analogue broadcasting licensees 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.
- 3.46 For comparison, this is true of many other types of requirements placed on broadcasters, not only those which affect their flexibility over the amount of spectrum used. For example, commercial analogue radio licensees are required to have studios located in the licensed area, with exceptions only as agreed with Ofcom. We recently confirmed, in "The Future of Radio"⁹ that we are prepared to consider requests for stations to co-located with other stations outside their licensed area, and set out some factors we would take into account in doing so.
- 3.47 Looking across television and radio multiplexes, there are various regulatory requirements which impose certain restrictions on *how* licensees meet their licence obligations and these requirements have an impact on costs or revenue generation e.g. requirements in relation to the mix of services that need to be offered; the capacity available for specified services, technical standards relating to bitrates and encoding formats; coverage requirements etc. In the first instance, there is scope for discussions with Ofcom as to how broadcasters could continue to meet the objectives of their licence conditions – which were set by Parliament, the ITC or more recently by Ofcom, in order to secure benefits for citizens and consumers – while relaxing the detailed requirements on how those objectives should be delivered.
- 3.48 In addition, in the coming months and years there will be a number of opportunities to consider the overall delivery of public service broadcasting and its funding. In particular, and in addition to ongoing work on PSB, Ofcom's next PSB review will begin this autumn, and the government has committed to reviewing the funding of PSB before the completion of switchover¹⁰. These should provide an opportunity to look at the overall financial position of PSB, in the round, before any final decision about how, and at what levels, AIP should be implemented from the end of 2014.
- 3.49 In the case of digital TV and radio, the operators, individual service providers, Ofcom and government have more than five years to consider the potential effects on broadcasting output of introducing AIP, and whether the PSBs or other service providers can take steps, on their own initiative, to mitigate these or whether regulatory adjustments are required. These adjustments could include the removal, relaxation or re-drafting of certain conditions; potential changes to funding arrangements or, where appropriate, not introducing AIP, or levying it at a reduced rate, if this was necessary to ensure public service broadcasting requirements could be met.
- 3.50 As set out in the consultation document, 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. We fully expect that many of the efficiency gains from AIP for spectrum used for terrestrial broadcasting will come in the form of long-term investment decisions by broadcasters, and strategic decisions by broadcasters and regulators.
- 3.51 Several respondents made one specific proposal:

⁹ *The Future of Radio*, April 2007, section 4. <http://www.ofcom.org.uk/consult/condocs/futureradio/>

¹⁰ Department for Culture, Media and Sport, *A public service for all: the BBC in the digital age*, http://www.bbccharterreview.org.uk/have_your_say/white_paper/bbc_whitepaper_march06.pdf, 11.1.4, 11.1.5

- That if AIP is to be introduced, it must be accompanied by a simultaneous relaxation of the restrictions on spectrum usage by broadcasters.
- 3.52 Ofcom is open to discussions about specific relaxations, as mentioned above, in response to AIP incentives. However, it does not follow that AIP should not be introduced without specific relaxations of spectrum-related obligations. As discussed above, there are other options available for adjusting the regulatory or funding regime, if required.
- 3.53 The licensing systems are administered by Ofcom under its specific powers, and its statutory remit: to secure the interests of citizens in relation to communications matters, and consumers in relevant markets. As set out above, in the case of a particular requirement in a broadcasting licence that limits the licensee's flexibility on spectrum use, therefore, Ofcom would need to consider:
- the incremental impact on the licensee's costs of the particular requirement; and
 - any benefits for citizens and/or consumers secured by means of that requirement;
- in light of our duties to citizens and consumers, and our duty to have regard to good regulatory principles, in particular the desirability of regulation being proportionate and focused.
- 3.54 For example, in future it might be possible, and justified, to replace a licence requirement to use spectrum to deliver a particular service or level of service by a requirement that specifies the output – that the service is delivered – but leaves the choice of platform up to the licensee. However whether, and when, such a change might be justified could well depend on technological and market developments that are not foreseeable at present.
- 3.55 In advance of considering each licence requirement, therefore, we cannot give general agreement in principle to relaxing particular requirements that have an impact on spectrum use. But we are willing to discuss specific proposals from any licensee.
- 3.56 In that regard, we would note that Ofcom expects to carry out a number of policy projects that will consider future broadcasting regulation, and to which we would expect multiplex operators and other payers of AIP to have an input:
- our work on the future of PSB in a digital world;
 - our next statutory Review of PSB, in 2009;
 - our project on the Future of Radio – following consultation on our proposals;
 - further work following our financial review of Channel 4;
 - any work potentially requested by the Government, to contribute to its proposed review of public funding for PSB beyond the BBC.
- 3.57 It was pointed out that Ofcom's recent statement on digital radio "The Future Licensing of DAB Digital Radio" mentioned that it was desirable for applicants to maximise the population to be reached by the proposed services; and that the award

of multiplex licences would be influenced by the scale of transmission. It was suggested that giving priority to coverage was in conflict with the aims of AIP.

- 3.58 We do not see a conflict. Like any other desirable feature of a licence application, coverage will have costs – in terms of capital investment and ongoing maintenance and power costs. Spectrum is one of the inputs that might be used in conjunction with others to provide coverage and it is right that applicants should take into account any incremental costs of spectrum (through AIP) in deciding how to reach more households.
- 3.59 In the specific case of the new national DAB multiplex, the amount of spectrum available has been planned and is effectively fixed. The question for applicants, in deciding what level of coverage to offer in their applications, is therefore more about the choice of equipment and power costs in securing coverage from the spectrum available, taking into account the expected introduction of AIP. If in future the successful licensee is able to achieve the promised coverage using less spectrum, they could save on related AIP costs.
- 3.60 Last, some respondents argued that the effect of Broadcasting Act licence obligations was, or should be, to reduce the opportunity cost of the spectrum, thereby reducing the price that should be charged under AIP.
- 3.61 We do not consider that the particular use of a frequency or set of frequencies does, or should, affect the opportunity cost. The opportunity cost is defined as the value of the spectrum in the best alternative use, and this best alternative use is not affected by what the current user is doing, whether by choice or under an obligation. If any particular user changed his use of the spectrum in his licence, we would not expect to change the charge he paid, as the cost to society of him using the spectrum would continue to be the same.
- 3.62 One stakeholder raised a related point outside of this consultation, but in relation to another consultation. This was that it would be unfair for Broadcasting Act licensees using spectrum for digital broadcasting to pay the same AIP as a potential new holder of spectrum who might provide broadcasting services, but be subject to different, possibly less onerous, regulation.
- 3.63 For the reasons set out above, we do not think that the nature of the licence should influence the calculation of opportunity cost. That cost represents the benefits to society that are forgone because one user is occupying the spectrum, instead of the best alternative. If the BA licensee and the non-BA licensee are occupying spectrum that could be used for exactly the same alternative uses, their opportunity costs – and hence the AIP they would be expected to pay – should, in principle, be the same. Costs – and benefits – associated with specific broadcasting licences are a matter for broadcasting policy-makers at all levels to take into account, in both regulatory and funding decisions.

Concerns relating to Public Service Broadcasting, or Broadcasters

Concern about effects on PSB output

- 3.64 A number of respondents felt that the practical effects of AIP for this spectrum – or the possible practical steps that might be taken in response to it – would be undesirable from the point of view of the provision of broadcasting services, and in particular of public service broadcasting, either in quality or quantity of output as experienced by viewers or listeners.

- 3.65 In our consultation document, we acknowledged 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 services. These services would include not only specific types and quality of content, but quality of transmission, and coverage of households. All of these have an impact on the overall provision of social benefits from broadcasting.
- 3.66 If it seems likely that this impact would 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. As we made clear in the consultation document, these means could include potentially not introducing AIP, or levying it at a reduced rate, if this was necessary to ensure public service broadcasting requirements could be met.
- 3.67 However, there are a number of ways available for broadcasters – working as needed with Ofcom and/or government – to take AIP into account in future decisions, in such a way that public policy aims for broadcasting continue to be delivered. PSBs may take steps on their own initiative to offset any material cost increases, either by reducing costs or increasing revenues associated with their broadcasting activities. Alternatively or in addition, they may secure the agreement of Ofcom or government, where appropriate, to amend or repeal specific regulations which would enable costs to be reduced or revenues to be increased.
- 3.68 As mentioned in our consultation document, it is also important to keep this issue in perspective. For example, if they were in line with the illustrative figures we published at that time, the costs of AIP to the BBC and Channel 4 for spectrum used for DTT would almost certainly amount to less than 2% of their budgets for PSB production and transmission. It is not automatic that this cost would feed directly into a 2% loss of the social benefits arising from either the BBC's or Channel 4's PSB output; there are a number of practical steps available to the broadcasters that could avoid or ameliorate any such reduction.
- 3.69 In relation to DAB, the estimate that we published in the consultation document last summer was that the charges for the frequencies needed to run a national DAB multiplex might be of the order of £650,000 per year. Currently, the national commercial multiplex carries seven separate services.
- 3.70 Further, the long lead time between now and our proposed implementation for spectrum used for digital broadcasting should provide ample opportunity for broadcasters, Ofcom and government to consider the potential impact, and, crucially, to consider other public policy and regulatory changes that would be appropriate.
- 3.71 In the case of spectrum used for analogue television broadcasting, our proposal is not to introduce AIP in advance of digital switchoff, so this question should not arise, unless circumstances and in particular the progress of DSO change significantly from current expectations.
- 3.72 In the case of spectrum used for analogue radio broadcasting, our proposal does not involve any substantive changes to the charges paid by commercial radio licensees. Our proposal would have an effect, potentially material, on the costs faced by BBC analogue radio broadcasting, in 2008. We are planning to consult further on our specific proposals for AIP in analogue radio broadcasting later this year, and will consider this point specifically then. In the meantime, we would note that the BBC currently manages input price fluctuations of the size of their likely AIP charge, in

running their business. We consider that there is time available to allow the BBC to plan its response to AIP for the spectrum it uses for analogue radio broadcasting.

Some respondents' preference for free spectrum over public financial support

3.73 Some respondents argued that free spectrum is a more efficient way of securing the social aims of broadcasting, rather than priced spectrum potentially matched by funding adjustments. Respondents also considered that it would be impossible to develop a workable structure for financial support.

3.74 In particular, these respondents considered that the problems with financial support rather than free spectrum were sufficient to justify continuing to make spectrum free to broadcasters. Broadly, the main points made to support this position were:

- The level of AIP is not known and may fluctuate – so it is difficult for public funds to be set to match these, creating uncertainty and the risk of over- or under-subsidising;
- A system of pricing where prices are paid to government but compensation comes either from government, or under the authority of Parliament via the licence fee, adds one or more administrative stages to no clear benefit. In addition, a system for broadcasters other than the BBC is not yet developed, and could be cumbersome to implement;
- Several respondents expressed concern about potential State Aid issues.

3.75 As set out in our consultation document, we do not agree that these or other potential problems with a pricing system mean that free spectrum is preferable. Taking the points above in turn:

- **Price fluctuation.** As we set out in the consultation document, we do not agree that the potential for AIP to vary makes it 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 have the potential to fluctuate over time, such as energy prices. If it is possible to agree forward-looking funding arrangements covering these inputs, Ofcom sees no reason why the same should not be true of spectrum.

The arrangements by which PSBs are funded to meet their PSB requirements vary depending on the broadcaster. In all cases, whether the BBC licence fee, or adjustments to the level of Additional Payments made, or any other system of public support, the analysis required to determine the amount of funding depends on careful consideration of individual cost and revenue items. However, the final amounts payable (in either direction) are set as an overall settlement, allowing the broadcasters the freedom to manage their budgets provided they meet the relevant overall constraint. Within that system, therefore, it is clear that certain input costs might vary compared with the forecast, as might some revenue streams. Indeed, the system effectively assumes this. The question of over- or under-funding for particular items is unlikely to arise unless the disparity with the original forecast is very large – both in comparison with the forecast item, and in relation to overall costs and revenues.

- **Administrative inefficiency.** Making spectrum opportunity costs, and public support, transparent – turning them into cash payments – will create administrative work. However, this additional administrative burden is likely to be

much smaller than the potential long-term efficiency gains from having spectrum users, and relevant policy-makers, face the opportunity cost of spectrum use.

Conversely, having a “gifted spectrum” system does not necessarily save on administrative costs. Although there would be no need for cash transfers, once AIP is fully established for most other uses of spectrum, there would still be administrative work for Ofcom and licensees alike. In order to ensure that the gift of spectrum was justified within the context of our spectrum and broadcasting duties, Ofcom would need to calculate the opportunity cost of that spectrum and to estimate the total value of the services likely to be provided on that spectrum; and to keep both of these under regular review. We would need to ensure that these costs and benefits were taken fully into account in subsequent decisions in relation to that spectrum. Similarly, the spectrum users would need to be held accountable for the use they made of that spectrum, in relation to its opportunity cost. It is likely that the “gifted” model would impose more administrative work than a charged spectrum model, owing to the need for government or Ofcom to calculate the value generated specifically from each parcel of spectrum awarded free of charge.

The “cash” model – of priced spectrum with funding made available to certain users who deliver public policy aims – already applies across a very wide range of activities, including parts of the public sector such as ambulance trusts and other parts of the NHS; and parts of the private sector who deliver public benefits, such as universities. Within an overall public funding settlement, these bodies are free to make trade-offs between inputs to secure the most benefit from their budgets, and the cost of spectrum use is just one factor they take into account along with all their other costs.

In this model, although there are the costs of cash management, there is the accompanying financial management benefit that the public service provider has more say over what to spend the money on. This gain in flexibility, and the efficiency gain to society as a whole, are likely together to outweigh the marginal additional effort of managing some additional cash transfers.

If the assertion were true that it is more efficient for government and regulators to make inputs free than to fund bodies who then make their own trade-offs, that would apply to any input, not just spectrum. That would imply making land, power, labour and all other inputs freely available to identified providers of public services. As well as creating scope for very large costs of regulatory failure where the regulators or government get this wrong, and provide too much or too little of any input, this system carries the huge disbenefit of removing all price incentives from the public service providers. If inputs are free, there are no incentives to make efficient use of them.

Last, we do not consider that requiring regulators (including Ofcom) and relevant government departments to consider the cost of spectrum and the amount of subsidy that could be justified in relation to it, to be simply a burden. It will form a part of future considerations of the regulatory regime or the funding regime. Over the medium and longer term, the outcome of such work in broadcasters, Ofcom and government, should be more socially-efficient allocations of spectrum, systems of regulation, and funding settlements. As we set out in July 2006, the transparency of a system that required broadcasters to pay for their spectrum use, should ensure that future policy decisions are made with a full appreciation of the opportunity costs of spectrum use, just as they are currently made in the knowledge of other input costs.

- **State aid concerns.** Ofcom, like any public authority in the UK, is under an overriding duty to comply with EU law, on state aid or any other matter. As a result, in designing any system of public support for securing the aims of public service broadcasting – whether that takes the form of financial assistance, free or subsidised spectrum, or any other endowment of state resources – we ensure that these are compliant with this body of law.

We do not consider that any insurmountable legal obstacles – either in EU or UK law – exist to constructing a funding system that takes account of spectrum costs.

- 3.76 In summary, we do not think that the potential problems identified by respondents are sufficient to decide not to implement AIP; in at least one case, we would consider the “problem”, of regulators having to look at the costs and benefits of their existing regulations, as a signal that the incentive effects of AIP were working.

Concern that AIP will not be felt by public sector broadcasters

- 3.77 It was suggested that the effect of AIP would be uneven, or unfair, as between public and private sector spectrum users, on two grounds:

- That users like the BBC and MoD have such large overall budgets that spectrum costs can be absorbed without being felt, so any desired incentive effect will be lost;
- That publicly-funded bodies can simply pass on costs to their funders via the licence fee or simply securing more funds from the Treasury.

- 3.78 Ofcom acknowledges that some bodies may feel cost incentives – for any input, not just spectrum – more sharply than others. But that is not, on its own, an argument not to introduce the incentives at all. Making the cost real for spectrum users, by having a recurring cash charge rather than an invisible opportunity cost, is expected to have some effect on all spectrum users, including those in the public sector. Moreover, there is already evidence of one public sector user, the MoD, altering its spectrum use in response to AIP.

- 3.79 The first point above relates to size of budgets, and so is not really specific to public sector bodies but would apply to any very large corporation. While it is generally true that large corporations have more in-year budgetary flexibility,¹¹ it is true for large and small organisations alike that, within fully committed budgets, any increase in the price of a particular input will force a trade-off decision, whether to continue to buy the same amount of the more costly input and make a saving somewhere else, or to find ways of reducing the need for that input.

- 3.80 It is true that public sector bodies could ask for more funding in response to AIP. But – as has been pointed out on many occasions by public sector organisations – it is far from automatic that this will be forthcoming. Government Ministers responsible for the levels of funding for these bodies are also aware of trade-offs, not only within an organisation but between competing public priorities.

¹¹ This flexibility does not arise, in general, simply from being large but because larger organisations tend to have diversified activities, and hence a larger number of budget “lines”. This increases the possibility of both underspends and overspends, and also can make it easier to fund unforeseen costs in-year by making smaller reductions in a number of budget lines, which may be easier to absorb.

- 3.81 We do not consider that the introduction of AIP would have an unfairly different impact on commercial broadcasters, in comparison with public sector spectrum users. Consequently, we do not think there is any reason, on these grounds, to adjust AIP for commercial spectrum users; nor to abandon the overall proposal to introduce AIP for all users of spectrum for terrestrial broadcasting.

Effects on transmission quality

- 3.82 Concern was expressed that the effect of AIP would be to encourage broadcasters to reduce transmission quality.
- 3.83 Ofcom is concerned with transmission quality, and there are minimum requirements in multiplex licences to comply with the current agreed technical standards (set out in the Technical Codes, for both television and radio). If broadcasters felt that a change in those standards – including a possible reduction in data rates for particular services – was required, they could approach Ofcom and ask to amend the Code, or their licence conditions. As we would in considering any other proposal for a relaxation in licence requirements, Ofcom would need to consider the potential costs and benefits, in terms of citizens and consumers, before deciding whether such a change would be justified. This is the situation as it exists at present, and would be unchanged by AIP.

Effects on platform development

- 3.84 In essence, the argument about potential effects on platform investment and development are the same as those about effects on output: that facing the opportunity costs of spectrum use would reduce the amount available to invest in the platform, either on technology or content.
- 3.85 Ofcom's conclusion on this point is, for similar reasons, the same as on other broadcasting effects. The introduction of AIP for spectrum used for digital broadcasting is some years away. We consider that this timeframe gives broadcasters and other parties sufficient time to consider whether the most suitable response involves changes to their policies regarding the digital platforms, and to discuss these where necessary with Ofcom or government.
- 3.86 In the context of discussing platform effects, respondents also referred to their investments in digital platform to date, and to Ofcom's policy of support of DAB through, for example, making new licences available to extend the provision of DAB services.
- 3.87 Ofcom does not dispute the considerable investment made by multiplex operators in the platform. However, that of itself does not justify the perpetual provision of free spectrum. Service providers across the economy, not just broadcasters, have built communications networks across the UK to support their businesses, but do not enjoy free spectrum in recognition of that, nor would they expect to.
- 3.88 Multiplex operators have some time to assess the potential impact of AIP on their businesses, and to consider whether they can accommodate all or part of this impact, or they feel that adjustments are needed to their regulatory environment.

Relation between AIP and Additional Payments

- 3.89 Several respondents referred to the existing statutory arrangements for charging multiplex licence fees, set as a percentage of multiplex revenue (PMR). There are

PMR provisions for all television multiplex licences, and national radio multiplex licences. They are similar, but not identical, to the Additional Payments provisions which apply to commercial analogue television licences, and to the independent national analogue radio licences.

3.90 Respondents argued variously that:

- the PMR regime is designed to incorporate an implicit charge for spectrum;
- AIP should be discounted, pound for pound, in respect of any PMR levied on a licensee;
- as PMR rates for DTT and DAB multiplexes are currently zero, and further, as Ofcom has already confirmed that there will be no rate levied on the second national DAB multiplex licence¹², it would be inconsistent to impose AIP on any of these licences.

3.91 In the consultation document, we recognised that Broadcasting Act fees (Additional Payments) should be factored into setting the precise level of AIP charged to a licensee:

“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.”

3.92 It is important to note, however, that this does not mean there can only be one charging regime applied to any licence at any one time. The two charging regimes need not have the same aim:

- AIP is intended to encourage improvements in the efficiency with which spectrum is used – it is derived from the estimated opportunity cost of any individual occupying that spectrum, on any terms. It is not intended to reflect anything particular to the licensee. If the licensee can obtain more revenues from the same amount of spectrum, his spectrum charge is unchanged and he reaps the benefits in full.
- The 1996 Act does not specify either the purpose of Additional Payments in relation to a television or radio multiplex licence, nor the methodology required to set them. In the past, Additional Payments for analogue broadcasting licences have been set by reference not only to the implicit value of access to the spectrum, but to other values that might arise from holding each specific Broadcasting Act licence. As the major element of the value of a multiplex licence is expected to derive from access to frequencies that most households in the UK are equipped to receive – that is, from the spectrum rights – Additional Payments set according to the established method would be likely to be quite close to the estimated value of the spectrum at the time; but there is no automatic assumption that this would be the basis of the charge.
- Further, Additional Payments – since they are set as a percentage of a defined set of the licensee’s revenues – necessarily vary with the individual licensee, and

¹² *Advertisement for a national radio multiplex licence*, December 2006, http://www.ofcom.org.uk/radio/ifi/rbl/dcr/adverts/advrt_national/

with the fortunes of their business. So while these payments serve to capture some of the value of the individual licence, they do not offer the ability to incentivise and reward efficiency in use of spectrum in the same way that a “neutral” AIP charge could. If a licensee subject to Additional Payments increases the revenues derived from the spectrum used, he will forgo a percentage of that increase via increased Additional Payments. If the same licensee could see a way to use less spectrum, he could not gain any cost advantage from doing so under an Additional Payments regime; but he could, under AIP.

- 3.93 We are clear that no licensee should be charged twice for his spectrum access. While AIP is set by Ofcom independently, Additional Payments may be set either only with the consent of the Secretary of State, or under a direction from the Secretary of State. Ofcom clearly cannot give any undertakings on her behalf as to future decisions, but we can be clear about our position, and how we would expect to respond in future if both charging regimes were operating at the same time.
- 3.94 Depending on the timing of decisions, it might be the case that AIP was already set on some spectrum that then came to be potentially subject to PMR. In that case, without prejudice to the Secretary of State’s final decision on the rate of PMR, we would expect that the prevailing AIP charge would be a factor taken into account in considering the relevant costs and benefits, and rights and obligations, attaching to the Broadcasting Act licence, and informing the decision on PMR.
- 3.95 In a case in future where PMR had been set at a rate above zero for a particular licence prior to the introduction, Ofcom would work with Government to be certain that between PMR and AIP the licensee paid the opportunity cost of holding the spectrum only once. We would of course want there to be full opportunity for the affected licensee(s) to contribute to our thinking.
- 3.96 For the avoidance of doubt, this does not imply that where PMR is charged, AIP should automatically be discounted, pound for pound, for that PMR charge. Depending on the approach chosen by Ofcom and the Secretary of State, PMR may include an implicit payment for spectrum, but may also include other rights conferred by the licence. In seeking to ensure that the licensee does not pay twice for spectrum, we are not giving an undertaking that every pound paid in PMR will – nor should it – be offset by a downward adjustment in the AIP charge.
- 3.97 Since the two charging regimes may have different purposes, they can be applied independently and in quite different ways – subject to our undertaking above as regards double-charging. There could be many different reasons why Additional Payments could be set at zero for a particular licence. Setting a zero rate for any or all of the duration of a licence cannot be taken to imply that there is no opportunity cost associated with that licensee occupying the spectrum; it is highly likely that there is such a cost.
- 3.98 In relation to PMR for DTT multiplex licences, licensees will be aware that the application period for the renewal of the Mux A and Mux 2 licences has already started, and that in considering renewal Ofcom is under a duty to make a decision on PMR for each licence. This licence is subject to the consent, or direction, of the Secretary of State. We hope to say more about our preferred approach in relation to PMR for these licences soon.

Other policy objections

Spectrum pricing “is a tax”

- 3.99 Some respondents have asserted that spectrum prices would have the effect of a tax. We do not agree with this characterisation. AIP is set in relation to the amount and value of spectrum used, and is linked directly to the right to use that spectrum, which has a value for the user. The intention behind introducing a transparent charge for this spectrum is to make this opportunity cost apparent to the users of spectrum, and any other relevant decision-makers who could affect the efficiency with which the spectrum is used.
- 3.100 In taking decisions about the level of AIP, as with any of its decisions, Ofcom is able only to take into account the interests of citizens in relation to communications matters, and consumers in relevant markets – both these general interests, and some interests specifically identified in the Act. These interests do not include the raising of general revenues.
- 3.101 In relation to this point, one respondent asserted that as a tax, AIP would be illegal under EU law. Apart from our view that AIP is not a tax, we note that as always, Ofcom is under a general obligation to comply with EU law, which specifically permits spectrum charges for the purpose of promoting efficient use of the spectrum. We have complied with this and other applicable EU laws to date, in setting AIP charges for other classes of licence, and will continue to do so in all our spectrum management decisions.

Objections to charging AIP for any spectrum administratively allocated for broadcasting

- 3.102 Some respondents argued that if in future any further spectrum were awarded for broadcasting otherwise than by an auction process, it would be inconsistent to apply AIP to that spectrum. This argument is, broadly:
- that the policy decision to allocate spectrum for a broadcasting use without an auction would have been taken on the grounds that the socially optimal outcome required broadcasting use, but an auction would not have secured it;
 - If that is the case, it would not make sense to charge the new spectrum user the full opportunity cost of the spectrum, as presumably it was not able to pay this in an auction.
- 3.103 Within our general approach to spectrum awards, if in future we considered that an auction would not secure a particular use, and if this use would be socially optimal – there could, in certain circumstances, be a justification for making an administrative allocation of spectrum¹³. However, that would not automatically mean that the licensee(s) could not afford to pay AIP set at opportunity cost once the licence was awarded. A large number of existing users of spectrum who were previously allocated spectrum administratively, and who were not previously required to pay the full opportunity cost of their spectrum, now pay AIP based on estimated opportunity

¹³ We would need to consider such a case in some detail, including assessing the risk of regulatory failure, and the range of potential costs and benefits from an administrative allocation. See Annex 7 to Ofcom's *Digital Dividend Review*, December 2006, for a full discussion of how such a decision might be approached.
<http://www.ofcom.org.uk/consult/condocs/ddr/>

cost. It does not follow from an administrative allocation decision that the user should not be required to pay AIP.

- 3.104 Our overall proposal is that AIP should be applied to spectrum used for terrestrial broadcasting. This is consistent with the Government's response to the Cave report, that "spectrum pricing is a tool which should be applied to all broadcasters to promote the most efficient use of the spectrum."¹⁴
- 3.105 The spectrum currently used for terrestrial broadcasting was allocated administratively in a number of different ways, but in all cases following a decision by government that the frequencies involved should be used for broadcasting. However, allocating spectrum to broadcasting use – that is, administratively denying, or limiting, its use for any other type of service – does not automatically imply making it available free of charge. Just as Ofcom is proposing to apply charges to the spectrum currently used for terrestrial broadcasting, all of the reasons we have set out for doing so would apply equally to additional spectrum used for the same purpose.

AIP would have prevented DSO being achieved to the current timetable

- 3.106 One respondent considered that if AIP had applied at a point in the past (not specified), the result would have been that DSO would not have been achieved to the current timetable.
- 3.107 This point is speculative, and does not apply to the circumstances we are in today. If AIP had applied to both analogue and digital spectrum from a point in the past, the broadcasters would have had spectrum cost incentives, as well as Charter or licence obligations, to take into account in planning and implementing analogue switch-off. Since we do not know what the policy environment would have been in this speculative scenario, it is not possible to tell whether DSO would have come earlier or later; but there is no reason to believe that broadcasters would have continued in analogue-only, nor with simulcasting, for ever.

Concerns about the calculation of charges, and policy in applying charges to particular users

Methodology, and current uncertainty as to levels

- 3.108 Some respondents had specific concerns about the AIP calculation methodology, in particular in relation to radio broadcasting, both analogue and digital. In addition, a number of respondents expressed disquiet at the lack of certainty over the likely level of AIP for each use.
- 3.109 Opportunity cost is a well-established methodology that Ofcom has successfully used for some years to determine incentive pricing in other sectors and other spectrum. In the case of spectrum used for terrestrial broadcasting, we plan to consult further on the specific levels and methodology for setting AIP:
- in relation to digital television and radio broadcasting, nearer the time of implementation, once better information is available about opportunity costs. This could come from, for example, awards of spectrum that could be used for terrestrial broadcasting, as in the DDR award or other awards in different bands;

¹⁴ *Government Response to the Independent Review of Radio Spectrum Management*, October 2002, paragraph 8.12

- in relation to analogue radio broadcasting, later this year.
- 3.110 In relation to uncertainty about the level of charges, we consider that uncertainty is unavoidable at present. The indicative charges that we published in summer 2006 were intended to be a helpful illustration only. At present, there is no additional information available to us that would enable us to re-estimate the prices that would apply when AIP is introduced to any useful effect. As mentioned above, we will consult on our exact proposals for charges in good time before implementing them.
- 3.111 One respondent made the comment that the value of spectrum is currently “at an all-time low”. We are not sure exactly what this means: the value of the radio spectrum to the economy has likely never been higher than it is now. It is true that convergent technologies (including, for example, fibre or other cable-supported broadband) have created some substitutes for spectrum that did not previously exist. It is also the case that in some areas, trading of spectrum and liberalisation of spectrum licences has the potential to remove artificial scarcity, so that the best uses can obtain spectrum at a reasonable cost. However, it remains true that for certain uses, usable spectrum is effectively scarce.
- 3.112 More importantly, the relevant issue in this context is not what the absolute levels are, but that charges are set that reflect the value of spectrum at that time. If the value of the spectrum is low, then that information is useful to broadcasters in deciding their strategy and their use of inputs, just as much as if the prevailing value is high.

Application of charges: local DAB licences

- 3.113 A number of respondents were concerned that there could be a wide difference between two proposed methods of applying AIP to local DAB licences. The two options canvassed were:
- effectively, the same per-household rate as for the national multiplexes, scaled for the number of households in the licensed area; or
 - attributing a national charge to each distinct, nationwide set of frequencies used for local DAB broadcasting; and then dividing that among the various local licensees using each set.
- 3.114 Ofcom has noted these concerns and will consider them, along with other relevant issues, in drawing up its detailed proposals for implementing AIP in this spectrum, nearer the time.

Application of charges: BBC analogue radio

- 3.115 Two respondents specifically welcomed our proposal to extend spectrum pricing to the BBC’s use of spectrum for analogue radio services. The BBC did not, and proposed that the same arguments against charging for analogue television spectrum during the migration to digital apply equally in radio.
- 3.116 Ofcom does not agree, not least because there are at present no plans for a government- or regulator-led migration from analogue to digital broadcasting in radio. Commercial analogue radio broadcasters already pay spectrum fees which reflect AIP principles to a significant extent. We think it is reasonable to extend this approach to the BBC’s radio services.

- 3.117 The BBC also objected to our proposal to set the charges for local broadcasting by reference to households covered. They argued that population-based fees were not appropriate for a charge designed to encourage spectrum efficiency.
- 3.118 We think that population-based charges are, in fact, a reasonable proxy for opportunity cost for this spectrum use. The value of the spectrum in the next best use is likely to be related to the number of consumers – or potential consumers – reached. This relation is not constant, but it is broadly proportionate, in that a service with a large base of potential customers is worth more than one that can be delivered only to a smaller base. The charges currently paid by commercial analogue radio broadcasters are already based on population coverage, and by that means reflect at least in part the amount and value of spectrum used.
- 3.119 Ofcom recognises that both the BBC and independent radio broadcasters using the analogue spectrum face regulatory (or Charter) constraints on their flexibility of spectrum use. However, for the reasons set out above, we do not consider that these constraints argue for there to be no AIP associated with this spectrum use.
- 3.120 We therefore plan to move ahead with this extension of the existing charging structures to the BBC's radio services. We will consult on our detailed proposals later this year.

Application of charges: Community Radio and RSLs, compared with small commercial analogue radio stations

- 3.121 Some respondents disagreed with the proposal to continue with a flat fee regime for Community Radio stations, and Restricted Service Licence (RSL) radio stations, in respect of their use of spectrum. These respondents made the point that some of the smallest commercial radio stations could have population coverage as low as, or lower than, some community stations.
- 3.122 It was suggested that if Community Radio stations or RSLs were being treated separately on grounds of size, then a *de minimis* threshold should likewise apply to commercial stations, so that the smallest of these would pay only the flat fee.
- 3.123 As mentioned above, Ofcom's policy in charging WT Act fees to Community Radio licensees, and Restricted Service licensees, has been subject to separate consultation and was not an issue on which we were consulting as part of this process.
- 3.124 Ofcom plans to issue a further consultation later this year, covering the details of spectrum charges as we plan to apply them to spectrum used for analogue radio broadcasting. In that, we will set out the proposed tariff for commercial stations, and the principles we applied in drawing it up. We will specifically address the circumstances of the smallest commercial stations.

Timing: general

- 3.125 Respondents raised three general arguments for delaying the timing of implementation:
- that Ofcom should not decide policy on AIP until we have decided all the mitigating mechanisms, or other policy responses to the potential effects of AIP;

- that AIP policy should not be decided until after the forthcoming broadcasting reviews have been completed;
 - that whatever the date of implementation, Ofcom must first conduct an economic evaluation of the impact of AIP on [various users identified by the respondents].
- 3.126 We do not accept the first point. Determining the correct responses to AIP costs – whether these are changes wholly in the hands of licensees themselves, or regulatory or financial changes – requires the long-term engagement of licensees, Ofcom and government. The licensees are, in almost all cases, in the best position to identify exactly the constraints on their spectrum flexibility, even when the final decisions rest with Ofcom or government.
- 3.127 We consider that the most effective way to pursue efficiency gains in the broadcasting use of spectrum is to confirm our policy intention now, and then use the intervening time to discuss responses or adjustments with broadcasters and government.
- 3.128 For similar reasons, we do not agree that the decision on AIP policy should be postponed until after the broadcasting reviews. Instead, it is better to make clear our intention now, so that any consideration of regulatory restrictions and their financial effects can be undertaken in light of the expectation that AIP will be introduced.
- 3.129 On the last point, we would expect to consult fully on our proposed charges in good time before implementing them. Such a consultation would include our assessment of the impact of the charges, and we would hope that licensees and other stakeholders would comment on this assessment as well as on the detailed proposals themselves.
- 3.130 Two respondents specifically asked for AIP to be implemented sooner than we had proposed, in order to accelerate the efficiency benefits.

Timing: TV

- 3.131 Our proposal for DTT multiplexes was not to charge until 2014, when the second set of licences will become due for renewal. For the avoidance of doubt, this proposal deals only with AIP, not with Additional Payments (discussed above), and has no bearing on the duration of any of the DTT multiplex licences, which if renewed will have durations as set out in the Broadcasting Act 1996, of twelve years from renewal.
- 3.132 Some respondents felt that AIP should be delayed even later than that, to 2015 or even 2024. Conversely, some respondents felt that any delay simply increased the distorting effects of the existing subsidy, so AIP should be implemented sooner.
- 3.133 Ofcom's preferred approach remains as before: to introduce AIP as soon as possible, commensurate with the principles of the commitments given by the Government in its response to the Cave Review¹⁵, but using a common date for all multiplexes. This would mean an implementation date of 2014 for DTT.

¹⁵ *Government's Response to the Independent Review of Spectrum Management*, October 2002, paragraphs 8.23 and 8.26. <http://www.ofcom.org.uk/static/archive/ra/spectrum-review/govresponsetoreview/indpreviewgovtresponsefinal.doc>

Timing: sound broadcasting

3.134 Our proposals were:

- For analogue sound broadcasting, to extend the current charging principles to the BBC's use of spectrum for sound broadcasting in 2008;
- For digital sound broadcasting, to implement AIP in 2012, being the year after the first national DAB multiplex licence expires.

3.135 The objections we received to extending AIP to the BBC's radio use of spectrum are detailed above. These include the comment that there should be no AIP for this spectrum in advance of migration from analogue to digital radio. As we set out above, since there are no current plans for such a migration, and since commercial analogue radio broadcasters are already paying population-related charges for their spectrum, we do not consider that there are compelling reasons to delay the application of similar charges to the BBC's use. We will set out a detailed timetable for implementing this change in a further consultation later this year.

3.136 A number of respondents felt that AIP for spectrum used for DAB should be postponed to a later date than 2012. Various alternative dates were proposed:

- 2014: variously, to be the same as the TV date, or to allow for some local DAB licences to complete their initial term in 2013;
- 2016: to allow all local DAB licences to complete their initial term;
- 2020: to allow more thorough evaluation of its impact on DAB;
- 2024: to co-incide with the end of the second term of all the local licences.

3.137 Ofcom has considered these proposals. Our aim in determining a date for introduction is to strike a balance between two aims:

- that introduction is not so late as to lose potentially significant benefits from the incentives for years to come;
- at the same time, that is not so soon that operators – and the regulator, if needed – have no chance to make a considered response.

3.138 On balance, and having considered the representations made to us during the consultation period, we have decided to amend the implementation date for spectrum used for digital radio, to be the same as that for digital television. We therefore do not intend to levy AIP on this spectrum before the end of 2014.

Agreement with proposals

3.139 Three of the responses approved of the overall approach, that AIP should be applied to spectrum used for terrestrial broadcasting.

3.140 Two responses specifically welcomed the proposal to extend spectrum pricing to the BBC's radio services.

Section 4

Decisions and next steps

Context for this statement

- 4.1 In formulating this Statement, Ofcom has had regard to the consultation responses, other contributions from stakeholders, and analysis commissioned specifically on this area of policy.
- 4.2 Ofcom has also taken account of the ongoing developments in broadcasting policy, which have potential to interact with our pricing proposals, in theory or practice. In July 2006 we identified several policy review areas, that we consider should take into account the likely effects of introducing AIP:
- Ofcom's work on the future of PSB in a digital world
 - Ofcom's next statutory Review of PSB, which will start before the end of 2007
 - Ofcom's project on the Future of Radio licensing
 - work relating to local television broadcasting – this was taken forward, as part of our DDR work, as further investigation of the potential social value of local television broadcasting
 - Ofcom's financial review of Channel 4
 - future decisions on the BBC licence fee
 - the Government's proposed review of public funding for PSB, beyond the BBC.
- 4.3 Of these, the BBC licence fee settlement was announced in January 2007. The date for the next review is not yet fixed although we expect that it will be at a time that enables account to be taken of the introduction of AIP.
- 4.4 In addition, Ofcom has now published proposals on the Future of Radio.
- 4.5 As mentioned above, a number of responses to the DDR consultation document touched on AIP to a greater or lesser extent. We have sought to ensure that any AIP points raised in response to that consultation have been considered and addressed in arriving at our decisions in this Statement.
- 4.6 It is in the context of all of the above that Ofcom has arrived at its decisions for the implementation of AIP for spectrum used for terrestrial broadcasting.

Decisions

- 4.7 In light of the discussion in this document and its Annexes, and that set out in our previous consultation document, Ofcom has decided:
- to confirm our intention to levy AIP on spectrum currently used for digital terrestrial television broadcasting, starting from the end of 2014;

- to confirm our intention to levy AIP on spectrum currently used by the BBC for analogue radio broadcasting, on the same basis as already applied to commercial analogue radio broadcasters, starting in 2008;
- to confirm that if any further spectrum should come into use for broadcasting by means other than by auction, AIP should be applied from the start of the licence. NB this does not apply to the spectrum already identified for the second national DAB licence, which will be treated on the same basis as all the spectrum currently used for DAB broadcasting. In the case of any new analogue radio services using frequencies in the spectrum already allocated to analogue radio, the WT Act fees would be set in the same way as the existing stations using this spectrum.
- in relation to DAB broadcasting, to amend our proposals on timing, so that we are now announcing our intention to levy AIP on spectrum currently used for DAB broadcasting, starting from the end of 2014.

Next steps

- 4.8 We plan to publish our detailed proposals for the enhancement of the WT Act fees system for analogue sound broadcasting licensees, and its extension to the BBC sound broadcasting services, later this year.
- 4.9 Before implementing AIP in either DTT or DAB spectrum, we will published detailed proposals on the methodology and expected charges, in good time for full consultation.
- 4.10 In the meantime, we will ensure that our policy on AIP is taken into account in the various broadcasting and other policy reviews which we identified above, and more generally.

Annex 1

List of responses received

A1.1 Below is a list of all the respondents who agreed for us to publicise the fact that they had responded to the consultation.

- BBC
- Bowden, Mr A
- BT
- Chrysalis
- Digital One
- Dotecon report (accompanies BBC and Channel 4 responses)
- emap
- Five
- GCap
- Lynch, Mr S
- Oxera (accompanies response from National Grid Wireless)
- Radio Centre
- S4C
- SCBG
- Turner Broadcasting

Annex 2

Summary of points made by respondents, and Ofcom's response

Comment	Ofcom's response
GENERAL POINTS ABOUT THE TERRESTRIAL BROADCASTING MARKET	
Reduction in spectrum use is commercially beneficial, either through reduced costs or launching new services. Thus pricing is not needed to ensure efficiency	We do not dispute that commercial incentives already exist, but such incentives will be distorted for as long as spectrum is effectively free.
The cost of maintaining multiplatform radio services suggest organisations have commercial incentives to support switchover (and more efficient spectrum use)	As above, although there are commercial incentives for efficient behaviour, these are distorted by the provision of one input effectively free.
The BBC Trust will have a responsibility to ensure efficient use of spectrum. Pricing incentives will not be needed.	The objectives of the BBC Trust are limited to the BBC's use of spectrum and would not take into account the potential for other broadcasters, or other uses altogether, to produce benefits to society from the spectrum. AIP, by ensuring that the Trust faced the full opportunity cost of the spectrum, would provide information in a form that would enable the Trust to consider spectrum use in relation to other inputs and in relation to the benefits obtained.
AIP is not an efficient method of securing spectrum efficiency. Trading is more efficient.	Ofcom accepts that AIP might not be necessary if there were to be an efficient secondary market in spectrum. But we do not yet have such an efficient secondary market. In the absence of such an efficient secondary market we believe that it is entirely appropriate to use AIP as an additional factor to encourage efficient spectrum use.
The ability to trade capacity on the DTT platform means that – in effect – a market for spectrum exists; this generates incentives for efficiency	Ofcom does not find the arguments that the DTT multiplex capacity market is operating efficiently convincing, given the observations made in the Consultation: for example, there have been only a limited number of trades of multiplex capacity, and the rate at which new multiplex capacity has been offered to the market has been lumpy. Moreover, 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. Ofcom maintains its position, therefore, that at present DTT multiplex capacity trading should only be considered a complement to AIP. In principle, the same arguments apply also to DAB capacity trading.

<p>Gifting spectrum is not distorting as it is a lump sum subsidy. Therefore there is no reason for AIP on competition grounds.</p>	<p>Ofcom is not proposing to charge AIP on competition grounds, but because we believe that it is one of the best ways of ensuring that the opportunity cost of spectrum is properly taken into account when decisions affecting future spectrum use are taken.</p>
<p>Broadcasters cannot adjust end-user prices, therefore the ability of AIP costs to be passed on and act as an incentive are compromised</p>	<p>Ofcom is not suggesting that broadcasters, in the sense of service or channel providers, adjust end-user prices as their response to AIP. We have identified a number of other options available to , both commercial and PSB broadcasting spectrum users.</p>
<p>If imposed, AIP should be imposed on all platforms, including satellite, otherwise it will have undesirable effects on competition</p>	<p>The opportunity cost of spectrum depends on which alternative services are competing to access it, and can be expected to vary according to the frequency that is used.</p> <p>As noted in our consultation document, Ofcom is considering options by which grants of Recognised Spectrum Access (RSA) might be made available to satellite users of spectrum, including incentive pricing for spectrum management purposes.</p> <p>No decision has been taken by Ofcom on whether to introduce RSA for satellite services generally, or satellite broadcasting in particular. We would conduct a separate public consultation before deciding to proceed with the introduction of RSA for satellite services. Even if AIP were introduced for spectrum used for satellite broadcasting, it does not automatically follow that the incentive pricing would be the same as that for spectrum used for terrestrial broadcasting. This is because satellites typically transmit at higher frequencies. The opportunity cost associated with the use of these frequencies is less than that associated with UHF spectrum as, for example, they cannot be used for terrestrial mobile communications.</p> <p>In addition, broadcasters using other transmission means, such as digital cable and IPTV, that do not require spectrum, would continue to pay no AIP whatsoever.</p> <p>Differences in charges for inputs, such as spectrum, do not represent a distortion of competition but simply reflect the different characteristics of alternative delivery platforms and the fact that some impose higher opportunity costs than others. It would be economically inefficient and unjustified to charge all broadcasters the same AIP price irrespective of the frequency band, if any, that they use; or to refrain from imposing AIP on broadcasters whose use of spectrum does impose high opportunity costs.</p>
<p>EFFECT OF BROADCASTING ACT LICENCE OBLIGATIONS</p>	
<p>Users of spectrum are not able to extract the full value from the</p>	<p>The imposition of B Act constraints may well mean that the users of the spectrum are unable to extract maximum value</p>

spectrum they use due to B Act restrictions – including, for example, coverage requirements for PSB multiplexes; mandated capacity for certain services; requirements to carry a particular mix of services, or additional services such as subtitling	<p>from its use, but that does not automatically mean that they cannot extract sufficient value to remain viable. If it is not possible for broadcasters to generate sufficient value whilst meeting B Act constraints, then we think the appropriate policy response is not to adjust input prices but a review of the regulatory structure. The constraints could be relaxed; additional funding made available; or broadcasting policy objectives reassessed to consider whether they are proportionate, or could be achieved by more cost-effective means.</p> <p>Given the extended time before we introduce AIP for digital broadcasting spectrum, we see no reason why these issues cannot be dealt with successfully.</p>
If AIP is introduced, it must be accompanied by a package of deregulation of the licences.	Ofcom is always prepared to consider proposals for specific deregulation – subject to its duties to citizens and consumers, and its responsibilities in relation to PSB. We do not think it would be right to identify specific deregulations now, in advance of any discussions with broadcasters or any detailed consideration of the costs and benefits of any changes.
It is inconsistent for Ofcom to declare certain outputs desirable (like eg coverage, in inviting applications for the new national DAB licence) and also pursue policies intended to reduce spectrum use.	We do not agree. AIP is not intended to “reduce spectrum use” but to ensure that spectrum users face the full opportunity cost of their spectrum. Invitations to apply for these and similar Broadcasting Act licences have always included guidance as to particular public benefits that Ofcom (or the ITC or the Radio Authority) would give particular consideration to, and applicants have always weighed up those benefits against the cost of delivering them, before making proposals with their applications.
The effect of Broadcasting Act restrictions is/should be to reduce the opportunity cost of their spectrum	The opportunity cost is the same irrespective of the constraints imposed – the value of the spectrum in the best alternative use.
ISSUES RELATING TO PUBLIC SERVICE BROADCASTING	
The imposition of AIP will have a material impact on the delivery of other public policy aims, e.g., PSB delivery, universality	Ofcom accepts that charging AIP could have an impact on the delivery of public policy objectives and that additional measures may need to be taken in light of this. As noted in the Consultation, there will be ample opportunity before AIP is introduced for policy makers and broadcasters to consider the impact of AIP in broadcasting policy reviews.
The most effective means of delivering public policy aims is by making spectrum freely available to institutions that deliver public service purposes	Ofcom does not agree. By this logic the most effective way of delivering public policy aims would be by making land, power, labour and all the other inputs required to produce socially valuable goods, freely available to those institutions that deliver public services. This distorts incentives: if inputs are free then there is no incentive to make efficient use of them.
As AIP levels are unknown, broadcasters will be put in a position where one of their necessarily inputs will be	Broadcasters face similar issues in respect of all other inputs, for example energy prices. Ofcom is not convinced that potential fluctuations in spectrum prices could not be dealt with by funding arrangements for public service

subject to changes beyond their control, thus causing risk, impacting its ability to plan and deliver services	broadcasting in the same way as for other inputs.
Proposal that public funding could be made available is unworkable or not permitted under EU law	<p>We do not think there are insurmountable barriers to designing a system that is workable, if at the time the relevant funding bodies consider this is the most appropriate response.</p> <p>As in all our spectrum management and broadcasting decisions, Ofcom is bound to comply with all applicable EU and UK laws.</p>
Public bodies are unlikely to respond to price signals as they have high levels of funding and will be able to meet AIP without difficulty.	Ofcom acknowledges that some bodies may be more influenced by AIP than others. However, it does not follow that public sector bodies will not feel any incentive effects from AIP. We believe that public bodies are more likely to respond to a recurring cash charge than they are to the hidden opportunity cost of gifted spectrum.
WIDER IMPACT ON SERVICES	
AIP will be an incentive for broadcasters to reduce transmission quality	Transmission quality is only one of several objectives with which Ofcom is concerned. Ofcom sets minimum technical standards for broadcasting and will, at any time that changes to these standards are requested by broadcasters, weigh up the proposals in light of the potential benefits and/or detriment to citizens and consumers, as set out in its duties.
PLATFORM CONCERNS	
Current operators have invested heavily in DTT multiplexes, with a legitimate expectation of being able to recoup returns. AIP unfairly penalises these investors	Little evidence has been presented to the effect that applying AIP would be unfair to broadcasters using the DTT platform. Other service providers have invested heavily in networks without the expectation of free spectrum. Delay of the introduction of AIP until 2014 gives sufficient time for the public policy regime to be adjusted if necessary and for multiplex licensees and the broadcasters whose services they carry to adapt to the imposition of AIP.
DTT requires investment after 2014 to ensure universality and maintenance. AIP threatens this future activity.	There will clearly be a need for future policy decisions about the DTT platform to take into account the impact of the introduction of AIP. Ofcom is undertaking in this Statement to take into account any potential effects from AIP in its future policy deliberations.
DAB technology is being supported by the radio industry in accordance with Ofcom's policy. AIP will reduce the ability of industry to invest in the platform and this impact its success.	There will clearly be a need for future policy decisions about the DAB platform to take into account the impact of the introduction of AIP. Ofcom is undertaking in this Statement to take into account any potential effects from AIP in its future policy deliberations, for example the Future of Radio project.
The DAB policy supported by Ofcom in effect requires radio broadcasters to support a multiplatform strategy. AIP will	As above.

disincentivise this and make DAB unviable.	
AIP vs ADDITIONAL PAYMENTS	
Commercial DDT multiplex operators, and national DAB multiplex operators, are potentially subject to a requirement to make Additional Payments in the form of a Percentage of Multiplex Revenue. PMR includes implicit spectrum costs. Current rates of 0% therefore imply that AIP would not be charged.	Ofcom is clear that licensees should only pay the opportunity cost of spectrum once. However, that does not mean that there would never be two charging regimes applying to a particular licence. Previous decisions to set zero rates, or to prohibit the setting of any rate, were taken on the relevant grounds at the time and do not imply any judgment about future PMR decisions, which are at the final discretion of the Secretary of State. Nor do they imply any assessment of opportunity costs in future.
OTHER POLICY OBJECTIONS	
Spectrum charges are a tax / revenue-raising mechanism. This is illegal (under EU Law) as it is not for the purpose of ensuring spectral efficiency	Spectrum charges are set in relation to the amount and value of the spectrum used, and are not a tax. Ofcom's sole reason for imposing AIP is to create an incentive to more efficient spectrum use. The amount of revenue raised through AIP is not a matter to which Ofcom gives any regard in its policy decision making. As always, Ofcom is under a general obligation to comply with EU law. It has done so to date in setting AIP charges for other classes of licence, and will continue to do so in all its spectrum management decisions.
AIP would only be applied on new uses of spectrum if no auction was held. The only reason not to hold an auction would be as the most socially beneficial outcome would not ensue. If that is true then it is not right to charge AIP for such a service	If, for a specific set of frequencies, an auction would not secure broadcasting use, but that broadcasting use would have been socially optimal, we might consider whether an administrative allocation of spectrum was justified. However, if circumstances were such that we decided to do this, that would not necessarily mean that the licensee could not afford to pay AIP set at opportunity cost. It does not follow from an administrative allocation decision that the user should not be required to pay AIP.
Had AIP been applied, DSO would not have been possible to achieve to the current timetable.	This point is speculative. If AIP had applied to both analogue and digital spectrum from a point in the past, the broadcasters would have had spectrum cost incentives, as well as Charter or licence obligations, to take into account in planning and implementing analogue switch-off. Since we do not know what the policy environment would have been in this speculative scenario, it is not possible to tell whether DSO would have come earlier or later; but there is no reason to believe that broadcasters would have continued in analogue-only, nor with simulcasting, for ever.
CALCULATION OF CHARGES	
A number of responses raised a series of objections to the methodology of AIP calculation and in particular had concerns	Ofcom will consult fully on the level and method of calculation of fees before they are finally introduced.

around the regional DAB changes proposed	
Ofcom has not stated what level AIP would be. Given this uncertainty of financial impact, it is difficult for companies to plan effectively and criticise the calculations	Uncertainty is inevitable at this stage. Ofcom will consult fully on the level and method of calculation of fees before they are finally introduced.
The value of spectrum is at an all time low	The relevant issue for broadcasting is what the value of spectrum will be when AIP is introduced. Whatever the value of spectrum at that time, AIP will reflect it.
APPLICATION OF CHARGES	
Concerns about the variation in effect of the two possible methods for attributing charges to local DAB licences	Ofcom will consult further before implementing charging for any particular class of licences. We will bear in mind the points made in relation to local DAB licences in drawing up our detailed proposals, before introducing charging for this spectrum after the end of 2014.
Charging local BBC stations (and other local stations) a pro-rata charge based on households covered has the appearance of a tax rather than an efficiency charge.	As discussed above, AIP charges are not a tax. In determining how to charge for use of a frequency across part of the UK rather than all of it, we are looking for a proxy for the value (or opportunity cost) of the spectrum used. In the vast majority of uses, the value of spectrum is proportionate (albeit not constantly) to the number of people that can access the service. The number of households covered is therefore a reasonable proxy for the opportunity cost of a localised use of spectrum.
Low-audience local radio stations may pay materially more than community radio (due to the proposed community radio flat fee) despite having lower audiences and lower catchments	Ofcom plans to consult separately on the precise arrangements for analogue radio licences. This will present an opportunity to consider whether different arrangements may be appropriate for small local analogue radio stations. NB our policy in relation to charges for Community Radio and RSL licensees has been separately consulted on and we consider it to be settled.
TIMING: GENERAL	
Any decision to implement AIP should be delayed until a package of mitigating deregulatory measures has been drawn up	On the contrary, we believe it is essential to confirm our intentions regarding AIP in order to make progress in identifying, and determining, any proposals to make changes to the regulatory or funding framework.
Broadcasting policy will be materially affected by forthcoming broadcasting reviews and AIP imposition decisions should not be considered before then	Ofcom believes that it is better to resolve the question of whether, and from when, AIP should be applied to broadcasting use of spectrum first. The upcoming reviews of broadcasting policy can then address how to deal with any potential impact from this.
Ofcom should conduct an economic evaluation of AIP on [various uses] before	We would expect to consult fully on our proposed charges in good time before implementing them. Our consultation material would include an assessment of the likely impact of

implementing AIP	the charges.
AIP should be considered soon as it potentially market distorting and long periods of non-imposition create uncertainty	Ofcom believes it is appropriate to introduce AIP for licensees in the same licence class at the same time. We have also noted the government's desire that where possible the DTT licensees' second licence terms should be subject to AIP. We therefore intend to introduce AIP after the end of 2014 for both DTT and DAB licensees.
TIMING: DTT	
If licences for the first three multiplexes are extended to 2014, it represents a windfall for their operators who will have an extra four years to recoup investment. It thus distorts competition for operators of the second class of DTT multiplexes who have less time to recoup returns	Ofcom has not proposed an extension to any licence. All we have proposed is that, for the reasons set out in the consultation document, it would be more appropriate to introduce AIP simultaneously for all licensees of a particular class.
Some respondents suggest moving the imposition of AIP onto DTT further back also: variously, to 2015, or 2024 (another 12 year licence period) in order to allow investment and stability	Ofcom can see no good reason for further postponing the introduction of AIP on DTT use of spectrum beyond 2014.
TIMING: DAB	
AIP should be applied to DAB later than the 2012 date proposed in order to synchronise with regional licences and with television. Some respondents suggest it should be much later (2020)	Following consideration of points made in the responses, Ofcom has decided that it would be appropriate to introduce charging for spectrum used for DAB from the end of 2014, that is at the same time as for DTT.
APPROVAL	
The BBC should pay for Radio usage in order to bring it into line with other broadcasters	Agreed.
AIP should apply to broadcasting	Agreed.
AIP promotes efficiency and levels the playing field	Agreed (although it should be noted that our principal objective for the introduction of AIP is to promote efficiency, not to address competition or perceived "fairness" between broadcast platforms, or between different uses).

Annex 3

Discussion of detailed economic points raised in consultation

Summary of Main Responses on Economic Arguments

- A3.1 In response to the consultation, there were two submissions which focused specifically on the economic issues around the introduction of AIP for the spectrum used for terrestrial broadcasting. One was a report by the consultants Dotecon on behalf of the BBC and Channel 4¹⁶ and the other, a report by the consultants Oxera on behalf of National Grid Wireless¹⁷. A number of the issues raised in the consultants' reports are common to points raised in other submissions.
- A3.2 Given the specific economic focus of these two reports, this annex provides a summary of the key economic arguments advanced in the two reports and sets out Ofcom's response to those arguments in more detail. It is the case that some of the points made in these submissions were anticipated and discussed in the original consultation document - the purpose of this annex is to go over these issues in more depth.

The Dotecon Report

- A3.3 The report by Dotecon on behalf of the BBC and Channel 4 ("the Dotecon report") essentially argues that provided trading in DTT capacity functions effectively and the amount of spectrum awarded to PSBs is commensurate with their public service obligations, then spectrum charging will not create any *additional* incentives for the efficient use of spectrum.
- A3.4 The Dotecon report argues that PSBs already have strong incentives to use DTT capacity efficiently because DTT slots are traded. PSBs have the incentive not only to maximise the efficiency of their spectrum use so as not to have to buy any more additional spectrum from commercial multiplex operators and also to gain from selling DTT capacity on the multiplexes that they own/control.
- A3.5 The Dotecon report argues that the main effect of introducing charging in relation to spectrum used for DTT will be to realise the economic value of spectrum for government, rather than providing (potentially large) windfall gains to spectrum users. Because PSBs have little flexibility to reduce the spectrum that they use, the main impact on the BBC and Channel 4 would be on their funding i.e. a reduction in the programming budgets. As a result, PSBs would not be able to fulfil their current PSBs obligations without additional funding from other sources: i.e. an increased licence fee in respect of the BBC or direct subsidies in respect of Channel 4.
- A3.6 The Dotecon report argues that the relevant question is whether it is better to make PSBs pay for spectrum and provide the necessary funding or this purpose or to continue gifting spectrum to support their PSB role. The report argues that the gifting of the spectrum that is considered commensurate with public service obligations is a better solution: the determination of the public service obligations is

¹⁶ *Spectrum Charging and Public Service Broadcasting*. April 2006.

¹⁷ *Response to spectrum pricing for terrestrial broadcasting: Report prepared for National Grid Wireless*. October 23rd 2006.

properly defined by the political process; gifting spectrum avoids the need to predict the likely future value of spectrum; and it avoids the risk of PSBs being unable to fulfil their remit. The Dotecon report argues that PSBs should have the ability to trade DTT capacity at the margin (and be free to lease unused capacity) and that gifting spectrum would not distort competition relative to providing financial support and would be equally transparent.

Ofcom's Response

- A3.7 As set out in the consultation document, any use of the spectrum imposes an opportunity cost on society – the value forgone of alternative use – because spectrum is finite and its use is exclusionary i.e. 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. One of the best ways of ensuring that opportunity costs of spectrum are fully taken and accurately reflected by decision makers is for those opportunity costs to be reflected in prices that have to be paid to hold spectrum. This is the principle behind Ofcom's use of AIP.
- A3.8 It is important to understand in this context that Ofcom's primary purpose in applying AIP is not to achieve any specific short-run change in the use of spectrum. Rather, Ofcom's aim is to ensure that holders of spectrum fully recognise the costs that their use imposes on society. Ofcom appreciates 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.
- A3.9 In addition to AIP, Ofcom also has a policy of encouraging the growth of secondary markets in spectrum. However, we view secondary markets as a complement to spectrum pricing rather than a substitute for it, at least for the time being.
- A3.10 In general terms, the Dotecon report accepts the underlying principles of the application of spectrum charging i.e. that AIP – provided it reflects real opportunity cost – can promote the efficient use of spectrum. Where the Dotecon report mainly takes issue is whether the relevant conditions for AIP to promote efficient spectrum use are satisfied. Set out below are our comments on the specific points made in their report.

Trading in DTT capacity already provides for strong incentives for efficient use

- A3.11 As set out in the consultation document, the existence of wholesale markets in wireless capacity – such as that for DTT multiplex capacity – do have a role to play but do not generally create full incentives to use spectrum efficiently. For instance, the wholesale market for DTT multiplex capacity is limited to applications that can be carried on a DTT multiplex and therefore does not take account of whether alternative uses of that spectrum could be more valuable.
- A3.12 In addition, it is not clear that trading in DTT multiplex capacity has been anything other than "thin". Ofcom notes that the Dotecon report itself stops short of describing trading of DTT capacity as functioning effectively. Rather, the Dotecon report refers to a "relatively active market for slots". The report also states that "the market for DTT capacity is likely to be more liquid and transparent than many other spectrum bands". The Dotecon report does not justify this assertion and Ofcom notes that even so this statement stops short of equating conditions in the market for DTT capacity to those in one that is functioning effectively.

- A3.13 Ofcom maintains its position that it is not clear that there is an effective secondary market in DTT capacity at this point in time. Ofcom notes that a significant amount of capacity is leased under long-term contracts e.g. 5-6 years in duration and that trading volumes have been low. The frequency at which capacity has been made available has been irregular. For instance, three videostreams of additional capacity were made available by the commercial multiplex operators in the course of 2005: one on the SDN multiplex and two on the NGW multiplexes. However, since 2005, as far as Ofcom is aware, there has been no trading of DTT capacity and no additional capacity has been released. On that basis Ofcom does not consider the market for DTT to be particularly active or liquid.
- A3.14 Ofcom would accept that if there were an active and effective market in the spectrum used for DTT, then the additional incentive effects from introducing AIP might be less significant. However, given that the existing trading is in capacity within a defined use rather than the spectrum itself, and trading in this market is “thin”, it is not clear that trading can be relied upon to generate *strong* incentives for broadcasters to use spectrum in the most efficient manner.
- A3.15 Ofcom notes the point made by Dotecon – drawing in turn on the Cave review – that spectrum charging can have a role in stimulating trading markets.

“whilst incentive pricing has benefits, its use should be focused on those areas where other tools are not, in themselves, sufficient to ensure efficient use of spectrum ... Where spectrum becomes tradable, spectrum pricing may be necessary to in the short to medium term while the market is nascent or where there are concerns about windfall gains, but would not be necessary in the longer term”.¹⁸

- A3.16 In line with this, Ofcom recognises that the secondary market in spectrum used for DTT is still in its early stages, especially given the limits on trading set in the Broadcasting Act licence conditions. In the longer run it might be possible to withdraw AIP if it was felt that there were effective secondary markets in relevant spectrum.

Spectrum charging would mainly extract the scarcity value of broadcasting spectrum

- A3.17 Ofcom accepts the proposition in the Dotecon report that AIP will extract the scarcity value of spectrum of DTT spectrum which would otherwise constitute a windfall gain to users. It is not the case that Ofcom is reluctant to acknowledge this effect; but nor is it the case that this is what is driving the rationale for the introduction of spectrum charging. As set out fully in the consultation document, Ofcom’s duty is to secure the optimal use of the electro-magnetic spectrum for the benefit of citizens and consumers: it is not to raise revenue *per se*.
- A3.18 Ofcom notes the argument in the Dotecon report that PSBs already have incentives to use spectrum efficiently e.g. to avoid having to buy more spectrum from commercial multiplex operators. Ofcom, however, notes that not only was DTT capacity reserved (or “gifted”) for PSBs but that more capacity was reserved for PSBs than they needed for the simulcast of their existing PSB services. For instance, 48 per cent of the capacity on Multiplex 2 was reserved for ITV and Channel 4 respectively and 50% of the capacity on Multiplex A was reserved for five. The whole of Multiplex 1 was reserved for the BBC.

¹⁸ Cave Review, p.125.

- A3.19 The Dotecon report argues that this reserved capacity was intended to help support the delivery of the broadcasters' PSB remits. In fact, the use of the additional capacity was not tied explicitly to the delivery of digital channels in support of a PSB remit. Government policy in respect of the guaranteed capacity focused primarily on ensuring the simulcast of existing analogue services. The digital capacity in excess of that required solely for the simulcast of their existing analogue service was therefore available for a variety of purposes: e.g. broadcasting other television channels or additional services. It served to provide an incentive for PSBs to invest in digital terrestrial transmission rather than specifically to support their PSB remit.
- A3.20 In that respect, it was successful in that the commercial PSBs have used the additional capacity to launch new commercial services rather than returning this capacity. To the extent that these new services have eventually proved to be profitable then the PSBs will have enjoyed a windfall gain from the granting of the additional spectrum. In the case of the BBC, it has sought to extend the number of PSB channels that it operates. It has also struck agreements with other parties to carry their services on its second multiplex (Multiplex B).
- A3.21 Ofcom does not dispute that PSBs have made use of this additional spectrum. What is not known is whether, in the absence of price signals about spectrum use compared with other inputs, this has been the most efficient use of the spectrum.
- A3.22 The Dotecon report argues that the "gifting" of capacity to the PSBs is equally transparent as charging. Ofcom does not agree. It is the case that the action of gifting of capacity is transparent: for instance, the reservation of capacity is done by means of Statutory Instrument so that it is transparent in that respect. However, that is not the same as having a process which provides transparency about the full cost of PSB obligations. The Dotecon report argues that PSBs have "historically been granted particular spectrum as an implicit contribution towards funding their public service obligations". Ofcom would point out that Channel 3 licensees have historically made additional payments to the Exchequer, based on a percentage of their qualifying revenue, and part of those payments was effectively considered to be in respect of the value of the spectrum that they had been assigned. It is therefore not the case that all PSBs have historically had free access to spectrum. Ofcom considers that that introducing AIP for spectrum used for broadcasting would make the extent of the contribution explicit.
- A3.23 Further, Ofcom would point out that even where other public entities have historically had free access to spectrum for the provision of public services, they are now required to pay for their use of spectrum. For example, the MoD and the emergency services pay for the spectrum they use.
- A3.24 Ofcom also notes that the utilisation of capacity does differ across different multiplexes, with some multiplex operators utilising available capacity more intensively than others. Ofcom does not believe that this is simply a matter of the use of different transmission modes (e.g. 64QAM versus 16QAM): even where multiplexes are operated by the same multiplex operator, using the same transmission modes, the number of services offered differs. For instance, Multiplex C and Multiplex D (both operated by NGW) both use the 16QAM transmission mode and therefore have the same net bit rate. However, they currently carry different numbers of video services which use different bitrates.
- A3.25 An important underlying principle of introducing AIP for broadcast use of spectrum is that users should pay a charge which reflects the opportunity cost of the use of that spectrum. This concept applies irrespective of how the spectrum has been

allocated to the user. For instance, where spectrum is allocated by means of an auction, then users obviously have had to pay directly for use of that spectrum. Where spectrum has been allocated by other means, that does not remove the rationale for charging for use of that spectrum. A large number of existing users who were allocated their spectrum administratively, and who used not to pay for their spectrum use, are now paying charges set by reference to opportunity cost.

- A3.26 In terms of addressing market failure, the consultation document recognised that some broadcasting does generate a value for society in excess of the value to the individual broadcaster. However, that does not automatically imply that PSBs should receive a discount on the level of AIP that they pay. The key point is that the additional value to society derives not from the allocation of spectrum per se but rather from the outputs that are produced through the use of the spectrum. Ofcom considers that in the case of addressing market failures, in the first instance, the focus should be on final service markets rather than on input markets. Discounting the price of one input has the potential to lead to inefficient decisions being made about the use of other inputs – 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. Ofcom would accept that there may be practical difficulties in such an approach, and that ultimately discounting AIP for a particular user might turn out to be the most sensible option - but that does not remove the argument that the relevant economic approach is not to discount AIP in the first instance. The challenge should be to develop appropriate policies in respect of securing socially desirable outcomes, rather than changing the focus of the policy intervention altogether.
- A3.27 PSBs do have restrictions imposed on their use of spectrum and thus may have relatively limited flexibility about use of DTT spectrum in the short run. However, that is not to say that spectrum usage cannot be changed in future. For instance, at present 10% of DTT capacity can be used for data services¹⁹. Against that background, Ofcom has brought requests from multiplex operators to raise this data cap to the attention of DCMS, so it is possible for multiplex operators to seek a change in the use of spectrum.
- A3.28 The consultation document was also clear that the primary purpose in applying AIP was not to achieve any specific short-term change in the use of spectrum. Rather Ofcom's aim is to ensure that holders of spectrum fully recognise the costs that their use imposes on society, when making decisions about the spectrum they already hold, or seeking to acquire additional spectrum.
- A3.29 A particular case in point is the on-going debate about reserving capacity released by DSO for the provision of High Definition (HD) services by the PSBs. Reserving capacity for HD versions of PSB services would obviously have an opportunity cost attached to it. Ofcom considers that the introduction of AIP would have important benefits in terms of the transparency of future debates about broadcasting policy, or any other proposals to reserve or pre-allocate spectrum to particular uses in future.
- A3.30 Given the arguments set out in the consultation document, together with the further discussion above, Ofcom does not consider that the issues raised in the Dotecon report require Ofcom to fundamentally alter its approach as set out in the consultation document.

¹⁹ See paragraphs 2.29-2.31 of *Data limits on digital terrestrial television multiplexes: Statement on Guidance*. Ofcom 14th December 2006.

The Oxera Report

- A3.31 The Oxera Report on behalf of National Grid Wireless (“the Oxera report”) argues that there are three main objectives that Ofcom is hoping to achieve through the introduction of AIP to terrestrial broadcasters:
- To encourage the efficient use of spectrum
 - To facilitate the transfer of spectrum from those who value it less to those who value it more
 - To ensure fair inter-platform competition.
- A3.32 The report argues that there are serious problems with the arguments that Ofcom puts forward in relation to all three objectives.
- A3.33 In relation to encouraging the efficient use of spectrum, the report argues that National Grid Wireless (“NGW”) already has strong incentives to maximise the use of its spectrum. NGW is not vertically integrated and so it has a clear incentive to allocate DTT multiplex capacity (and hence spectrum) to those who value it most highly. Oxera argues that both Multiplexes C and D already have extremely high levels of capacity utilisation and that further technological developments are planned for the future.
- A3.34 In relation to facilitating the transfer of spectrum from low- to high-value users, Oxera argue that this objective could be met through spectrum trading. The report argues that the effectiveness of this mechanism is currently limited because spectrum trading by broadcasters is prohibited although it was envisaged that such trading would be permitted well before Ofcom intended to introduce AIP. On that basis, the argument continues, is that NGW have a clear commercial incentive to transfer spectrum if another user values it more highly (and the transfer was permissible given international and regulatory constraints).
- A3.35 Oxera argue that in fact even ahead of full spectrum trading there was already a “quasi-secondary market” for spectrum via trading in existing mux capacity at the level of individual channels or indeed entire DTT multiplexes²⁰. The report further argues that when new multiplex capacity is developed, the use of market-based mechanisms would be expected to lead to the use of the associated spectrum by those who valued it most highly.
- A3.36 The Oxera report argues that there are problems with the arguments put forward by Ofcom as to why it could not rely on secondary trading to be effective. The report argues that alternative uses of spectrum referred to by Ofcom either (i) can be carried on DTT capacity (e.g. HD television); (ii) are highly unlikely to value 1GHz spectrum more highly than the current users; or (iii) are prohibited from making use of the DTT spectrum. The report questions whether there is in fact “lack of vigour” in relation to trading in DTT capacity leading to a market failure. Even if there were an issue of market failure, the Oxera report argues that Ofcom has not considered whether more targeted regulatory intervention might be more appropriate.
- A3.37 The Oxera report points out that Ofcom’s argument that vertical integration by some mux operators means that the wholesale market for multiplex capacity will not be effective does not apply to NGW – which is not vertically integrated - and, even if

²⁰ The report refers to the acquisition by ITV plc of SDN, the operator for Multiplex A, in 2005.

that were the case, it is not clear that AIP would address this issue. The report also points to the informational burden the introduction of AIP imposes on Ofcom to make sure that “correct” price for spectrum: too high a price could prevent transfers of spectrum between users.

- A3.38 In relation to encouraging inter-platform competition, the report argues that Ofcom’s proposal rests fundamentally on the premise that all platforms face the same opportunity cost pricing rules applied to their spectrum use. The report argues that this is not the case in relation to the satellite platform and that introducing AIP to DTT broadcasters will in fact exacerbate inter-platform distortions. Oxera suggest that one option would be for Ofcom to consider this issue as part of the wholesale platform services market view.

Ofcom’s Response

- A3.39 Ofcom accepts that NGW does face commercial incentives to maximise profits but Ofcom would contend that maximising profits does not necessarily imply that the value generated from the spectrum is maximised. For instance, in monopoly markets, firms face incentives to restrict output and increase prices compared to the levels that would maximise welfare in a competitive market.
- A3.40 It is the case that there are a limited number of suppliers of DTT multiplex capacity which raises the possibility that the market for DTT multiplex capacity market may not function as a fully competitive market – see comments in the previous section about trading in DTT multiplex capacity. Ofcom agrees that a fully effective secondary market could be an effective means of securing efficient use of spectrum. However, as noted above, in the case of DTT trading is not in spectrum itself but in capacity, which must be used for DTT broadcasting or other defined purposes. In relation to the effectiveness of trading in the market for DTT capacity, Oxera have not brought forward conclusive evidence of an effectively functioning “quasi secondary market”. Ofcom concludes that there is insufficient evidence to show that secondary markets have been fully effective. Further, as set out in the consultation document²¹, even if spectrum were a freely, efficiently and transparently traded good in the UK, it might still be desirable to apply AIP to ensure that opportunity costs are fully recognised and internalised by all decision-makers.
- A3.41 It is not clear, therefore that NGW currently faces *strong* incentives to maximise the efficiency of spectrum use, even though Ofcom accepts the proposition that it ought to behave as a rational and profit maximising company.
- A3.42 The Oxera report makes a further argument that a substantial amount of NGW’s costs are fixed and thus that maximising profits equates to maximising revenues i.e. marginal costs are zero. On that basis, the report argues that it would be irrational for NGW not to release capacity when it became available.
- A3.43 As set out above, maximising profits does not automatically imply optimal use of spectrum. In addition, the report also goes on to acknowledge that some of NGW’s cost are variable which would mean that marginal costs are not zero and so the condition for revenue maximisation to be equivalent to profit maximisation are not satisfied.
- A3.44 Ofcom does recognise, however, that incentives to make monopoly profits will still exist under AIP. However, Ofcom is not applying AIP to address the potential

²¹ Paragraph 3.10

impact of market power in the provision of DTT multiplex capacity. Ofcom has other concerns about reflecting the opportunity costs to society of broadcasting use denying other uses of the spectrum, and the absence of fully effective trading.

- A3.45 In terms of the efficient use of spectrum, the report presents evidence to show that NGW's MUX utilisation has remained high from 2002-2006. However, Ofcom would contend that utilisation is not the only relevant criterion and indeed Ofcom has noted that even across NGW's multiplexes the number of services carried differs even where the multiplexes use the same transmission mode (see above discussion about current intensity of capacity use). The incentives to invest in technologies that enable the release of more capacity and when capacity increasing technologies are deployed are also relevant factors in the efficiency of spectrum use.
- A3.46 The arguments in the Oxera report taking issue with the specific examples of alternative uses of the UHF spectrum that are discussed in the consultation document illustrates the difficulty of the regulator trying to anticipate all the potential uses of spectrum in the future. The examples given by Ofcom were not intended to be exhaustive. For example, there are mobile TV technologies that cannot be carried over DTT that may want to bid for the spectrum as detailed in Ofcom's more recent review of potential demand arising from the Digital Dividend Review (e.g. DMB, Media-Flo, TDTV).
- A3.47 Furthermore, Ofcom does not accept the assertion in the Oxera report that the alternative applications that can use the 1GHz spectrum are likely to have a lower value on the use of this spectrum than current users. Ofcom's market research indicates that alternative uses **could** value the spectrum more highly than other uses now. Moreover additional higher value uses could equally emerge in the future. Given this uncertainty about the best user(s) of the spectrum going forward, Ofcom believes that its proposed use of market mechanisms, and AIP in particular, as set out in the consultation is appropriate.
- A3.48 In relation to competition issues around vertical integration, Ofcom accepts that it perhaps overstated the benefits that the introduction of AIP could bring in terms of addressing any associated problems.
- A3.49 In relation to setting the "correct price" for spectrum, Ofcom is aware of the informational issues in setting AIP and has a policy of setting AIP conservatively for that reason. Ofcom will revise the level of AIP as appropriate given developments that relate to the potential use of the spectrum. Figures in the Indepen report, which take into account trading in DTT capacity, are intended to provide an indication of the range in which the opportunity cost of the spectrum might currently lie. It is not intended to be a definitive view on what the opportunity cost of spectrum is at this point in time. Ofcom is not proposing to set AIP now for DTT. When it comes to setting AIP Ofcom would take into account the most up to date information available to it – it would not set AIP based on information collected several years previously.
- A3.50 In terms of the impact of different digital broadcasting platforms facing different opportunity cost pricing rules, in the consultation document Ofcom did refer to the fact that it is considering options by which Recognised Spectrum Access ("RSA") could be made available to satellite users of spectrum, with a view to giving satellite reception the same equivalent recognition in spectrum management terms as terrestrial reception with concomitant incentives to make efficient use of spectrum. However, Ofcom does not agree that it should defer making a decision on applying AIP to DTT until the issue of RSA for satellites has been resolved. It expects to

initiate consultation on this issue in 2007, and the timescale for introducing AIP to DTT gives ample time to deal with this issue.

- A3.51 In any case, Ofcom does not accept that differences in amounts, or incidence, of AIP charges between different delivery platforms are inherently detrimental. Indeed, they are part of the normal functioning of the market.
- A3.52 The purpose of a spectrum charging regime is to ensure that users of spectrum face the true opportunity cost of the spectrum that they use. This opportunity cost depends on which alternative services are competing to access the spectrum in question and can be expected to vary according to the frequency that is used.
- A3.53 As noted in our consultation document, Ofcom is considering options by which grants of Recognised Spectrum Access (RSA) might be made available to satellite users of spectrum, including incentive pricing for spectrum management purposes.
- A3.54 No decision has been taken by Ofcom on whether to introduce RSA for satellite services generally, or satellite broadcasting in particular. We would conduct a separate public consultation before deciding to proceed with the introduction of RSA for satellite services. Even if AIP were introduced for spectrum used for satellite broadcasting, it does not automatically follow that the incentive pricing would be the same as that for spectrum used for terrestrial broadcasting. This is because satellites typically transmit at higher frequencies. The opportunity cost associated with the use of these frequencies is less than that associated with UHF spectrum as, for example, they cannot be used for terrestrial mobile communications.
- A3.55 In addition, broadcasters using other transmission means, such as digital cable and IPTV, that do not require spectrum, would continue to pay no AIP whatsoever. There would therefore continue to be disparities in spectrum charges and broadcasters would face different, or no, AIP costs depending on delivery platform.
- A3.56 This does not represent a distortion of competition but simply reflects the different characteristics of alternative delivery platforms and the fact that some impose higher opportunity costs than others. It would be economically inefficient and unjustified to charge all broadcasters the same AIP irrespective of the frequency band, if any, that they use; or to refrain from imposing AIP on broadcasters whose use of spectrum does impose high opportunity costs.
- A3.57 Ofcom does not accept that the opportunities for alternative use of the spectrum will be extremely limited by international obligations. Ofcom has been working with its international partners to secure the maximum flexibility in the potential use of all the UHF spectrum.

Annex 4

Impact Assessment from 2006

Introduction

- A4.1 As discussed in Section 2, on considering the responses to the consultation we did not consider that they substantially altered the analysis in the Impact Assessment that we prepared for the Consultation Document.
- A4.2 We have made one substantive change to our proposals: we are now planning not to introduce AIP on spectrum used for terrestrial digital radio broadcasting until the end of 2014. As discussed in Section 3, there is a potential cost to delaying this implementation because the resulting gains from more efficient use of spectrum may come later than under our original proposal of 2012.
- A4.3 However, given the views expressed in the consultation, including the view expressed by many that DAB spectrum should not be charged ahead of DTT spectrum, we consider that on balance it is right to amend the implementation date.

Original Impact Assessment

Annex 5 to Consultation Document published in July 2006

Introduction

The analysis presented in this annex represents an impact assessment, as defined in section 7 of the Communications Act 2003 (the Act).

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

The citizen and/or consumer interest

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

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.

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

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>	<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.</p>

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

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 3 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>	<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.</p>

Digital television: apply AIP from 2014 ²² 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.
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>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>

²² 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.

Digital radio: apply AIP from 2012 ²³ for existing and planned spectrum use vs. apply as soon as possible	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.	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.
Digital radio: apply AIP from 2012 for existing and planned spectrum use vs. postpone the introduction of AIP e.g. until 2020	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.	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.
New terrestrial broadcasting services: apply AIP immediately vs. apply at same time as digital broadcasting	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.	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.

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."

²³ 2012 is the end of the initial licence period for the first national terrestrial digital radio multiplex.