

National Grid Wireless response to DTT consultation.

About National Grid Wireless

National Grid Wireless (NGW) is a licensed operator of two of the UK's six Digital Terrestrial Television Multiplexes and is a founder member of Freeview. We are also one of two national UK providers of transmission infrastructure and networks to analogue and digital television and radio broadcasters. Consequently, we enable major media companies such as BBC, BSkyB, Channel 4, ITV, MTV, UKTV and Emap, amongst others to bring their TV and radio services to the UK audience.

We are also the leading independent provider of network infrastructure to mobile network operators and other telecommunications companies. We manage access network infrastructure, maintenance and monitoring functions for many of our customers including Orange, Vodafone, T-Mobile, 3, O2, Cable & Wireless.

National Grid Wireless is owned by Macquarie UK Broadcast Ventures Limited, but operates as an independent business.

Summary of response

NGW appreciates the opportunity to respond to this consultation. NGW agrees with Ofcom that it is of paramount importance to ensure that the Digital Terrestrial Television (DTT) platform continues to provide a compelling service proposition for consumers. In order to achieve this, the platform needs to continue to keep up with technological change so that efficiency in the use of the spectrum is maximised. However, NGW believes that it is important that regulatory intervention should not deter innovation and commercial initiatives that, by themselves, can provide sufficient push for greater efficiency and the provision of the services that consumer’s value.

In particular, NGW believes that:

- Ofcom should consider a fuller range of alternative options, requiring less dramatic intervention, which may create greater economic value;
- MPEG-4 DVB-T (in combination with alternative technical solutions) should be allowed to be implemented immediately as this offers the potential for the efficiency upgrade of the DTT platform;
- In any case, we believe the implementation of MPEG-4 DVB-T now in the commercial multiplexes would not undermine Ofcom’s plans to upgrade Multiplex B to MPEG-4 DVB-T2 from 2009, should Ofcom wish to proceed with that approach; and
- We welcome the 64QAM upgrade across all multiplexes as this will have a positive net economic benefit with negligible viewer impact.

In the rest of this section we summarise our three key areas of concern.

Ofcom should not link MPEG-4 and DVB-T2 through regulation, as this rigid approach will inhibit market behaviour

Ofcom promotes a service and technology neutral regulatory approach. Whilst service neutrality is generally recognised in Ofcom’s consultation, Ofcom proposes an interventionist approach to the regulation of new technical standards that potentially delays technological enhancements. The potential to implement MPEG-4 DVB-T immediately (in combination with other technical solutions) has the potential to allow the efficiency upgrade of the DTT platform with the need for less prescriptive Ofcom intervention.

A fast take-up of MPEG-4 can occur without the proposed regulatory intervention (NGW Counterfactual)

The market should be allowed to determine the most appropriate date for the introduction of MPEG-4 and DVB-T2. A fast take-up of MPEG-4 does not necessarily require the prescriptive regulatory intervention proposed¹:

- There are few practical hindrances to migrating to MPEG-4 DVB-T;
- Various interested parties have expressed an interest in potentially using this format initially for Pay TV services increasing content choice for customers; and

¹ We present our case for a fast take-up of MPEG-4 as our proposed counterfactual scenario in sections A.2 and A.3.

- As the base of MPEG-4 DVB-T capable receivers grows, we believe the Free-to-Air (FTA) channels will switch to MPEG-4 thus creating a “virtuous circle” linking MPEG-4 DVB-T channel supply and demand.

The introduction of DVB-T2 is not necessary to realise HD channels

NGW believes that the mandated introduction of DVB-T2 alongside MPEG-4 is not necessary to realise the additional capacity gains Ofcom wishes to achieve:

- 64QAM across the whole platform alongside MPEG-4 operating with DVB-T will provide sufficient capacity and flexibility for two or maybe three High Definition (HD) channels; and
- 64QAM across the whole platform alongside other technical modifications and MPEG-4 may provide sufficient capacity for four HD channels.

NGW notes that HD services are being provided in other countries based on MPEG-4 DVB-T only.

The coupling of DVB-T2 with MPEG-4 will delay the introduction of MPEG-4 and the launch of new channel offerings

- The timetable and commercial feasibility of DVB-T2 is still uncertain to a large extent. This has the potential to significantly impact its introduction and take-up;
- Under Ofcom's “fast adoption” scenario, the coupling of the two standards could delay the introduction of MPEG-4 by the commercial multiplexes by 5-10 years and at worst never facilitate MPEG-4 and DVB-T2 beyond Multiplex B; and
- It is uncertain that PSB HD services in isolation will constitute a sufficiently compelling service proposition to persuade consumers to purchase new DVB-T2 receivers in significant numbers.

Under a coupling mandate, any impediment to DVB-T2 uptake would also impact the launch of new MPEG-4 facilitated Standard Definition (SD) / HD channels². Even without impediment we believe the coupling mandate could constrain the availability of Premium content on the DTT platform.

In any case, NGW believes that the implementation of MPEG-4 DVB-T now for the commercial multiplexes would not undermine Ofcom's plans to upgrade Multiplex B to MPEG-4 DVB-T2 by 2009, should Ofcom wish to proceed with that approach:

Adoption of MPEG-4 DVB-T now for new services does not undermine DVB-T2 potential across other multiplexes

Ofcom is concerned that permitting MPEG-4 before DVB-T2 is launched may require customers to replace their receiver equipment twice in a short period. However, Ofcom could choose to restrict MPEG-4 DVB-T to Pay TV services until 2009, at which time Ofcom believes DVB-T2 could be launched on Multiplex B. This would limit take-up to a segment of the population who have a high willingness to subscribe to Pay TV services. MPEG-4 DVB-T could therefore be viewed as a complement, rather than substitute, to other technical standards to increase capacity.

² Sky has publicly stated that, subject to Ofcom's permission, it will launch Pay TV on DTT. This will occur on either MPEG-2 or MPEG-4 and consumers will be required to purchase a new STB for either service. However, the benefit of MPEG-4 is that it would provide the capability to operate four rather than three channels

Complexity can be managed and should not prevent the launch of new channels

Any potential consumer confusion should be managed by providing appropriate information, clear messaging and industry-wide standards, rather than by limiting the launch of new services that consumers' value. The type of customer management solution needed will depend on the technical solution imposed, but could include:

- Linking MPEG-4 DVB-T to Pay TV services up until the launch of DVB-T2 on Multiplex B in 2009 (at which time Ofcom believes DVB-T2 would be introduced in Multiplex B), after which this restriction should be lifted; and
- A requirement for the existing industry bodies, e.g. DMOL, Freeview, DTG, to work together to develop robust point of sales set-top box information, e.g. common labelling / kite mark, to minimise consumer confusion.

Any proposed solution should balance Ofcom's concerns around receiver equipment against the benefits of the rapid introduction of new technical standards that support the prompt introduction of valuable services to consumers.

The quantity of equipment replaced specifically for MPEG-4 may be lower than Ofcom estimates

In any case, few receivers are likely to be purchased specifically for the technology MPEG-4 DVB-T but instead will be service led, i.e. Pay TV:

- Some consumers already own MPEG-4 receiver hardware. Netgem and BT Vision set-top-boxes (STBs) and a selection of Personal Video Recorders (PVRs) are MPEG-4 enabled. We understand that personal computers (PCs) and Integrated Digital TVs (IDTVs), which are an increasingly popular means of accessing DTT, may be upgraded through the addition of conversion software/hardware modules³. This demonstrates that higher priced receiver equipment can be upgraded to MPEG-4, and it is lower priced standalone STBs that are most likely to require replacing. However, this low-specification equipment may be the type that customers can be expected to replace over time with PVRs, pay DTT, etc;
- As Europe migrates to MPEG-4, receiver equipment will increasingly contain MPEG-4 hardware as standard. The STB replacement cycle is estimated to be four years⁴, so a base of MPEG-4 compatible receivers is likely to be established in a relatively short time frame; and
- To the extent that new Pay TV services are offered, consumers will by default be purchasing new receiver equipment based on MPEG-4 DVB-T to view the encrypted channels, as is common for Pay TV⁵.

Ofcom's modelling analysis appears incomplete and we therefore question Ofcom's reliance on it to support their proposed intervention

NGW believes that the counterfactual to Ofcom's intervention should be a fast take-up of MPEG-4 DVB-T driven initially by Pay TV offerings and reinforced by a FTA channel by channel switch to MPEG-4 as MPEG-4 receiver penetration rises.

³ DVB-T2 is unlikely to naturally penetrate the market in the same manner as MPEG-4 since DVB-T2 is not yet adopted as a European standard. IDTVs and STBs do not currently have DVB-T2 demodulation hardware so they could not be enabled through a simple software/hardware decoder update.

⁴ Information from industry sources

⁵ See A.2.

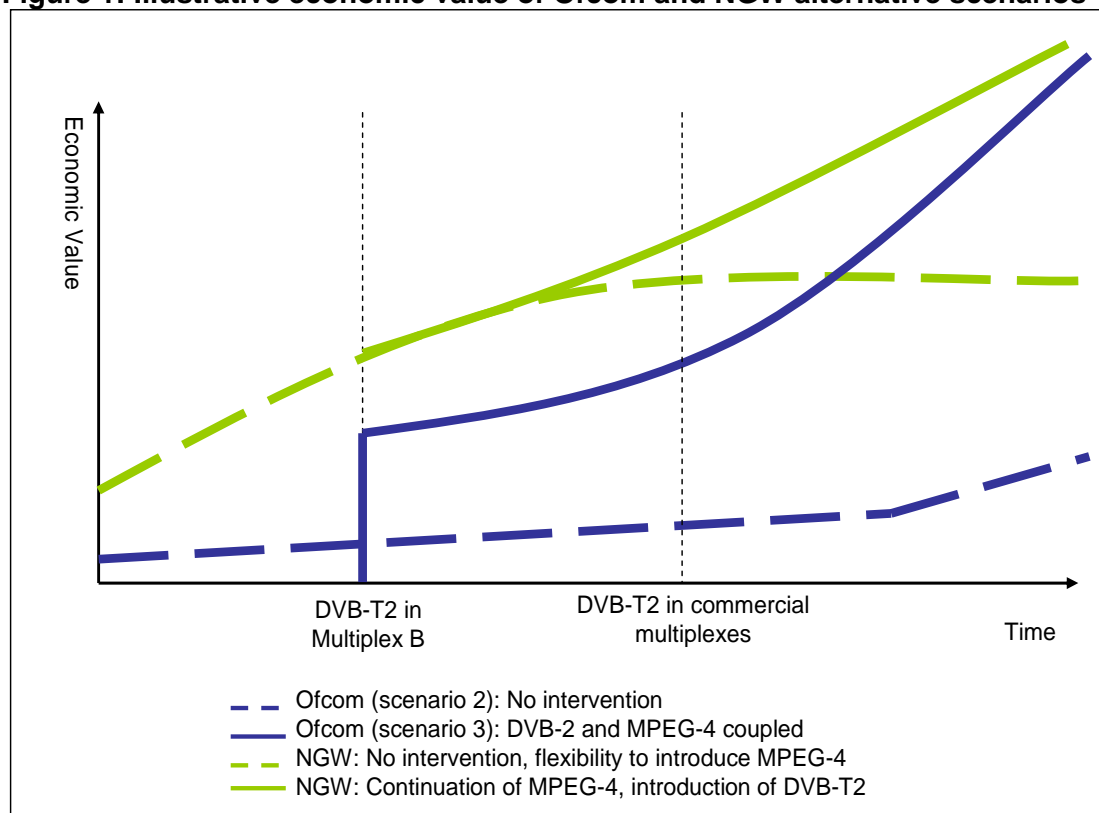
Ofcom should test a more comprehensive range of scenarios than those currently described in the proposal. These additional scenarios could include:

- Ofcom’s scenario 3 with adjustments to reflect the probability weighted risk of different assumptions. These include a delay in DVB-T2 equipment availability and a wider range of scenarios regarding potential demand for DVB-T2 depending on the types of HD content that are offered;
- An adjusted scenario 3 to permit the early introduction of MPEG-4 DVB-T. This could be limited to Pay TV services until 2009, at which time DVB-T2 may be mandated for multiplex B, with others moving to MPEG-4 DVB-T2 from MPEG-4 DVB-T when commercially feasible; and
- The use of alternative technical solutions to release capacity for HD channels on multiplex B alongside an early introduction of MPEG-4 DVB-T.

Ofcom should quantify the risks associated with each scenario, and in particular with the introduction of DVB-T2. Following this analysis, NGW suggests that a scenario allowing the immediate use of MPEG-4 DVB-T is likely to have a greater net present value (NPV) than Ofcom’s proposed intervention, especially when the risks of the intervention scenario are taken into account.

The figure below illustrates NGW’s views on the economic benefits of Ofcom’s scenarios against alternative market-led scenarios proposed by NGW. NGW believes that the introduction of MPEG-4 now can provide substantial economic benefits that are not taken into account in Ofcom’s no intervention scenario (scenario 2) or that would be denied to consumers in Ofcom’s intervention scenario (scenario 3).

Figure 1: Illustrative economic value of Ofcom and NGW alternative scenarios



Source: NGW’s interpretation of Ofcom’s proposals

Unfortunately Ofcom does not provide sufficient details on its modelling approach for NGW to be able to fully assess the validity of Ofcom’s assumptions or scenarios, and would welcome further clarity on these.

Ofcom has not considered a full range of alternative options, including less dramatic intervention scenarios, and has therefore not shown that its proposed solution creates the greatest economic benefit

NGW believes that there are a range of alternative options for achieving Ofcom’s objectives. These include market-driven approaches that we believe have the potential to create greater economic benefit than Ofcom’s proposed intervention approach. We suggest that Ofcom should not intervene as proposed unless it can be shown with sufficient certainty that the proposed intervention creates greater economic benefit than other options. With specific regards to the appropriateness of Ofcom’s proposed intervention:

- The evidence available suggests that consumers do not necessarily value HD over potential alternative services i.e. additional SD channels. It is not therefore certain that the provision of HD by the PSBs will create sufficient demand to act to kick-start the efficiency upgrade of the DTT platform, and that the positive economic benefits that Ofcom suggests will result from regulation will materialise in practice;
- It has not been sufficiently proven that the PSBs’ family of digital channels, beyond the core SD services, meet the characteristics of PSB, and that allocation of the released capacity to these services is justified; and
- There are alternative technical solutions for releasing capacity for SD / HD channels that have not been considered by Ofcom.

Although NGW does not object per se to Ofcom’s proposed upgrade of Multiplex B and subsequent reorganisation of services on multiplexes, NGW believes the introduction of MPEG-4 and DVB-T2 should not be coupled:

- Linking DVB-T2 to MPEG-4 is likely to delay the consumer benefits arising from greater channel choice in an immediate timeframe;
- There are alternative, market-driven, technical solutions to DVB-T2 that we believe offer the potential to achieve equivalent efficiency gains for the platform without delaying MPEG-4; and
- Ofcom’s roadmap for the platform’s efficiency upgrade is not complete. There is therefore no guarantee that benefits for the whole DTT platform will materialise within the timelines proposed by Ofcom.

In summary

NGW believes that Ofcom should allow for the market to drive the efficiency upgrade of the DTT platform, through the adoption of 64QAM across the platform and immediately permitting the use of MPEG-4 DVB-T, as well as considering the wider range of technical options that offer the potential to achieve an equivalent efficiency outcome to the combination of MPEG-4 with DVB-T2.

Should Ofcom decide to proceed with the introduction of DVB-T2, NGW would propose the following in order to facilitate an early introduction of MPEG-4 DVB-T without significantly undermining Ofcom’s proposals:

- Initially limit the use of MPEG-4 DVB-T to Pay TV services until 2009 at which time Ofcom believes DVB-T2 would be launched on Multiplex B.
- Commit to supporting the move to DVB-T2, when technologically and commercially feasible;
- Continue to offer the quality and diversity of content that is currently delivered over NGW’s multiplexes whilst recognising that Pay TV may prove an effective service to facilitate MPEG-4 DVB-T into the market; and
- Work with industry bodies, e.g. DMOL, Freeview, DTG, and other key stakeholders to develop robust point of sales set-top box information, e.g. common labelling to minimise consumer confusion.

At the same time NGW encourages Ofcom to:

- Engage more actively with commercial operators in order to be able to fully assess their plans;
- Consider a wider range of market-led scenarios, including a fast take-up of MPEG-4 DVB-T without intervention, as well as the risks and uncertainties associated with Ofcom’s proposed intervention; and
- Further review the set-top box and IDTV market in order to fully understand MPEG-4 receiver equipment take-up trends, and be able to fully assess the costs and benefits of a delay to the introduction of MPEG-4 DVB-T launch for commercial multiplexes.

NGW welcome the opportunity to discuss with Ofcom its proposals.

Section A: NGW's views on Ofcom's proposals

A.1. Overview

NGW agrees with Ofcom's sentiments of developing the DTT platform but has concerns that whilst the proposed intervention does provide for the adoption of 64QAM across the platform it only provides a route to DVB-T2 MPEG-4 for a single PSB multiplex with no roadmap for subsequent commercial multiplex conversion introduces the consequential delay to MPEG-4 on the DTT platform for other multiplex operators.

In the following, NGW explains its views that:

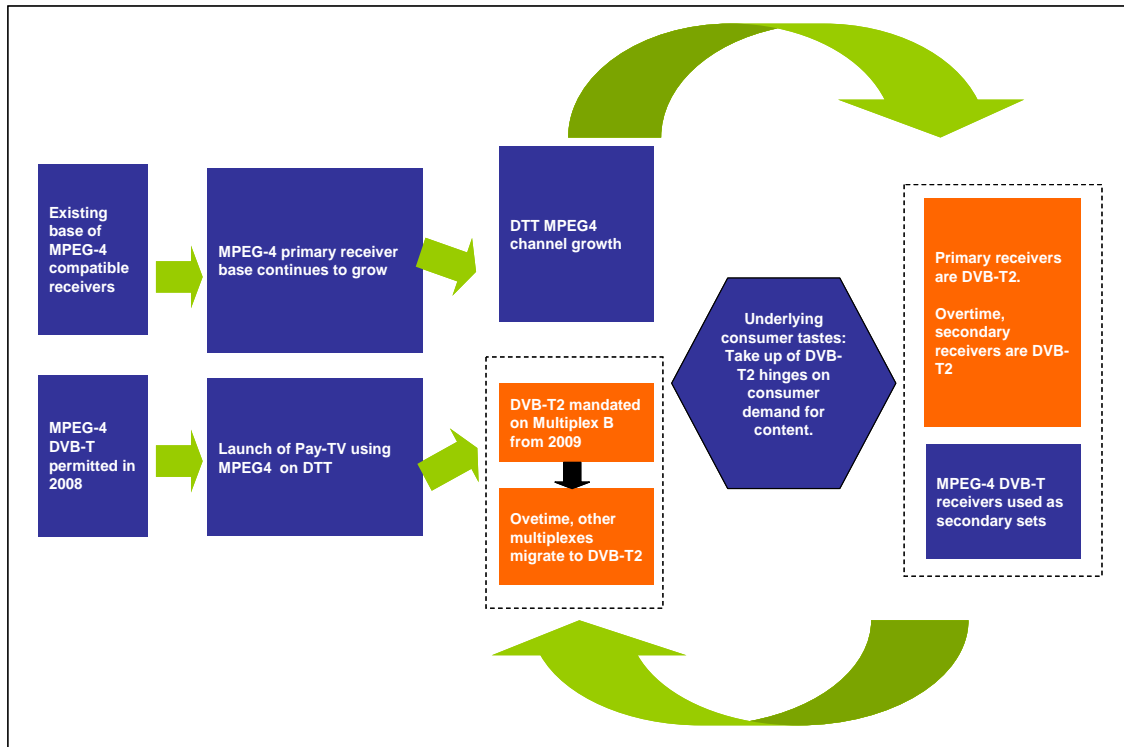
- Ofcom should not impose that MPEG-4 is introduced alongside DVB-T2 as this will inhibit market behaviour that offers the potential to bring about the efficiency gains and range of services for consumers that Ofcom is seeking to encourage;
- Ofcom's modelling is not comprehensive, as it ignores a market-led scenario where MPEG-4 DVB-T is introduced immediately and helps drive the introduction of valuable services for consumers such as Pay TV, additional SD or HD;
- There are alternative market-led technical solutions that can achieve the same outcomes for consumers as those Ofcom is seeking to ensure;
- In any case, the implementation of MPEG-4 DVB-T now for the commercial multiplexes would not undermine Ofcom's plans to upgrade Multiplex B to MPEG-4 DVB-T2 by 2009, should Ofcom wish to proceed with that intervention;
- Ofcom should consider alternative options, including market-driven solutions, to achieve its objectives; and
- The proposed intervention is discriminatory against commercial channel providers.

In Figure 2 below, we set out our view of how the DTT market could possibly develop following the introduction of MPEG-4 DVB-T.

- NGW's market-led counterfactual reflects the immediate introduction of MPEG-4 DVB-T, initially driven by Pay TV services. As the compatible primary set receiver base grows due to natural replacement, possible software/hardware upgrades and Pay TV then, in later years (e.g. post 2012), other channels move to MPEG-4. This creates a virtuous circle between MPEG-4 receiver equipment and channel supply on this format. Eventually, through natural replacement cycles, secondary receivers will also become MPEG-4 compatible. 64QAM and other technical solutions, which do not require receivers to be replaced, are used to free-up capacity to supply HD channels or other content. This is our counterfactual, where there is no intervention, except for Ofcom amending licence conditions to permit MPEG-4 and other technical solutions; and
- The second scenario (coloured in orange, in Figure 2) differs from NGW's market-led counterfactual as DVB-T2 is mandated by Ofcom for Multiplex B from 2009 onwards. Subject to content being sufficiently compelling, consumers begin to migrate primary receivers to DVB-T2. As receiver penetration reaches sufficiently high levels, DVB-

T2 becomes commercially viable and other multiplexes begin to migrate to DVB-T2. However, this is a slow shift as contracts with channel providers must be re-negotiated and this could take several years. Since initially we believe MPEG-4 may only be used for Pay TV, this limits the number of MPEG-4 users. Therefore we suggest that an early launch of MPEG-4 DVB-T does not disrupt the potential launch of DVB-T2 in Multiplex B. Should DVB-T2 not prove sufficient to drive DVB-T2 receiver take-up then MPEG-4 DVB-T supply and demand will continue to grow and, combined with other technical solutions, could still allow consumers the potential to access new HD and SD channels on both PSB and commercial multiplexes.

Figure 2: Development of DTT market following introduction of MPEG-4 DVB-T



A.2. Ofcom should not link MPEG-4 and DVB-T2 through regulation as this rigid approach will inhibit market behaviour

Ofcom has typically promoted a service and technology neutral approach to regulation. Whilst service neutrality is generally promoted in this current proposal, Ofcom is proposing to undertake an unusually interventionist approach to the regulation of new technology standards and is paradoxically potentially delaying platform developments. NGW believes that the implementation of MPEG-4 DVB-T immediately (in combination with 64QAM and other technical solutions) has the potential to allow the efficiency upgrade of the DTT platform with the need for a less prescriptive Ofcom intervention.

A fast take-up of MPEG-4 can occur without the proposed regulatory intervention

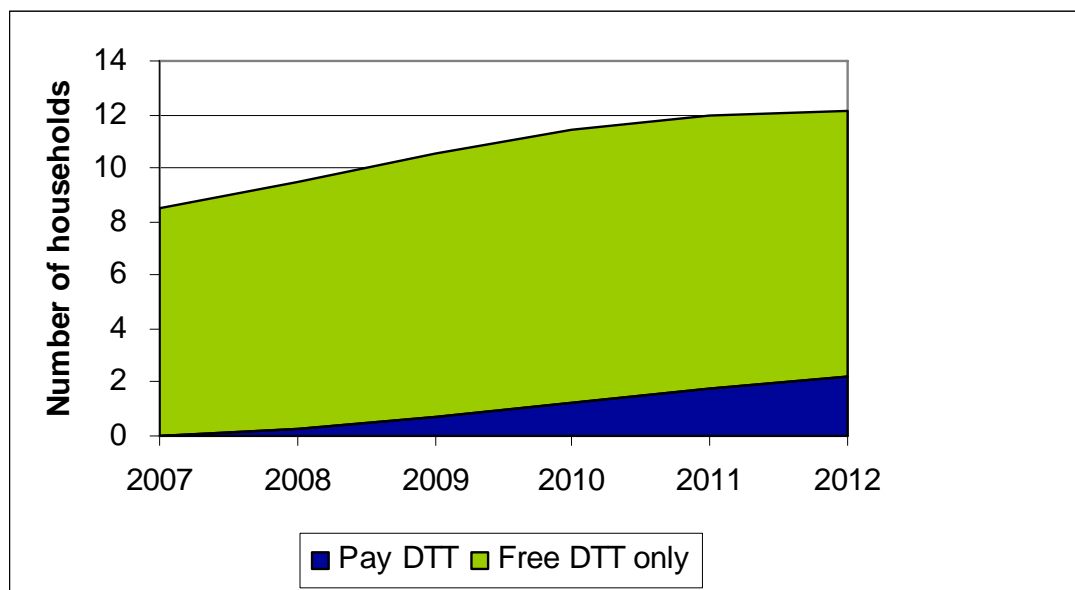
NGW firmly believes that the market should be allowed to determine the introduction of MPEG-4 and DVB-T2 and that Ofcom should not regulate the introduction of this technology. Whilst a final network of four multiplexes at DVB-T2 and MPEG-4 has the potential to be highly spectrally efficient, this has to be compared with the proposal that in order to achieve a single PSB DVB-T2 (multiplex providing fewer, HD services) there will be a resultant inefficient delay of the introduction of MPEG-4 on the three commercial multiplexes. NGW believes that the proposed approach for the introduction

of these technical standards and specifically the coupling of MPEG-4 with DVB-T2 may reduce economic welfare⁶. To this end, NGW encourages Ofcom to allow the flexibility to introduce both standards separately as the market demands them.

Contrary to Ofcom’s views, we believe a fast take-up of MPEG-4 could be achieved in a short timeframe. There are few practical hindrances to migrating to MPEG-4 DVB-T. Various players have expressed a desire to utilise MPEG-4 DVB-T and it can be introduced cost effectively and on a channel-by-channel basis. Further, subject to regulatory approval, NGW is considering the introduction of MPEG-4 DVB-T ahead of the timetable proposed by Ofcom. It is expected that this will initially be for Pay TV channels, so channel choice for customers will not be diminished.

The launch of Pay TV services using MPEG-4 DVB-T will further boost demand for MPEG-4 compatible STBs. Figure 3 illustrates the estimated increase in Pay TV penetration within the DTT platform to 2012. As the base of MPEG-4 compatible receiver equipment grows due to IDTV software/hardware upgrades, DSL hybrid IPTV/DTT equipment and MPEG-4 STBs being standard, this will create the market conditions for further migration to MPEG-4. The channel migration will potentially include FTA channels which will create further capacity for a greater variety of channels. This will in turn, increase demand for MPEG-4 receivers and create a virtuous circle linking MPEG-4 channel supply and demand. This will occur without the regulatory intervention proposed by Ofcom.

Figure 3 Estimated Pay and Free DTT homes (million)



Source: Enders Analysis, 2007, UK DTV Homes Platform Forecasts: 2003-2017. Adjusted for introduction of new Pay TV offering.

Utilising MPEG-4 DVB-T should increase the rate at which channel providers adopt the new standard as this can be achieved in a mixed mode multiplex. Convincing multiple channel providers that a whole multiplex needs to be converted (as required for DVB-T2) will be commercially challenging and economically difficult. Commercial incentives for a conversion to MPEG-4 DVB-T are greater as there is likely to be a growing

⁶ We expand on this point further through our comments on Ofcom’s modelling approach

receiver equipment base becoming established by the likes of BT, Humax and Netgem⁷ and MPEG-4 is becoming the default European standard. MPEG-4 is being used in different countries for Pay TV and FTA services.

Figure 4 A selection of countries using MPEG-4 for DTT services

Country	Analogue Switch off	MPEG-4 use
France	2011	Currently only for pay services
Lithuania	2009	Currently only for pay services
Norway	2009	Both free-to-air and pay TV services
Portugal	2012	Currently only for pay services

Source: DVB project

Furthermore, we understand that PCs and IDTVs can be MPEG-4 DVB-T enabled through the addition of Common Interface Module (CIM). The costs to the consumers of MPEG-4 DVB-T are therefore likely to be significantly lower than for MPEG-4 DVB-T2 which will require consumer receiver equipment to be replaced. Additionally Enders forecast that BT Vision will have some two to three million MPEG-4 DVB-T decoders installed by 2012, which will be capable of decoding MPEG-4 DVB-T HD services. We believe that mixed mode multiplexes and an established base of receivers will create greater commercial incentives for MPEG-4 DVB-T than for MPEG-4 DVB-T2 which requires a “big bang”, e.g. consumer demand for HD to drive DVB-T2 receiver take-up and the conversion of whole multiplexes.

The introduction of DVB-T2 is not necessary to realise HD channels

Ofcom’s proposals provide capacity for the launch of three then four HD channels by the PSBs. However we believe that the mandated introduction of DVB-T2 alongside MPEG-4 is not necessary to realise this additional capacity gain:

- 64QAM across the whole platform alongside MPEG-4 operating with DVB-T will provide sufficient capacity and flexibility for two or maybe three HD channels; and
- 64QAM across the whole platform alongside other technical modifications and MPEG-4 may provide sufficient capacity for up to four HD channels. These capacity developments are approximately equivalent in timeline and capacity as those depicted in Ofcom’s technical proposal.

HD services are being provided in other countries based on MPEG-4 DVB-T only. For example, in France the Ministry of Economy has mandated that MPEG-4 is used for HDTV on terrestrial channels. A law has also been recently passed requiring all new HDTVs sold by end of 2008 to be MPEG-4 DVB-T compatible, in order to speed the take-up of MPEG-4 technology, without waiting for the commercial launch of the DVB-T2 standard.

⁷ In most cases, STBs contain MPEG-4 hardware but not software. However, software can be installed either via the internet or over the air.

Figure 5 The use of the MPEG-4 standard in France**Case Study: The introduction of MPEG-4 into the French DTT market**

France launched digital terrestrial television in March 2005 with the Conseil Supérieur de l'Audiovisuel (CSA) licensing 14 FTA channels. DTT has since expanded to include 18 national channels, 18 local channels and a further 11 pay TV channels. Population coverage has reached 85% and is projected to rise to 89% by the end of 2009 (Source: CSA). By April 2007 there were some 4.25 million households equipped either with a STB or an integrated digital television (Budde: 2007) corresponding to DTT penetration of around 23% (Source: TDF).

DTT is being broadcasted in MPEG-2 and MPEG-4 compression. Specifically, the pay TV channels use MPEG-4 compression whilst the free to view channels remain MPEG-2. However, in May 2005 the Ministry of Economy announced that while public service operators can continue to use MPEG-2 for standard definition terrestrial channels the MPEG-4 compression standard must be used for HDTV on any terrestrial channel.

To date the CSA has allocated two licences for HD broadcasting on the DTT platform to commercial providers. However, the CSA is reserving a third channel for public broadcaster France Télévisions. To create the extra space for these HD channels the CSA is planning to rearrange the multiplexes to use MPEG-4 compression. This rearrangement will be occurring prior to DVB-T2 technology.

To speed the take-up of MPEG-4 technology, France has adopted legislation requiring all new HDTVs sold to be MPEG-4 compatible.

Source: Various market intelligence reports as detailed

NGW believes that Ofcom should consider other technical modifications for the provision of HD services, should demand for these channels be established. Furthermore, we suggest that these technical solutions should afford flexibility for the multiplex owners, both PSB and commercial, to introduce MPEG-4 and provide extra channels before the commercial implementation of DVB-T2.

The coupling of DVB-T2 with MPEG-4 will delay the introduction of MPEG-4 and the launch of new channel offerings

The decision to introduce MPEG-4 and DVB-T2 shall, at best, delay the introduction of MPEG-4 to the commercial multiplexes by 5-10 years on the basis of Ofcom's 'fast adoption' scenario and at worst never facilitate MPEG-4 and DVB-T2 beyond Multiplex B. Since MPEG-4 DVB-T is currently available and already adopted in other countries, NGW believes that multiplex licence operators should be able to offer services utilising MPEG-4 DVB-T immediately.

NGW have undertaken multiplex trials and have proven the satisfactory performance of mixed MPEG-2 MPEG-4 operation within a DVB-T environment, which would be a viable option as a pre-cursor to full mode change for individual multiplexes. We see this as an important benefit of utilising MPEG-4 DVB-T as opposed to MPEG-4 DVB-T2 which forces the 'big bang' approach envisaged with full multiplex conversion. The subsequent delay in conversion of other multiplexes to DVB-T2 precludes the adoption of MPEG-4 DVB-T resulting in the inefficient use of spectrum and limited consumer benefit that ensues.

The coupling of the two types of standards results in a delay in the launch of new services to consumers today:

- It is currently technically and commercially feasible to free up additional capacity to launch new channels on MPEG-4 DVB-T. It is highly likely that initial demand for this capacity would be focused on a Pay TV offering which would bring additional choice to consumers;
- The timeframe for the introduction of DVB-T2 is not certain. The market integration of DVB-T took over three years from the ratification of the standard. The technical specification of DVB-T2 is not complete, hence the technical testing has not commenced and equipment is not currently being manufactured. Therefore, we believe it is unlikely that Ofcom will be able to introduce DVB-T2 on Multiplex B in 2009, in time for DSO in the Granada region; and
- The driver for consumers to purchase DVB-T2 receivers is uncertain: should HD not provide the “big bang” that Ofcom hopes, then this has the potential to significantly reduce the commercial viability of DVB-T2 and its market reach.

The coupling of MPEG-4 with DVB-T2 reduces the potential for commercial broadcasters to innovate and introduce new services on a timely basis. For consumers to benefit from greater channel choice, we suggest that the technologies should be decoupled at least for commercial multiplex operators.

It is our view that MPEG-4 should be allowed as a stand alone proposition and not linked to the introduction of DVB-T2. However, we believe that DVB-T2 MPEG-4 boxes will be able to decode DVB-T MPEG-4 potentially affording an obvious upgrade path to additional SD and HD services in the future.

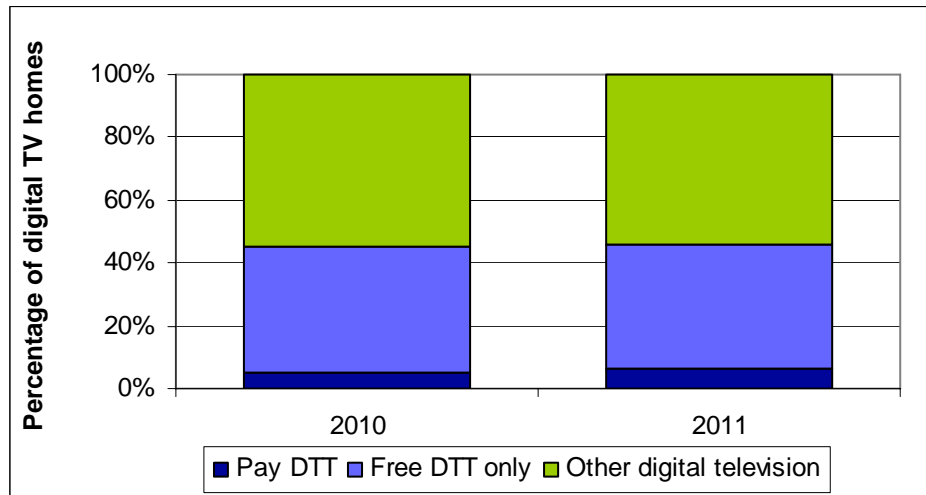
Adoption of MPEG-4 DVB-T now for new services does not undermine DVB-T2 potential across other multiplexes

Even if Ofcom chooses to go ahead with the simultaneous upgrade of Multiplex B to MPEG-4 and DVB-T2, a prompt introduction of MPEG-4 DVB-T for certain services on commercial multiplexes would not undermine possible further efficiencies that DVB-T2 may bring about:

- NGW proposes that until 2009, when according to Ofcom’s schedule households will have access to DVB-T2, MPEG-4 DVB-T would initially be used to provide pay TV services only. NGW believes that the take-up of MPEG-4 boxes would be faster if no restrictions were imposed on which services can use this technology, but would be willing to initially limit it to Pay TV services in order to contain the take-up of boxes without DVB-T2;
- Market estimates indicate that only 8% of primary sets in UK households would have DTT Pay TV MPEG-4 STBs by the end of the period during which Ofcom proposes to introduce DVB-T2 (between 2009 and 2012). Therefore, only a relatively small number of households (in proportion to the population of DTT households) would require additional decoding devices to access both Pay TV and the broader range of DVB-T2 enabled services available. We believe that the Pay TV service STBs will be retained even after households have adopted DVB-T2 HD services; and
- NGW understands from industry sources that consumers are expected to swap boxes every four years. Furthermore, it is understood that Pay TV consumers are

more technology focused than the average DTT viewer, and may be expected to switch STBs within a shorter than normal replacement cycle. Therefore, by 2012 Pay TV consumers may be willing to upgrade to boxes containing MPEG-4 and DVB-T2, provided that those are available in the market and the switch affords additional benefit.

Figure 6: Household digital television take-up by type



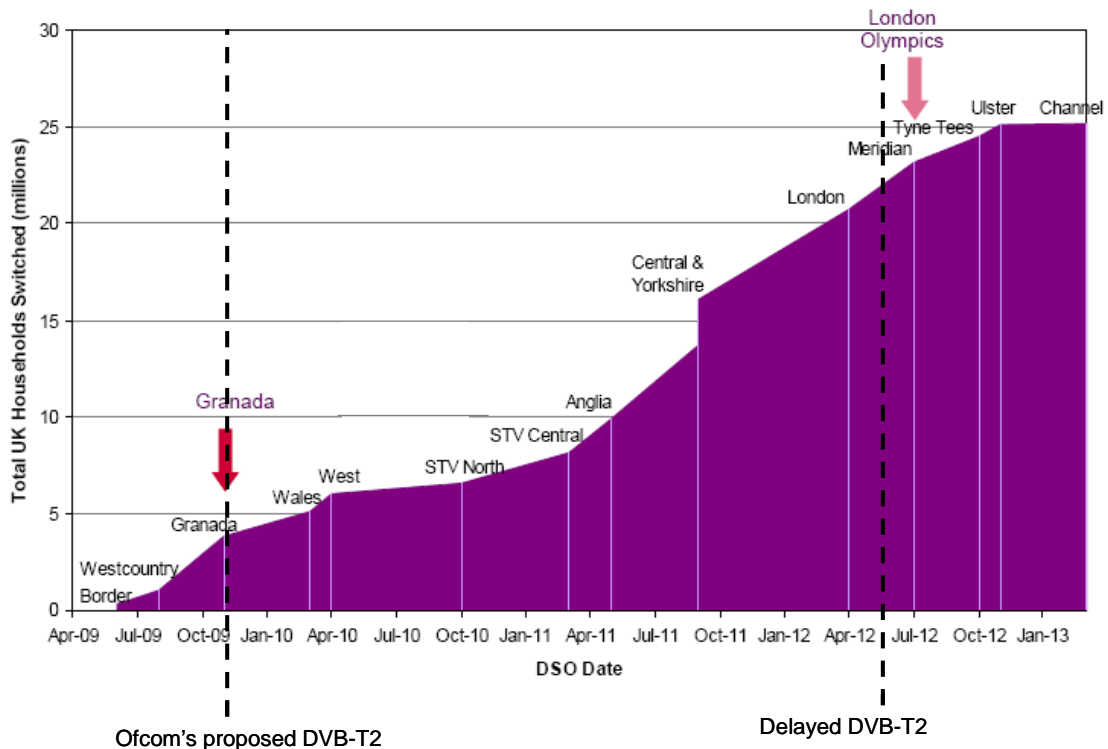
Source: Market forecasts

Complexity can be managed but the risk of delayed DVB-T2 commercialisation can not and should not prevent the launch of new channels

NGW believes that the increasing complexity of TV viewing should not prevent the launch of new services:

- The successful launch of digital services in Whitehaven, as part of DSO, has demonstrated that with focused communication complex messages can be understood and assimilated by the viewers. Similarly, the provision of readily available, clear information is key to reducing the impact of this complexity whilst affording consumers the continued benefits of DTT including the potential for increased variety and quality of channels through MPEG-4 DVB-T;
- The Ofcom modelling is based upon DVB-T2 being introduced early in the DSO programme, e.g. from 2009 for the Granada region. This would put the introduction in the UK significantly ahead of that in other European countries. NGW believe that since DVB-T2 standards are still in development there is a risk that the commercial product will not be available in the market in this timescale. If, for example, there is a 2-3 year delay in DVB-T2 equipment availability there are potentially upwards of 15 million households that would not have access to MPEG-4 HD services before 2012. This is illustrated in Figure 7. In the case of the launch of DVB-T, the consumer equipment did not ship in volume until three years after standard ratification. We believe that this specifically reduces the strength of Ofcom’s argument for coupling the two technical solutions, since this risk of delay has not been given due consideration.

Figure 7 Households switching over by date



Source: Ofcom, 2007, 'The future of Digital Terrestrial Television', NGW's illustrative views on possible delays to DVB-T2

- There is an MPEG-4 market for Pay on DTT and initially, NGW is proposing to offer only Pay TV channels on MPEG-4 DVB-T. This would reduce consumer confusion with the HD market as a consumer would know they were buying a box for Pay TV services and not for a FTA HD DTT proposition; and
- NGW would propose working closely with key industry stakeholders to develop a common labelling scheme for STBs / other receiver equipment and appropriate point of sales information, in order to reduce any potential consumer confusion.

As customers are able to make a choice over whether to pay for cable and satellite, customers should also be able to make their own buy / not buy decisions for pay TV (utilising MPEG-4 equipment) based on their own willingness to pay for the services offered.

The quantity of equipment replaced for MPEG-4 may be lower than Ofcom calculates

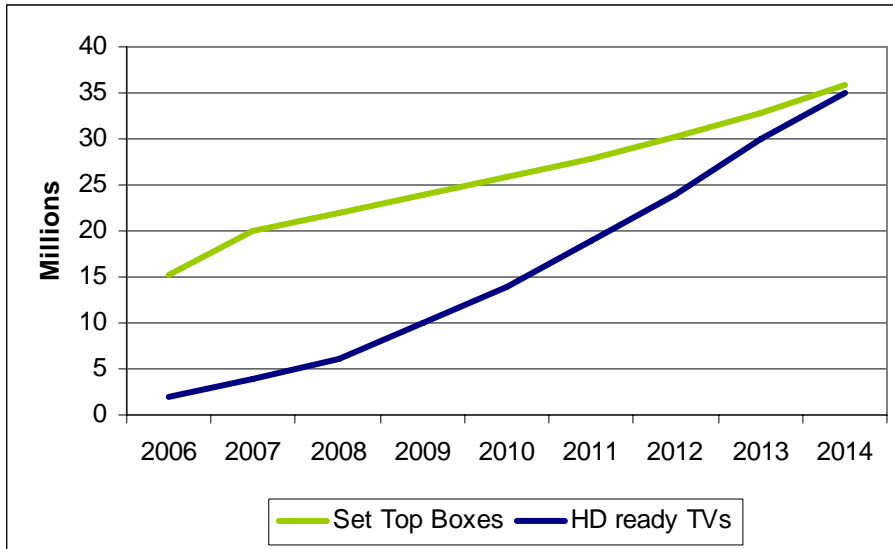
In any case, Ofcom may have over-estimated the extent of potential customer confusion and the requirement to replace receivers more often if MPEG-4 DVB-T is launched immediately.

The number of receivers that would be purchased specifically as a result of the introduction of MPEG-4 DVB-T2 is likely to be lower than Ofcom estimates. There is a growing MPEG-4 STB base becoming established by the likes of BT and Netgem⁸. MPEG-4 is becoming the default European standard and new UK boxes will increasingly come as standard with MPEG-4 since receivers are designed and sold on a European-wide basis. Furthermore, we understand that IDTVs and PCs can easily be

⁸ In other cases, the STBs may contain MPEG-4 hardware but not software. However, software can be installed either via the internet or over the air.

MPEG-4 enabled by a software/hardware update or through the addition of a CIM, which does not require the receiver equipment to be replaced⁹. This is a particularly important consideration as IDTVs, proxied by HDTVs in the figure below, are likely to become the primary means of accessing DTT.

Figure 8 Set-Top boxes and IDTV forecasts

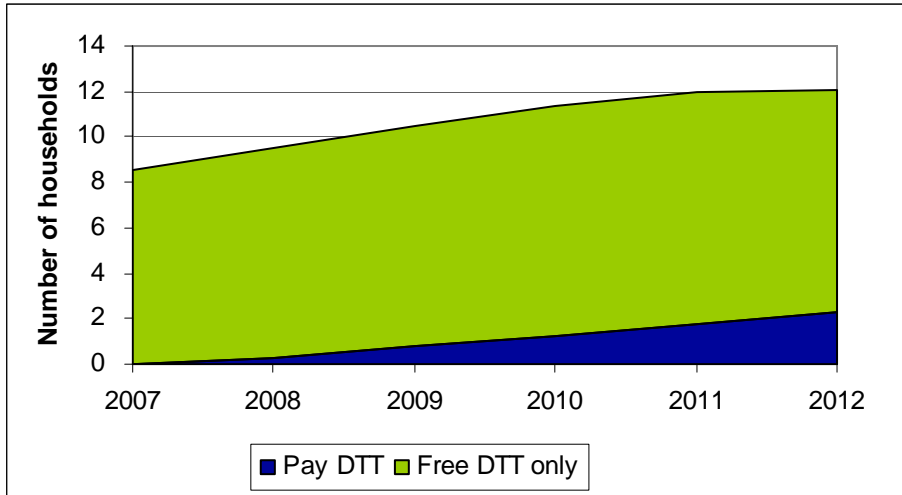


Source: STB market forecasts, HD TV forecasts from *Indepen*

The potential for upgrading, rather than replacing, of receiver equipment for MPEG-4 DVB-T is a key advantage of using this technical solution as opposed to DVB-T2. We understand that DVB-T2 would require STBs to be replaced and IDTVs to be replaced or coupled with a DVB-T2 STB. The additional consumer expenditure required to receive MPEG-4 standalone is thus anticipated to be far lower than required to support DVB-T2.

Consumers wishing to view new Pay TV services would be required to purchase a compatible STB. This would be similar to those STBs required for Top-Up TV (TUTV). These will be MPEG-4 compatible and will further drive up the MPEG-4 compatible receiver base. These would be purchased for Pay TV purposes and not specifically for MPEG-4. The figure below provides predictions of the number of households subscribing to Pay TV DTT. This indicates that the number of MPEG-4 STBs purchased before the proposed introduction of DVB-T2 is unlikely to be sufficiently high to derail Ofcom’s upgrade of Multiplex B to MPEG-4 DVB-T2, should Ofcom choose to proceed with that intervention.

⁹ Sets designed to be sold in international markets may already be capable of MPEG4 AVC reception, although some may require software enabling. CAM slots may be used to upgrade using a custom CIM module

Figure 9 Estimated Pay and Free DTT homes (million)

Source: Enders Analysis, 2007, UK DTV Homes Platform Forecasts: 2003-2017. Adjusted for introduction of new Pay TV offering.

Any proposed solution should balance Ofcom’s concerns around receiver equipment against the benefits of the potential rapid introduction of new technology standards

NGW is supportive of Ofcom’s proposals to promote the efficient use of capacity, providing increased channel quality and variety. However by linking the reorganisation of the channels to the introduction of new technology and, specifically, the coupling of DVB-T2 and MPEG-4, Ofcom is proposing a solution that facilitates additional HD channels for the PSBs at the expense of commercial multiplex licence operators / broadcasters’ proposed new services. We believe this ultimately leaves the consumer with less choice. NGW supports a revised proposal that delinks DVB-T2 from MPEG-4 and allows multiplex licence operators the flexibility to begin to introduce the MPEG-4 DVB-T technology immediately.

NGW believes that MPEG-4 DVB-T could be introduced alongside Ofcom’s proposed reorganisation and alongside mode change and other technical modifications to support the co-ordination of capacity for up to four HD channels on Multiplex B to an equivalent timetable.

The approval of the adoption of MPEG-4 as a current technical solution within NGW’s licence would potentially benefit consumers by increasing the number of channels that are broadcast. NGW would propose to:

- Initially develop only MPEG-4 DVB-T Pay TV services with channel providers to meet current market demand;
- Continue to broadcast current FTA channels on MPEG-2, until such time that the number of MPEG-4 compatible set-top boxes made it commercially viable for broadcasters to demand a shift to MPEG-4;
- Commit to supporting the move to DVB-T2, when technologically and commercially feasible; and
- Work with key stakeholders and existing industry bodies, e.g. DMOL, Freeview, DTG, to develop robust point of sales set-top box information, e.g. common labelling / kite mark, to minimise consumer confusion.

This would reduce the impact of MPEG-4 on the Multiplex B DVB-T2 launch, should Ofcom decide to proceed with this.

A.3. Ofcom’s modelling analysis appears incomplete and we therefore question Ofcom’s reliance on it in support of their proposed intervention

NGW does not consider that the impact assessment is reflective of the full range of options available or the assumptions sufficiently robust to support Ofcom’s conclusions:

- The counterfactual scenario does not appropriately consider the potential for the early adoption of MPEG-4 with DVB-T;
- Alternative scenarios do not consider other technical solutions to facilitate a combined SD/HD future and avoid the need for the intervention considered;
- The impact assessment is PSB centric and does not consider the broader interests of all DTT stakeholders and consumers;
- The assumptions used are often insufficiently supported by evidence and are not sufficiently transparent to allow NGW to obtain a full picture of Ofcom’s modelling; and
- Ofcom’s DTT roadmap is not complete and does not provide a basis for complete analysis.

Alternative Scenarios

Ofcom opts to model three stylised scenarios to provide an illustration of the potential size of gains from the combined MPEG-4 DVB-T2 upgrade. The range of scenarios and assumptions tested are centred on analysing the impact of Ofcom’s preferred scenario 3 (fast DVB-T2 and MPEG-4) against the counterfactual of scenario 2 (slow DVB-T2 and MPEG-4) and do not provide sufficient analysis of alternative scenarios or their relative benefit compared to Ofcom’s preferred approach.

NGW does not agree with the choice of the counterfactual (scenario 2). Subject to Ofcom permitting MPEG-4 DVB-T, NGW has illustrated in the previous section that there is the potential for a faster take-up of MPEG-4 by consumers than Ofcom has proposed in scenario 2. This could occur without the proposed regulatory intervention. Below, we set out a revised counterfactual.

NGW suggests that the following counterfactual should be considered:

Counterfactual: – Market-led introduction of new technologies

- MPEG-4 DVB-T is permitted as a standard by Ofcom in 2008;
- The launch of additional Pay TV services on DTT alongside a rising number of STBs / IDTVs containing MPEG-4 as standard, will increase consumer penetration of MPEG-4 compatible receiver equipment. Subject to early launch, there could be over two million Pay TV subscribers in 2012 and the number of MPEG-4 compatible receivers will substantially exceed this¹⁰;
- The adoption of this equipment, will encourage a more widespread delivery of MPEG-4 DVB-T SD channels;

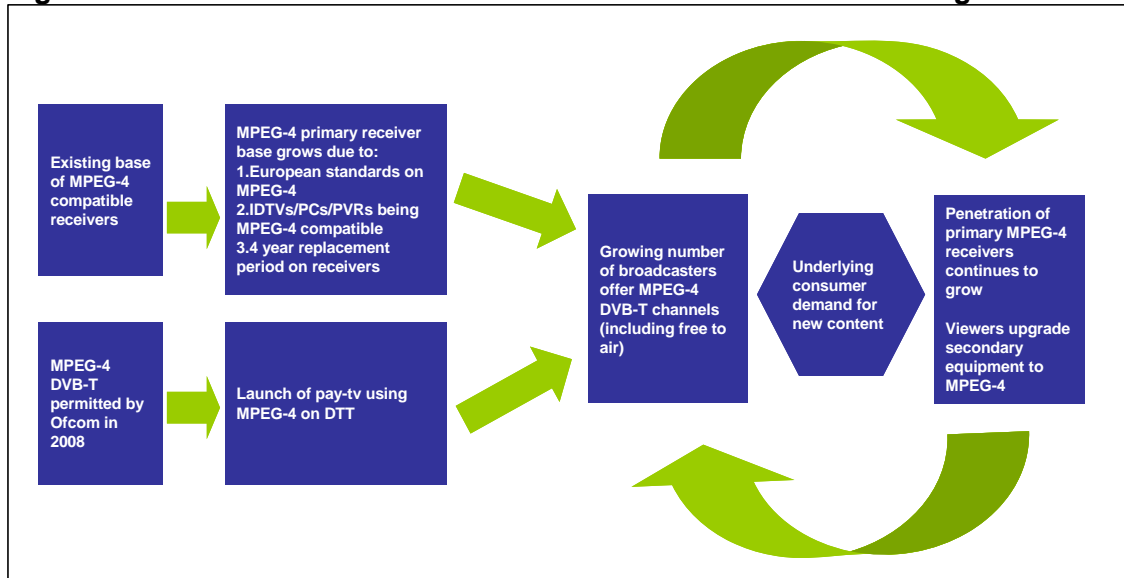
¹⁰ This includes IDTVs, PCs and STBs that have MPEG-4 hardware installed and require a software upgrade to be able to decode MPEG-4

- This will further increase take-up of MPEG-4 compatible receiver equipment and create a virtuous circle between consumer take-up and producer offerings;
- The change in behaviours will be faster for MPEG-4 DVB-T than DVB-T2 since channels can migrate individually to the new standard; and
- By combining 64QAM across the platform and other technical modifications with MPEG-4, we believe that the additional capacity available will be roughly equal to that in Ofcom’s scenario 3.

In this counterfactual with less prescriptive intervention, DVB-T2 may also be introduced at a later date:

- Once DVB-T2 is technically and commercially available, and this has the potential to be later than the 2009 as suggested by Ofcom, consumers will gradually obtain boxes that are DVB-T2 compatible as they replace existing primary STBs; and
- Once a certain percentage of the population have migrated to DVB-T2 then the other multiplexes will migrate to the new standard.

Figure 10: Counterfactual – Market-led introduction of new technologies



A scenario whereby Ofcom mandates the use of DVB-T2 for Multiplex B at the same time as allowing MPEG-4 DVB-T on other multiplexes for Pay TV services in the near term should be tested against this counterfactual, and also against a risk adjusted Ofcom scenario 3 (as described later in this section).

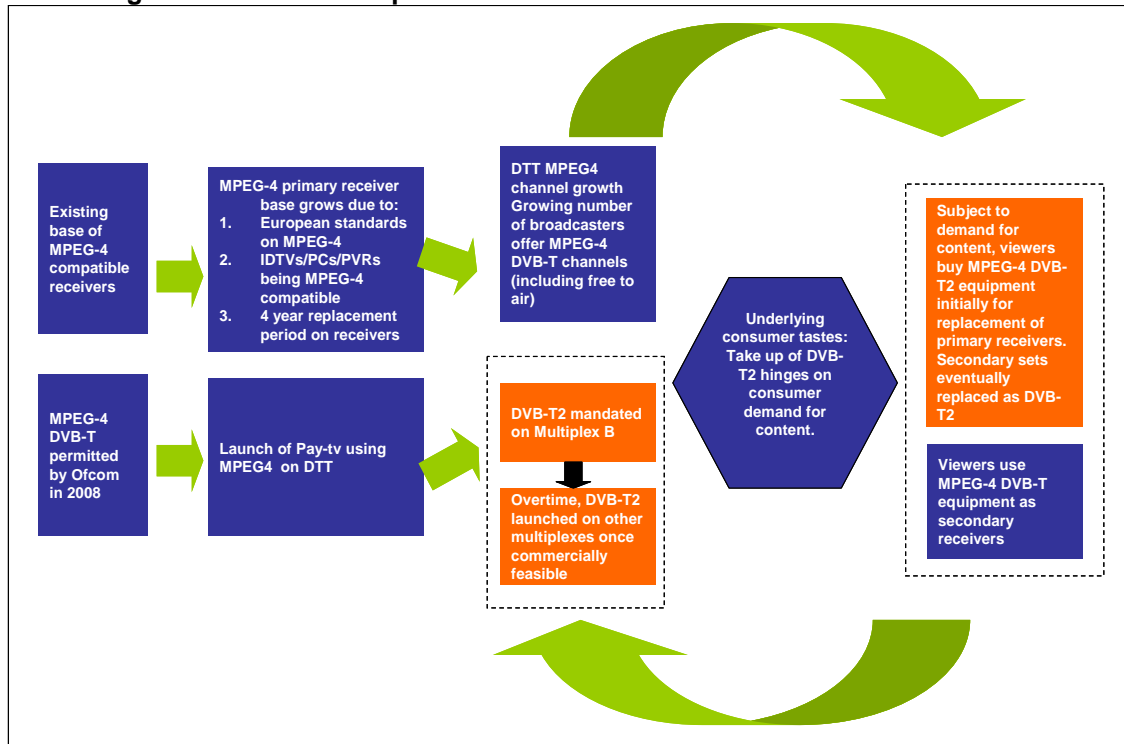
DVB-T2 Scenario: Early introduction of MPEG-4 DVB-T followed by DVB-T2

Ofcom permits the early introduction of MPEG-4 DVB-T for Pay TV services until 2009. DVB-T2 is mandated for Multiplex B and MPEG-4 DVB-T is also permitted for FTA. The speed of take-up would then solely depend on consumers’ valuation for new content and thus the willingness to pay for new receiver equipment. This scenario, shown in Figure 11 below, differs from NGW’s market-led counterfactual as DVB-T2 is mandated by Ofcom for Multiplex B from 2009 onwards in line with DSO;

- MPEG-4 DVB-T is permitted for Pay TV as a standard by Ofcom in 2008;

- The limitation of MPEG-4 DVB-T to Pay TV will minimise consumer confusion and limit penetration. Therefore we suggest that an early launch of MPEG-4 DVB-T does not disrupt the potential launch of DVB-T2 in Multiplex B;
- Should DVB-T2 not prove sufficient to drive DVB-T2 receiver take-up then MPEG-4 DVB-T supply and demand will continue to grow and, combined with other technical solutions, could still allow consumers the potential to access new HD and SD channels on both PSB and commercial multiplexes;
- Subject to content being sufficiently compelling, consumers begin to migrate primary receivers to DVB-T2. As receiver penetration reaches sufficiently high levels, DVB-T2 becomes commercially viable and other multiplexes begin to migrate to DVB-T2. However, this is a slow shift as contracts with channel providers must be re-negotiated and this could take several years. Since initially we believe MPEG-4 may only be used for Pay TV, this limits the number of MPEG-4 users.

Figure 11: Development of DTT market following introduction of MPEG-4 DVB-T and mandating of DVB-T2 for Multiplex B



Review of Ofcom's analysis

In support of the above scenarios, NGW believes that the justification for Ofcom's proposed intervention rests on Ofcom's ability to demonstrate with sufficient certainty that intervention will provide significantly larger economic benefits than those that would flow from the range of market-led scenarios. However, in Ofcom's response to NGW's questions, dated 25th January 2008 ("the Ofcom January letter"), Ofcom notes that "the scenarios modelled are stylised representations of possible outcomes which might be made more or less likely by quick action to move to T2 and MPEG-4. They are not meant to be predictions on what can or should happen". In NGW's opinion, this does not provide sufficient certainty that the magnitude and timing of the benefits from Ofcom intervention will materialise in practice, and therefore that the intervention is appropriate.

Ofcom has not sufficiently justified that the joint introduction of DVB-T2 and MPEG-4 will be “fast”. NGW notes that Ofcom has undertaken sensitivities for two different demand scenarios, but it believes that the following issues still remain with Ofcom’s demand assumptions:

- Scenario 3 is based upon the premise that HD versions of popular content may be a particularly effective way of persuading consumers to upgrade equipment (paragraph 9.9.3) and that consumers place a high value on HD. Ofcom’s own research shows that consumers rank HDTV lower than extra SD channels¹¹. Therefore, it is unclear how Ofcom envisages that the limited increase in picture quality for most types of popular content, i.e. soap operas, that are simultaneously broadcast in HD / SD will equate to a sufficiently high willingness to pay to encourage switching behaviour. Specifically, there is insufficient evidence to support Ofcom’s key assumptions that:
 - The average consumer benefit from watching HD channels is 15%-25% of their willingness to pay for the channel in SD; or
 - The benefits of HD channels will be sufficient to encourage consumers to purchase DVB-T2 receivers.
- In Ofcom’s January letter, Ofcom explains that the date when a multiplex converts depends on consumer behaviour and demand for HD, but it is unclear which precise assumptions Ofcom uses in relation to those drivers. NGW encourages Ofcom to clarify which type of content it believes is likely to be shown on HD channels and the consumer switching behaviour that would be created. Outside of a few types of programming, e.g. sport and nature, it is unclear that HD content would create the “big bang” necessary to support the introduction of DVB-T2; and
- We encourage Ofcom to investigate the incentives of channel providers and non-PSB multiplex operators to shift to DVB-T2, and suggest that this warrants further dialogue.

Furthermore, Ofcom’s modelling of scenario 3 does not appear to consider the risks associated with DVB-T2, which include:

- DVB-T2 is not currently a finalised standard;
- DVB-T2 consumer equipment is not currently available whereas MPEG-4 DVB-T equipment is already available in the market;
- The modelling is based upon DVB-T2 being introduced at the time of DSO, e.g. from 2009 for the Granada region. This would put the introduction in the UK significantly ahead of that in other European countries. There is a risk that the launch will not be achieved in 2009 since standards are still in development and equipment can not therefore be tested and, unlike MPEG-4, the standard is not yet commercially available. As noted previously, DVB-T product was not available in volume in the market until three years after the standard was ratified;
- The consumer and producer benefits identified are largely driven by availability and costs of equipment used with HD technology. Moreover, the decisions of equipment manufacturers depend on the scalability of production and standards adopted globally; and

¹¹ DDR Market Research 2007 28 November 2007

- The modelling assumes that the broadcasters will push for slots on a converted commercial MPEG-4 DVB-T2 multiplex if they believe that there will be additional revenue to be generated from offering new services on this multiplex compared to them offering services using the old technology (where the additional revenue is derived from the gain in viewership). On this basis it seems that any additional capacity that may be generated will need to be monetised through alternative means. To this end it is unclear how a PSB multiplex may be allowed to facilitate this other than through the delivery of Pay TV content.

Ofcom should also consider other technical solutions for providing HD channels. This could be analysed as a sensitivity to our proposed counterfactual scenario, whereby Multiplex B introduces MPEG-4 DVB-T, 64 QAM and other technical modifications gradually, or completely from 2008.

Ofcom’s modelling assumptions

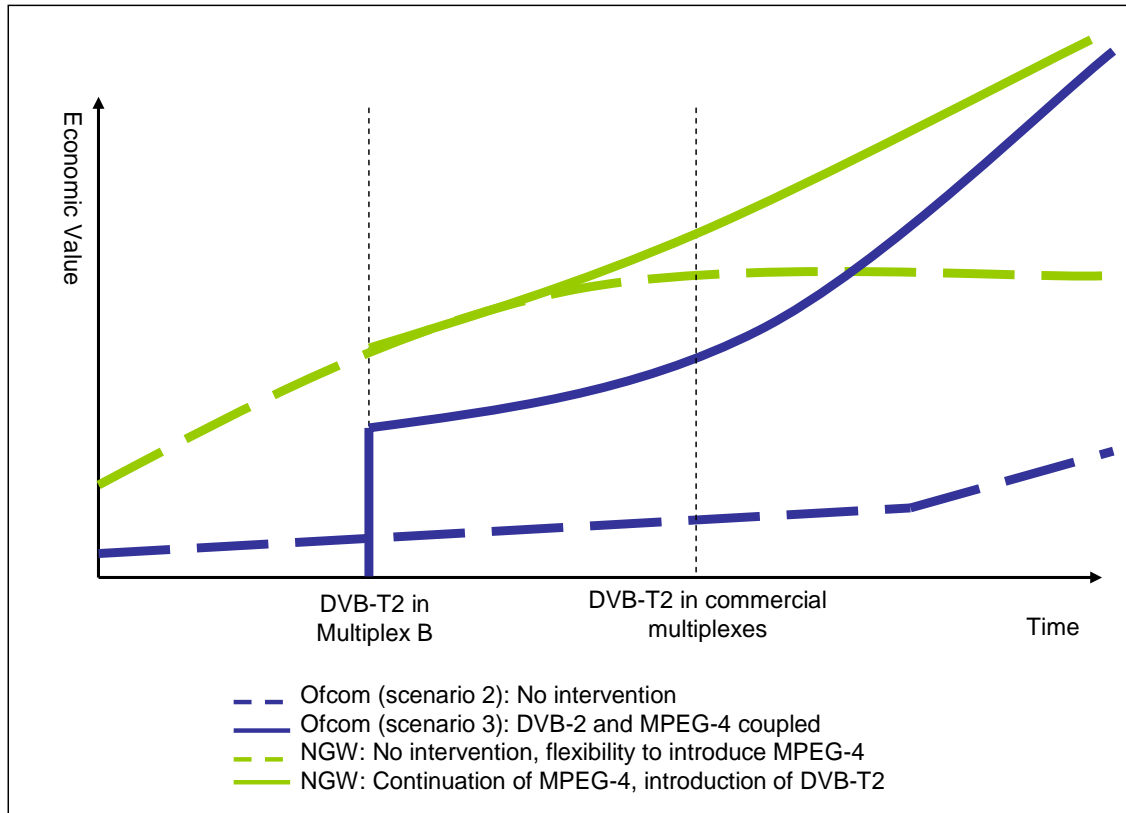
Ofcom’s modelling is based upon a number of assumptions. In many cases, these have not been sufficiently defined for us to provide comment and have been inadequately supported by evidence. Specific examples are:

- There do not appear to be specific assumptions on the type of HD content that would be broadcast, and little evidence to substantiate Ofcom’s consumer valuations for HD and the switching impact;
- Figures relating to the producer and consumer costs of MPEG-4 and DVB-T2 are not provided. We understand that the costs of DVB-T2 are likely to be higher than for MPEG-4. It is not clear how Ofcom has modelled the costs of receiver equipment and how they change depending on the technology adopted;
- The benefit of MPEG-4 DVB-T in 2008 versus MPEG-4 DVB-T2 in the future is a function of the discount rate. However the rates used to calculate consumer and producer surplus are not reported;
- The risks associated with a planned launch of DVB-T2 in 2009 are very high and the launch could be potentially delayed until 2012;
- In Ofcom’s January letter, a chart is provided with the dates at which multiplexes convert against set-top box penetration. NGW notes that Ofcom’s estimates of the net benefits under different scenarios rest on the assumption that some commercial multiplexes¹² convert to MPEG-4 DVB-T2 upon the population of DVB-T2 STBs reaching 60% penetration (with the remaining commercial multiplexes moving afterwards). NGW deems it unlikely that a commercial multiplex would switch at that level of penetration, as a significant proportion of viewers would not be reached upon the switch, with the consequent impact on commercial advertising revenues; and
- Ofcom should engage in discussions with commercial multiplex licence operators / broadcasters to understand incentives and the extent to which DVB-T2 and MPEG-4 would be introduced. Without such an understanding, we deem it would be difficult for Ofcom to accurately model consumer benefits or producer surplus.

¹² We assume that the data points relate to Multiplex B and the three commercial multiplexes, as Ofcom’s consultation assumes that the other two PSB multiplexes continue to operate with DVB-T and MPEG-2 for the entire period modelled (Appendix 9, paragraph A9.8).

Following this analysis, NGW suggests that the counterfactuals highlighted in this section that allow for the immediate use of MPEG-4 by commercial multiplex licence operators may have the highest NPV, see Figure 12 below.

Figure 12: Illustrative comparison of the economic value of Ofcom and NGW scenarios



*Figure assumes that there is demand for DVB-T2. Should this not occur then the economic value will move towards the no intervention scenarios

NGW requests that Ofcom amends its analysis to consider the two counterfactuals proposed and adjustments to scenario 3. Ofcom should also make its modelling available to interested parties so that assumptions and scenarios can be analysed and adjusted to be reflective of the true operating environment.

A.4. Ofcom has not considered a full range of alternative options, and has therefore not shown that its proposed solution creates the greatest economic benefit

NGW supports Ofcom position of promoting the efficient use of spectrum whilst encouraging the development of the DTT platform. However any potential intervention by Ofcom in this market needs to be based on strong evidence that, in the absence of regulation, the market would fail to provide the outcomes that consumers value most within a reasonable time period. Should Ofcom decide that intervention is required, it is important that various options are assessed and the path that is chosen creates the greatest possible economic benefit.

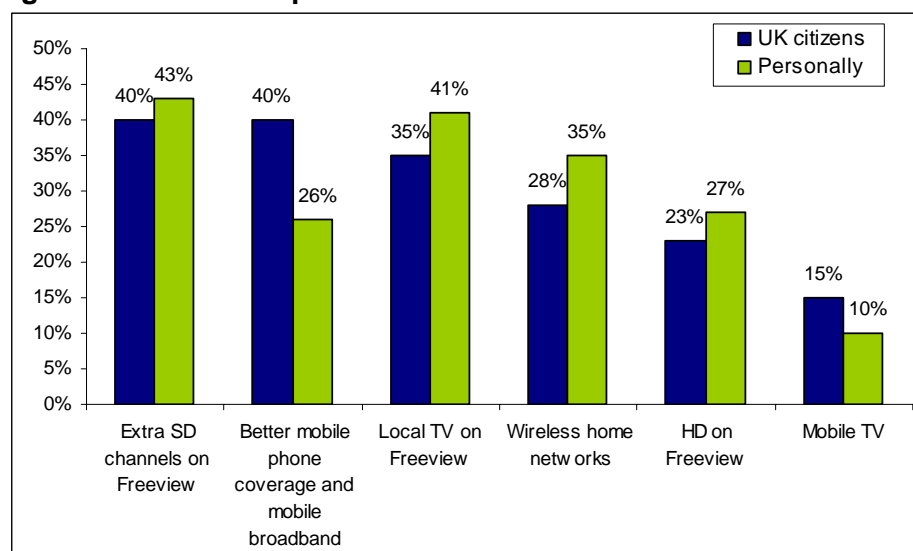
It is not sufficient for the proposed intervention to be likely to provide some positive economic benefits. Given the potential risk of regulatory failure, NGW believes that Ofcom should demonstrate that the proposed intervention would produce significant greater economic benefits than those that would be achieved under the range of market-led alternatives or other intervention based proposals. This is supported by

Ofcom’s regulatory principles, which state that “ Ofcom will intervene where there is a specific statutory duty to work towards a public policy goal which markets alone cannot achieve,with a bias against intervention....and always seek the least intrusive regulatory mechanisms”¹³.

It is not sufficiently proven that provision of HD by the PSBs will create positive economic benefits

NGW believes that Ofcom has not sufficiently substantiated that there is a market failure requiring intervention with respect to the provision of HD on the DTT platform. In addition, Ofcom has not put forward compelling evidence that the provision of HD by the PSBs would provide significantly higher economic benefits than alternative market-led options. NGW notes the results of Ofcom’s own consumer research in the context of the Digital Dividend Review (DDR) which indicated that HD is not necessarily preferred over potential alternative uses of the spectrum such as additional SD channels¹⁴ see Figure 13.

Figure 13: Ranked importance of services



Source: IPSOS MORI survey for Ofcom, Ofcom’s Digital Dividend Review, 2007

Ofcom points to the rapid take-up of HD services on Sky and Virgin Media. However, less than 4.4% of Sky Subscriptions were HD in Q3 2007¹⁵ despite around 16.3% of Sky subscribers having HD ready TVs¹⁶, see Figure 14 below. Therefore, it does not necessarily follow that take-up of HD on pay TV services is representative of likely HD demand on a PSB free-to-air context and hence the potential push for DVB-T2 through HD on DTT¹⁷. In addition, Ofcom should consider that commercial broadcasters such as Sky, National Geographic, Discovery, etc. are likely to produce and have access to a greater quantity of HD programming than the PSBs.

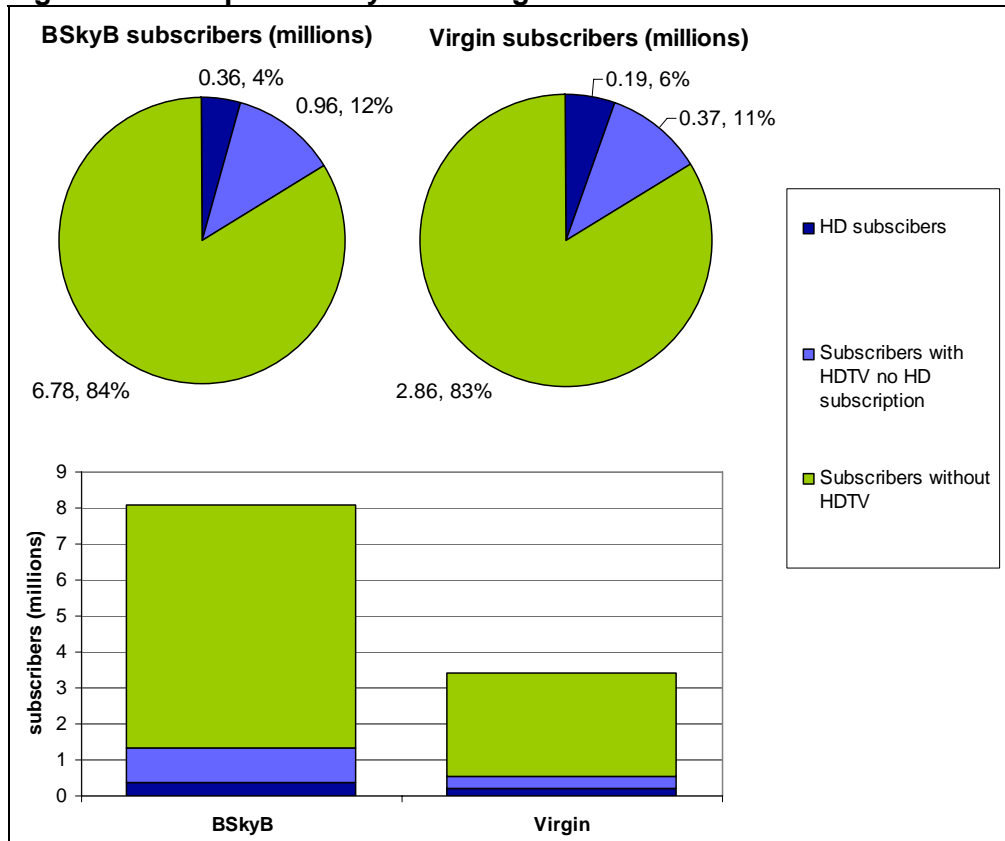
¹³ Ofcom’s Statutory Duties and Regulatory principles, www.ofcom.org.uk

¹⁴ Source: Ofcom, 2007, ‘Digital Dividend Review Quantitative research findings 2007’

¹⁵ Source: Ofcom, December 2007, ‘The Communications Market: Digital Progress Report’.

¹⁶ Calculated using HDTV forecasts from Indepen, household data from Office of National Statistics and assuming one set per household.

¹⁷ HD services on Virgin Media and Sky require additional subscription charges. However, PSB HD services require the purchase of DVB-T2 compatible receiver equipment.

Figure 14: HD uptake BSkyB and Virgin Media

Source: *Subscribers to HD services for Sky and Virgin are taken from Ofcom, December 2007, 'The Communications Market: Digital Progress Report'. The proportion of subscribers HD ready but not subscribing is based on multiplying the total Sky/Virgin subscribers from Ofcom 2007 by the percentage of households HD ready and subtracting those subscribing to HD services. The percentage HD ready is calculated using HDTV forecasts from Indepen, household data from Office of National Statistics and assuming one set per household.*

Ofcom also points to widespread availability of HD in other countries. However, availability of HD in other countries does not necessarily translate into take-up. Take-up is a function of many factors including picture quality and content and these should all be assessed when considering the “big bang” of HD. For example, the USA has seen a fairly high take-up of HD and this is one market which Ofcom looks towards. However, HD digital provided a far higher image quality differential over the existing SD analogue platforms, as opposed to the UK where the shift to HD digital from SD digital would represent a far lower quality differential. Therefore demand for simulcast programming on HD DTT rather than SD DTT may not be sufficient for the UK to replicate the rapid take-up of HD services in the US.

Ofcom itself recognises in paragraphs 7.61 to 7.64 of the consultation document that there is insufficient evidence for Ofcom to mandate that the released capacity is used for HD rather than SD services. This appears to undermine Ofcom’s proposition that the introduction of MPEG-4 plus DVB-T2 on Multiplex B would kick-start a virtuous circle that would create a critical mass of consumers with MPEG-4 DVB-T2 set-top boxes, as Ofcom is not sufficiently certain that the PSB services that may be offered over the released capacity will be of sufficient value to consumers to encourage the upgrade.

Intervention should not prevent an early launch of MPEG-4 DVB-T

NGW is not convinced that there is a market failure which requires intervention, or that any intervention undertaken by Ofcom should prevent the launch of MPEG-4 DVB-T

services now. NGW do not believe that such an intervention would provide significantly higher economic benefits than a scenario where MPEG-4 DVB-T is introduced immediately.

NGW believes that it is possible to achieve equivalent efficiency gains to those in Ofcom’s intervention scenario based on the combination of MPEG-4 DVB-T and alternative technical solutions. To this end it will be possible for consumers to easily upgrade their equipment, i.e. IDTVs to allow them to decode HD or additional SD services, this will not be the case for DVB-T2.

There is a growing base of MPEG-4 STBs and PVRs becoming established by the likes of BT, Netgem, Humax and Topfield. MPEG-4 is also becoming the default European standard. Legislation in France for example dictates that all new IDTVs must be MPEG-4 compatible by the end of 2008. Additionally, we understand that PCs and IDTVs, which are the fastest growing form of TV set sold in the UK, can be upgraded to MPEG-4 through a software/hardware update. As a result, a growing base of consumers could immediately benefit from new services to be provided using MPEG-4, such as Pay TV services.

Therefore, NGW believes that Ofcom’s economic analysis has not considered all possible scenarios. NGW believes that greater economic benefits are likely to be derived if MPEG-4 DVB-T is allowed to be introduced now, initially for Pay TV, than if it is delayed until the DVB-T2 standard is available. In its estimates of economic benefits from intervention, Ofcom fails to model a scenario where MPEG-4 DVB-T is introduced immediately with a fast take-up, and therefore it fails to take into account the consumer benefits from a prompt introduction of MPEG-4 DVB-T.

NGW believes that there is value to consumers from being able to access Pay TV services on DTT immediately. This has been recognised by Ofcom who have stated in their preliminary views over the proposed NGW / BSkyB DTT Pay TV services:

“The proposal would have an immediate, positive effect on choice and availability of retail pay TV services on the DTT platform. Consumers would be presented with an increase in choice of sports, movies, factual, children’s and general entertainment programming. The increased choice brings with it the potential for more competition on the DTT platform in terms of quality of service, and technical innovation, as well as ensuring that there is competitive pressure on pricing, all of which is likely to be to the benefit of consumers at least in the short term”¹⁸

Provided that adequate consumer information is provided to Pay TV customers (e.g. explaining that existing Pay TV boxes may not allow them to decode HD content that may be provided by the PSBs in the future), those consumers that choose to take the Pay TV service now (and corresponding STB) can be expected to value the Pay TV service above the PSB HD services, or to be prepared to swap boxes when HD PSB services become available (if at all). We believe that preventing these consumers from accessing Pay TV content now would create consumer detriment.

While Ofcom’s proposals contain specific timelines for the upgrade of Multiplex B, Ofcom does not present a clear road-map for the conversion of the remainder of the platform and therefore it is uncertain when Ofcom’s proposals will deliver full efficiency gains. It is unlikely that NGW and other commercial multiplexes would switch to MPEG-

¹⁸ Ofcom, December 2007, ‘Proposed BSkyB digital terrestrial television services’.

4 DVB-T2 until there were sufficient receivers in the market. If Ofcom prevents the introduction of MPEG-4 DVB-T immediately, this has the potential to significantly delay the efficiency upgrade of the platform beyond Multiplex B and the corresponding consumer benefits.

NGW believes that the introduction of MPEG-4 DVB-T immediately would kick-start the realisation of efficiency gains for the platform, ensuring consumers begin to benefit from efficiency gains through new services becoming available early.

Intervention is discriminatory against commercial providers

NGW believes that Ofcom’s proposed intervention is discriminatory against commercial channel providers. In particular, forcing MPEG-4 to be introduced simultaneously with DVB-T2 prevents commercial multiplex licence operators from introducing valued consumer propositions now (such as Pay TV services) to the benefit of the PSBs’ HD proposition.

The granting of the released capacity to PSBs is also unduly discriminatory against commercial channel providers, and it is not substantiated by sufficient evidence of consumer preferences. NGW notes Ofcom’s view that the released capacity should be granted to PSB as Multiplex B is a PSB multiplex. While this may be true if the capacity was to be used for core PSB channels, Ofcom has not proven that the digital family of PSB channels, such as HD services, are a public service that would further the purposes of PSB.

NGW believes that Ofcom should consider whether commercial channel providers could meet any potential HD demand, as they are likely to have substantial volumes of attractive content that suits HD broadcast. NGW notes that the granting of cleared capacity to particular users (PSBs in this case) through regulatory intervention is contrary to the approach taken by Ofcom in relation to the Digital Dividend Spectrum¹⁹, where Ofcom takes the view that it is best to leave it to the market to decide how the released spectrum should be used, creating flexibility for users and reflecting the preferences of citizens and consumers.

¹⁹ *Digital Dividend Review: A statement on our approach to awarding the digital dividend*, Ofcom 13 December 2007

Section B: Response to specific questions

In this section, we provide responses to Ofcom’s questions. However, we refer Ofcom to our views expressed in section A of our response for our over-arching views.

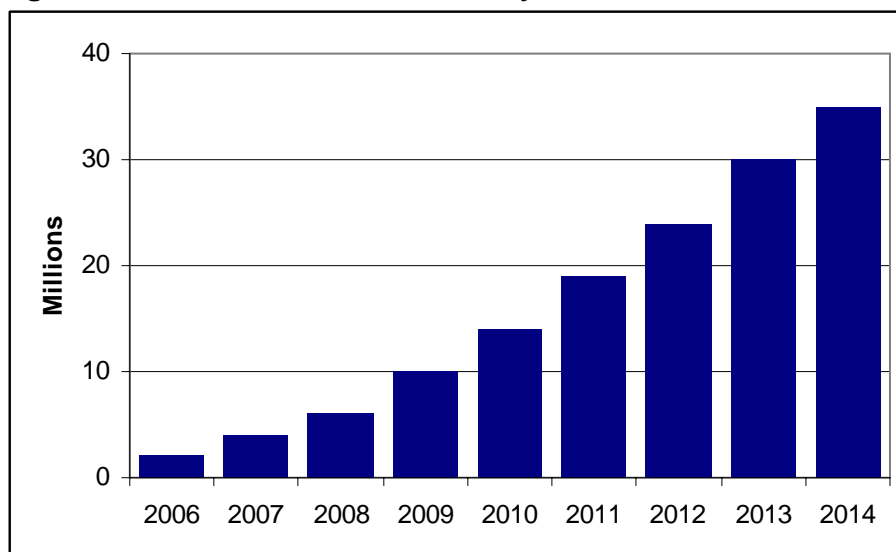
Question 1: Which services are most likely to drive take-up of DTT consumer reception equipment using new technologies? In particular, are HD services the most likely to do so?

Experience to date suggests that take-up of DTT consumer reception equipment has been driven by increased choice available via new SD channels and it is likely to continue to be the case moving forward.

Additional options to drive take-up of equipment using new technology may include Pay TV services and/or High Definition TV services:

- For HDTV services specifically, HD take-up may be dependent on the penetration of HD sets as well as number of channels. The fact that HD take-up has been so successful in the US may be at least partially attributed to the US having the world’s highest HDTV penetration (24.1%) and the largest number of HD channels (58). Forecasts suggest that penetration of HD-ready sets in the UK will increase substantially over the next few years, which may provide some push for consumer take-up of new equipment;

Figure 15: Forecast installed HD-ready sets



Source: *Indepen, 2007, Reserving spectrum for HD-TV on Freeview*

- Pay TV on DTT will require the purchase of new STBs and these STBs are expected to be MPEG-4 compatible. For example, Sagem recently announced it is the preferred supplier of Sky Picnic boxes and these will contain MPEG-4 as standard²⁰; and
- As Enders analysis notes²¹, key drivers of pay DTT growth lie with homes that are unable to access Sky satellite services and that welcome the opportunity for less

²⁰ Source: Sagem press release, October 8th, 2007.

²¹ UK DTV Home Platform Forecasts: 2003-2017, Enders Analysis, December 2007

bundled Pay TV offerings with shorter contract periods and lower prices. The Sky Picnic proposition could facilitate these homes.

However, it is unclear that HD in a FTA context will constitute a significantly attractive migration of the consumer base to DVB-T2 for the proposed intervention to deliver the benefits that Ofcom suggests:

- We believe the majority of HD content is held and produced by commercial broadcasters, not the PSBs. Between 2005-2006, less than 5% of BBC TV output was produced in HDTV. To this end we understand, as stated in the consultation, that the PSBs are likely to multi-cast existing programming in HD. However the difference in quality for most types of programming is unlikely to be sufficient to persuade consumers to purchase new equipment. Despite having a high penetration of HDTV boxes and compelling HD content, we estimate only 27% of Sky and 34% of Virgin subscribers with HDTVs opt to receive HD channels. PSB content may therefore not be sufficient to drive new receiver sales. To the extent that HD could ever drive consumers to purchase new equipment, we believe that this is likely to come from premium commercial HD rather than PSB HD; and
- We also note that Ofcom points towards international benchmarks to support the premise of high HD take-up. The USA has seen a fairly high take-up of HD and this is one market which Ofcom looks towards. However, HD digital provided a far higher image quality differential over the existing SD *analogue* platforms, as opposed to the UK where the shift to HD digital from SD digital would represent a far lower quality differential. Furthermore, the demand for simulcast programming on HD DTT rather than SD DTT may not be sufficient for the UK to replicate the rapid take-up of HD services in the US.

Moreover, we believe that the introduction of more SD and/or HD by commercial operators can be readily facilitated now by the adoption of MPEG-4 in association with the DVB-T standard and other technical solutions. This is already technically possible and is being implemented in other European countries including France. This technical solution would not require new receiver equipment to be purchased *specifically* for the change in technical standards and so would not need to have a “must have” service to drive take-up. This is a function of the natural market evolution:

- MPEG-4 compatible STBs are already installed in some homes. BT Vision, Netgem and TUTV boxes are amongst those STBs that have MPEG-4 hardware which could be enabled with a software download;
- MPEG-4 compatible receiver penetration will increase further as it becomes the norm for STBs to be MPEG-4 compatible (as it is an existing European standard), either through the purchase of new STBs during the DSO period or through replacement of existing STBs. Also, new pay DTT STBs are expected to be MPEG-4 compatible;
- IDTVs with a screen diagonal dimension greater than 30cm (12”) are required to have a CIM interface. This will allow consumers to purchase a software/hardware upgrade that, we understand, would MPEG-4 enable these IDTVs. This only works for MPEG-4 and not for DVB-T2 as the CIM only has the ability to decode signals that have already been demodulated, be it MPEG-2 or MPEG-4. DVB-T2 would also require a change to the demodulator (hardware). As illustrated in Figure 15, annual sales of HD-ready IDTV sets are increasing rapidly, so the MPEG-4 compatibility of HDTVs is a particularly important feature; and

- PCs can be MPEG-4 enabled using a software upgrade.

The number of MPEG-4 compatible receivers will increase by default without intervention from Ofcom. Initially MPEG-4 may be used solely for Pay TV, but as the number of MPEG-4 compatible receivers grows then free-to-air channels may also switch to MPEG-4, allowing for new channels to be launched. Combining MPEG-4 with other technical solutions will further increase the capacity for new channels. This will further drive up MPEG-4 compatible equipment and software upgrades, creating the push for other multiplexes to introduce MPEG-4, creating a virtuous circle across the platform. The efficiency upgrade of the DTT platform can therefore be achieved by introducing MPEG-4 immediately, initially for Pay TV and then expanded to all content types. As we demonstrate in section A, this can be achieved without requiring the majority of consumers to purchase new hardware and without closing off the option to launch DVB-T2 on Multiplex B using HD as the incentive to drive additional receiver purchase.

Question 2: Do you agree with Ofcom’s assessment that it would be beneficial for the DTT platform to begin to upgrade to new technologies – DVB-T2 and MPEG-4 – to make more efficient use of spectrum and to allow for the introduction of new services?

NGW are committed to the continuous development and improvement of the performance of the DTT platform to ensure its long term viability and to extend the range of choice available to the end consumer.

To this end we have been actively working with the industry and also the regulator to explore the potential for operational and technical improvements to this platform. NGW have undertaken multiplex trials and have proven the satisfactory performance of mixed MPEG-2 MPEG-4 operation within a DVB-T environment, which would be a viable option as a pre-cursor to full mode change for individual multiplexes. This affords the multiplex operators the opportunity to react to demand from channel providers without a major change in technology. At the same time, the introduction of MPEG-4 now would not prevent or delay the potential introduction of MPEG-4 with DVB-T2 on other multiplexes, as in the short-term we anticipate that MPEG-4 would be used for Pay TV services, for which the customer base is projected to be only a small proportion of total DTT users.

MPEG-4 with DVB-T, as opposed to DVB-T2, permits mixed mode operation (MPEG-2:MPEG-4 DVB-T) and as such does not require the ‘big bang’ approach envisaged with full multiplex conversion. Therefore we believe the market is likely to adopt MPEG-4 far more quickly than DVB-T2 which is currently not commercially available in the supply chain, requires new receiver equipment to be purchased and would require a “big bang” approach for multiplex conversion.

We perceive that the potential value creation from DVB-T2 is less certain, and therefore its potential benefits should not be prioritised at the expense of the more certain benefits that MPEG-4 can create in the short-term.

Furthermore, it is not clear that DVB-T2 is necessary for the introduction of new HD and SD services. There are other technical modifications that could also create sufficient additional capacity for three or four HD channels in line with, or in advance of, the timetable proposed by Ofcom. This would allow for the delivery of HD channels on Multiplex B, subject to consumer demand, whilst also permitting NGW and other multiplexes to deploy MPEG-4 in advance of Ofcom’s proposed timetable.

For the reasons noted in our response to questions 1 and 2, Ofcom should consider a scenario where there is fast take-up of MPEG-4. This should become the base case against which Ofcom’s “regulated” options are assessed.

Question 3: Ofcom is particularly interested in hearing from multiplex operators and programme providers as to whether they are interested in using DVB-T2 and /or MPEG-4, and whether Ofcom should consider permitting their use on DTT?

We see real value and benefit in the early adoption of MPEG-4 with DVB-T to support the platform and its long term commercial sustainability. This will increase the efficient use of spectrum, by creating additional capacity for SD and HD channels.

MPEG-4 could facilitate pay, standard definition and high definition services now and NGW currently has demand from broadcasters to offer pay services via MPEG-4 on the DTT platform. If NGW is blocked from making such a move, Ofcom will be potentially hindering a technological evolution invoked via market forces and demand.

We perceive less total value creation from the introduction of DVB-T2, and negative short-term value when it is coupled with MPEG-4:

- DVB-T2 is not commercially available and it is not certain that it will be launched in 2009, as stated by Ofcom;
- DVB-T2 requires the entire multiplex to be transferred and therefore requires a greater STB conversion to provide sufficient incentives for this to occur or risk disenfranchising the installed base of MPEG-2; and
- Coupling DVB-T2 with MPEG-4 will delay the introduction of MPEG-4.

In section A, we illustrate that Ofcom does not need to mandate the use but grant flexibility for the use of MPEG-4, since NGW believes that the industry will migrate towards this standard in the absence of regulation. The introduction of MPEG-4 requires limited costs to be incurred, whilst increasing the number of channels available to broadcasters and ensuring the diversity of choice available to the end consumer.

We also show that the coupling of MPEG-4 with DVB-T2 is likely to significantly slow the introduction of this new technology and new channels, as the commercial multiplexes will only shift to DVB-T2 once the majority of consumers have upgraded their STBs. Furthermore, NGW believes that HD PSB is unlikely to prompt enough consumers to buy new STBs beyond their typical replacement cycle, such that the upgrade of commercial multiplexes to DVB-T2 is unlikely to occur for some time in the future.

MPEG-4 is an internationally proven and adopted standard across Europe. The relative cost to manufacture an MPEG-4 box is very close to that of an MPEG-2 box. DVB-T2 standard has not yet been ratified hence zero boxes have been manufactured. At this time there is not a plan for the rest of Europe to convert to DVB-T2, so the benefits of economies of scale in production are uncertain, implying that the price of a DVB-T2 box is likely to remain high.

Question 4: do you agree that the earliest possible availability and adoption of the technologies is in the interests of consumers and citizens?

NGW agrees that the early adoption of technologies is in the interests of the consumer and citizen when a clear benefit is realised. For that reason, NGW believes that Ofcom should not couple the introduction of MPEG-4 and DVB-T2, delaying the benefits of

early MPEG-4 DVB-T adoption. The benefits of DVB-T2 for the commercial multiplexes could be realised later.

As has been noted in our responses above, we perceive real welfare gains to the early adoption of greater technical flexibility on the platform and encourage Ofcom to afford the multiplex licence operators early flexibility in relation to the use of MPEG-4 in conjunction with DVB-T. Furthermore, as a consequence of the upgradeability of existing equipment to MPEG-4 DVB-T we believe that there is likely to be a greater presence of appropriately enabled devices to potentially support a broader adoption of MPEG-4 services than just Pay TV.

In addition, the introduction of MPEG-4 now would not undermine or significantly delay the potential benefits to be realised from DVB-T2 in the future, as MPEG-4 DVB-T now would initially be used for the launch of pay TV services, for which the customer base is likely to be a relatively small proportion of total DTT users, as explained in Section A.

Question 5: do you agree with Ofcom’s view that DVB-T2 MPEG-4 reception equipment could be commercially available in time for DSO in Granada region in late 2009?

NGW operates independently of the consumer equipment manufacturers and as such has little influence on the timing for the commercial launch of DVB-T2 MPEG-4 compatible consumer equipment.

However, new technologies are often subject to delay in their commercial launch due to a range of factors including delays in production of equipment, difficulties in deployment and slow uptake by consumers. This can be seen most clearly in the telecoms sector where 3G launch dates were pushed back due to supply chain constraints and a lack of take-up. Without a “must have feature” and with a lower value of network effects, 3G take-up remains below initial predictions²². MPEG-4 DVB-T is a commercially available and tested technology and broadcasters have indicated to us that consumer demand exists such that they would switch to MPEG-4 DVB-T. DVB-T2, on the other hand, could be subject to delays in the supply of equipment and there is unproven demand to stimulate content providers / multiplex licensed operators to use it.

Question 6: do you agree that some form of intervention is required in order for the DTT platform to commence an upgrade to new technologies without delay?

NGW does not think that the level of intervention proposed here is necessary to foster an upgrade to new technologies. NGW believes that alternative technology options driven by the market can potentially offer equivalent efficiency gains as the simultaneous introduction of MPEG-4 with DVB-T2. Therefore, NGW does not think that the regulatory intervention proposed to increase the platform’s efficiency is needed but flexibility to adopt new standards is welcome.

NGW believes that the launch of new channels in MPEG-4 mode will encourage the early adoption of new equipment and ultimately deliver a platform upgrade path that will support HD services at an appropriate point in the future. As we noted in our response to question 3 and in the scenarios we present in section A.3., we believe that MPEG-4 STB will naturally quickly reach a penetration level such that there will potentially be a voluntary switchover of FTA channels to MPEG-4.

²² The UK currently has 30% 3G take-up, France and Germany have 20%.

Even if Ofcom forces MPEG-4 and DVB-T2 to be introduced simultaneously on Multiplex B in 2009, NGW believes that it would be unjustified for Ofcom to prevent the introduction of MPEG-4 now for NGW's multiplexes. This follows as MPEG-4 DVB-T for commercial multiplexes would not disrupt the realisation of the additional benefits that the upgrade of Multiplex B may bring about, due to the initial focus of the proposed MPEG-4 DVB-T upgrade on Pay TV services. For example, Ofcom could permit the use of MPEG-4 DVB-T for Pay TV only during the period before 2009 after which Ofcom believes DVB-T2 could be introduced in Multiplex B. This would limit take-up of MPEG-4 and hence disrupt the virtuous circle discussed in our proposed counterfactual, but could reduce consumer confusion and the quantity of replacement equipment should Ofcom decide to mandate DVB-T2 for Multiplex B. This was illustrated previously in Figure 2.

Question 7: Do you have any proposals for launching MPEG-4 service on a DTT multiplex using DVB-T in advance of the proposed 2009 timetable and if so can you provide details of how such a service would not undermine the proposed MPEG-4 DVB-T2 launch in 2009?

NGW is aware of various key players that would like to or have recently launched Pay TV services on DTT. Sky would like to launch “Picnic” Pay TV on a DTT multiplex. Sky has publicly stated that it would prefer this to be on MPEG-4 DVB-T as it would allow capacity for four Pay TV channels, rather than the three that is possible on MPEG-2 DVB-T²³.

It is Ofcom's regulation in this area, rather than a lack of demand or receiver equipment, that prevents NGW from using this equipment to make more efficient use of spectrum and hence offer a greater number of channels from each multiplex.

NGW's initial proposal is to use MPEG-4 for Pay TV services rather than free-to-air. Therefore consumers will need to purchase a new STB to receive Pay TV, ensuring that Freeview DTT viewers remain unaffected. However, because MPEG-4 DVB-T services will be available to Pay TV consumers, greater choice in programming will be available sooner. Pay TV consumers typically expect to procure separate equipment to receive these services, e.g. cable or satellite equipment. Furthermore, these Pay TV consumers also typically have a faster equipment replacement cycle for STBs than Freeview consumers, ensuring Ofcom's concerns regarding time taken in implementation of DVB-T2 are potentially mitigated for this group.

Further to this, as mentioned in section A, MPEG-4 DVB-T is becoming the default European standard and new UK STBs will increasingly come with MPEG-4 as standard since STBs are designed and sold on a European-wide basis. We understand that BT Vision and Netgem boxes are MPEG-4 compatible and that certain manufacturers, including Humax and Topfield, are producing PVRs that are capable of being upgraded. We understand that IDTVs and PCs can also be converted to MPEG-4 DVB-T. Owners of MPEG-4 compatible receivers have an underutilised technology available to them, restricting the potential breadth and quality of viewing.

Question 8: do you agree with Ofcom's approach for adding SD and HD versions of MPEG-4 and DVB-T2 profiles to the list of permitted standards for DTT in the spring, and that Ofcom's consent must be sought prior to adoption of these standards?

²³ Ofcom, December 2007, 'Proposed BSkyB digital terrestrial television services'.

NGW welcomes Ofcom’s intent to support the future operational technical capability of the platform but in light of its desire to be a light touch regulator we would also welcome a less prescriptive intervention with Ofcom affording the multiplex operators the choice to use MPEG-4 with DVB-T and/or DVB-T2 to allow the industry to decide the most appropriate arrangement in the future.

Furthermore, it is not clear why further consent would be required prior to adoption of these standards, e.g. MPEG-4 with DVB-T and / or DVB-T2, if Ofcom has considered that the changes are appropriate following the conclusion of this consultation.

Question 9: do you agree with Ofcom’s proposal that Multiplex B should be cleared and upgraded to new technologies?

As per our response to question 6 above, we are not convinced of the need for the degree of intervention as outlined in Ofcom’s proposals. We believe that market-driven solutions aligned to the increased flexibility proposed could release equivalent capacity gains as under Ofcom’s proposed technology solution that couples MPEG-4 with DVB-T2.

NGW has no comment on the clearance of Multiplex B. However, NGW firmly believes that the issue of the clearance of Multiplex B should not be tied to regulations concerning the use of MPEG-4 or DVB-T2 on other multiplexes, as this would deny benefits to consumers that can be achieved immediately through MPEG-4, and is not necessary for the clearance and upgrade of Multiplex B (should Ofcom decide to proceed with that intervention).

Question 10: do you agree with Ofcom’s proposal that all multiplexes should be required to upgrade to 64QAM at DSO in order to make the most efficient use of spectrum (i.e. that the mode change should not merely be optional)?

NGW’s view is that the mode change will have a positive net economic benefit since it creates very few, if any, costs whilst promoting more efficient use of spectrum. Furthermore, this approach directly offers additional channels to the existing equipment base. Therefore, NGW supports this proposal.

Question 11: do you agree with our proposals for accommodating Five, S4C, TG4 and GDS on Multiplex 2?

As per our responses to questions 6 and 9, we have no comment on the need for the clearance of Multiplex B as outlined in Ofcom’s proposal.

However, we do not disagree with the accommodation of Five, S4C, TG4 and GDS on Multiplex 2 provided that this does not lead to the coupling of MPEG-4 and DVB-T2 and a delay in roll-out of MPEG-4 and provides commercial broadcasters with the potential to deliver their HD content to the market.

Question 12: do you agree with our assessment that nine SD services can operate on Multiplex 2? If not, do you have an alternative proposal?

Multiplex A currently broadcasts nine channels on its multiplex. With the exception of Channel 5, all are at reduced resolution. Multiplex B broadcasts eight channels in a 50/50 split multiplex. The majority of these channels are at reduced resolution.

Given Ofcom’s view that Multiplex 2 would have to use ‘state-of-the-art’ MPEG-2 coding equipment, minimising null packet overheads and extending GOP’, it is possible to achieve 8 channels operating current standards in 64QAM.

Furthermore, we believe it is possible to operate 9 channels on Multiplex 2, subject to an equivalent spread of resolution as currently used on Multiplex A aligned to further improvements to multiplex technologies. However, we believe that further improvements in MPEG-2 technology are likely to be small as encoder manufacturers are now focussed on the implementation and development of MPEG-4.

Question 13: do you agree with our proposals for the re-organisation process for the existing multiplex services set out in the central case scenario?

As per our response to question 6 above we are not convinced of the need for the prescriptive intervention as outlined in Ofcom’s proposals and hence do not see the need for the reorganisation process.

Should Ofcom determine that reorganisation is necessary, then:

- A decision of reorganisation should not necessarily lead to regulation on the use of MPEG-4 and DVB-T2;
- MPEG-4 should be able to be introduced immediately, market-led and independently of DVB-T2;
- Should Ofcom wish to free up capacity for HD, then Ofcom should consider the potential demand for PSB HD as well as alternative technologies that can be implemented to provide this capacity. Our analysis indicates there are alternative available technical solutions to make more efficient use of capacity for more SD or HD channels that do not require the use of DVB-T2; and
- Whilst NGW would consider requests for channel slots from broadcasters displaced from the PSB multiplexes, Ofcom should not force capacity to be granted and carriage fees should be set on a commercial basis. Ofcom’s involvement in setting of carriage fees would set a regulatory precedent and a full market review should be undertaken to prove such regulatory intervention is necessary before any remedies are imposed.

Question 14: do you agree with the principles / conditions that Ofcom proposes to use to evaluate counterproposals for the reorganisation process?

As per our response to question 6 above we are not convinced of the need for the prescriptive intervention outlined in Ofcom’s proposals and hence do not see the need for the reorganisation process. Without prejudice to this view, we provide specific comment on Ofcom’s principles (paragraph 6.6) and criteria (paragraph 6.47).

Ofcom has not consistently applied the principles it has set out for the multiplex reorganisation process to the assessment of the introduction of new technical standards. Furthermore, Ofcom fails to recognise the impact that the reorganisation of Multiplex B will have on commercial broadcasters and accordingly places greater weight on the impact to the PSBs. We comment on the applicability and application of each of Ofcom’s principles below.

Fairness / reasonableness / proportionality: Ofcom states it aims to avoid or minimise negative effects on key parties. However, we believe Ofcom fails to consider the negative impact on NGW and commercial broadcasters of delaying the introduction of MPEG-4. The benefits of Ofcom’s proposals are to the PSBs who are afforded additional channels and a delay in introducing MPEG-4 to ensure faster take-up of MPEG-4 / DVB-T2 boxes. This operates to the detriment of commercial multiplex

operators whose current customers are potentially interested in MPEG-4 DVB-T to launch Pay TV services;

Wide availability of new services: Consumers willingness to pay should determine the demand and availability of new services, not Ofcom regulation. Should Ofcom determine to intervene, then consumer preferences for new PSB (HD) channels from 2009 or later should be weighed against consumer preferences for new Pay TV DTT services in 2008; and

Early adoption: Ofcom states that capacity should be made available as soon as possible, but then dismisses the immediate introduction of MPEG-4 which would facilitate in improvement in capacity usage ahead of a MPEG-4 DVB-T2 combined introduction. NGW urges Ofcom to reconsider its proposed approach.

In paragraph 6.67, Ofcom states that a criteria for assessing the proposal is the agreement of all broadcasters affected by the proposal (i.e. the PSBs). However, Ofcom fails to recognise that the interests of commercial broadcasters, who we believe also require consideration. For example, by linking the reorganisation of Multiplex B to the date of introduction of MPEG-4, Ofcom is impacting the improvement in capacity usage available to commercial broadcasters. NGW firmly believes that Ofcom’s principals, and indeed entire approach to this consultation, should be refocused to take into account the impact on commercial broadcasters and multiplex license operators.

Question 15: do you have an alternative proposal for the re-organisation process? If yes, please provide details.

We have no comments on the re-organisation process in isolation. However, we firmly believe that the introduction of MPEG-4 and 64 QAM should not be delayed because of the reorganisation process or its intended outcomes. NGW believes that the introduction of MPEG-4 now would not materially delay the potential benefits from the clearance and upgrade of Multiplex B, and therefore there is no reason why the flexibility to utilise MPEG-4 DVB-T on NGW’s multiplexes in the near term should be prevented.

Question 16: do you agree with the Ofcom’s assessment of the options for allocating the upgraded capacity?

Ofcom’s options do not open up the released capacity to commercial broadcasters that do not have a PSB parent. This discriminates against commercial content providers. NGW notes Ofcom’s view that the released capacity should be allocated to PSB as Multiplex B is a PSB multiplex. While this may be true if the capacity was to be used for core PSB channels, Ofcom has not proven that the digital family of PSB channels, such as HD services, are a public service that would further the purposes of PSB. In addition, NGW is of the view that Ofcom should consider whether commercial channel providers could meet any potential HD demand, as they are likely to have appropriately attractive content that suits HD viewing demand.

Question 17: do you agree with the proposal that HD broadcasting on the DTT platform should use the more efficient progressive format, rather than the interlaced format?

NGW is committed to the efficient use of spectrum on the DTT platform and suggests that Ofcom provide suitable flexibility to the multiplex licence operators such that they are able to make the most appropriate decision on operating parameters for HD on the platform in a timely manner.

Ofcom’s progressive format refers to the assessment of multiplex capacity (bit rate and channel numbers) under assumptions of MPEG-4, DVB-T2, HD/SD.

Ofcom’s table is consistent with industry estimates and that put forward by Ofcom in their presentations to us and to others last year. However Ofcom does not discuss appropriate resolutions and presents a table reflecting the position for full resolution channels. Were a reduced resolution acceptable, the bit rate capacity per channel would reduce accordingly allowing more channels to be broadcast.

Question 18: do you agree with the proposal that Ofcom should not mandate the use of the capacity for any particular service type (SD or HD) but allow the broadcasters to make proposals?

As noted in our earlier responses we encourage Ofcom to afford the multiplex operators and the platform as a whole increased flexibility to offer the most appropriate service at the time to ensure the long term sustainability of the platform.

However, NGW believes that if Ofcom cannot guarantee that the PSBs will utilise the capacity to offer services that will be of sufficient value to consumers to encourage them to upgrade their receiver equipment, then the claimed benefits from the clearance and upgrade of Multiplex B as a push for the realisation of efficiency benefits across the platform may not materialise. In that respect, NGW notes that its proposed alternative to Ofcom intervention (i.e. the introduction of MPEG-4 now together with other technical modifications), is likely to provide greater certainty that efficiency gains in the DTT platform will be achieved. This is particularly the case as Ofcom’s own research shows that there is no compelling evidence that consumers prefer the released capacity to be used for HD services rather than alternative SD services. Therefore there is insufficient evidence that the potential services to be provided by PSBs on Multiplex B will provide sufficient impetus for consumers to upgrade their equipment.

Furthermore, we note the contradictions in Ofcom’s proposal in that whilst Ofcom pursues a service neutral approach to the freed up capacity it does not pursue a technology neutral approach to achieving that capacity release. We encourage Ofcom to be consistent and pursue both a technology and service neutral approach as implied by its regulatory principles (Office of Communications Act 2002), specifically:

- “Ofcom will strive to ensure its interventions will be evidence-based, proportionate, consistent, accountable and transparent in both deliberation and outcome”;
- “Ofcom will always seek the least intrusive regulatory mechanisms to achieve its policy objectives”;
- “Ofcom will research markets constantly and will aim to remain at the forefront of technological understanding”; and
- “Ofcom will consult widely with all relevant stakeholders and assess the impact of regulatory action before imposing regulation upon a market”.

Question 19: do you agree with the proposal that the capacity should be allocated in three UK-wide blocks initially, rising to four blocks at DSO?

The capacity should be allocated in a fair and equitable manner that achieves the highest value to consumers. There should be flexibility over how the capacity is offered; if it is done too prescriptively then value may be lost. We refer Ofcom to our response to question 16 for details of who might also be considered for the allocation of HD capacity.

Question 20: do you agree with the proposed criteria for the comparative selection process?

Without prejudice to our view that Ofcom should not intervene to the extent outlined, we do not disagree per se with Ofcom’s proposed criteria for the comparative selection proposal. However, we note that objectives encompassed within the proposed criteria should be applied consistently throughout Ofcom’s proposals on the future of DTT. In particular:

Efficient use of spectrum: A rapid take-up of MPEG-4 could lead to a more efficient use of spectrum than a slow take up of MPEG-4 DVB-T2 at some date in the future. NGW should be afforded the opportunity to put forward an approach for MPEG-4 DVB-T that makes it possible for an early launch of new services and encourages an increase in MPEG-4 STB penetration.

Contribution to the range and diversity of high quality television: Ofcom should consider the contribution to range and diversity that commercial Pay TV service could bring. Ofcom should also consider consumer valuations of SD Pay TV and balance these against consumer valuations for new HD / SD PSB channels.

Question 21: do you have any comments on Ofcom’s proposals for the upgraded multiplex?

NGW refers Ofcom to our response to question 16.

Question 22: do you agree with Ofcom’s impact assessment?

Ofcom does not provide sufficient details on its modelling approach to be able to fully assess the validity of the assumptions or scenarios. NGW requests that Ofcom shares its model with interested parties so that views can be provided on the appropriateness of the assumptions and so that a range of alternative scenarios can be tested.

We refer Ofcom to section A.3. of our response for our detailed views on alternative scenarios that we believe Ofcom could consider as part of its impact assessment. Until Ofcom has considered these scenarios and ensured its assumptions are robust, then the impact analysis should not be used to support Ofcom’s proposal.

Question 23: do you agree with Ofcom’s assessment of the potential benefits, risks and mitigation strategies relating to the impact of these proposals on the DSO programme?

We do not agree with Ofcom’s conclusion that the benefits of the proposed intervention outweigh the costs for all aspects of Ofcom’s proposal (table 6). Specifically:

- Ofcom has not shown that there is a benefit to regulating technology standards when this is considered independently of the multiplex reorganisation; and
- We propose the use of an alternative counterfactual, intervention scenario and a quantification of the risks.

We refer Ofcom to sections A.3. and A.4. of our response for alternative scenarios and counterfactual that should be considered in the impact assessment and for our views on the necessary level of intervention.

We also refer Ofcom to section A.3. of our response for a list of additional risks that should be considered by Ofcom. These should be quantified and incorporated into the NPV analysis. These principally relate to:

- The uncertainty concerning the timeframe for introducing DVB-T2 and its impact on the launch of MPEG-4 channels should the two technical standards be coupled by Ofcom; and
- The failure of HD to create a sufficiently large impact to persuade consumers to purchase new receiver equipment which will also hinder the take-up of MPEG-4.

Ofcom has set out a risk mitigation plan, although it is unclear how this would be effectively applied. For example, it may be unrealistic to expect global equipment manufacturers to speed up the testing and manufacture of DVB-T2 equipment following a request from Ofcom or for Ofcom to establish an effective international lobby for adoption of DVB-T2. Since Ofcom is not planning to mandate MPEG-4 and DVB-T2 within receiver equipment then its influence may be minimal. There are clearly substantial risks to mandating the use of DVB-T2 by multiplexes, particularly when coupled with MPEG-4, and as such it is imperative that Ofcom clearly articulates and quantifies these risks and develops a structured, implementable, risk mitigation plan.