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European Commission

DG Communication networks, content & technology

Unit B4, Spectrum

Brussels 1049 - Belgium

Only by e-mail: CNECT-B4-EXT@ec.europa.eu

Response to the Public consultation on the future use of the UHF TV broadcasting band: the Lamy Report.

Dear Madam / Sir,

Please find enclosed a response to the public consultation on the future use of the UHF TV broadcasting band: the Lamy Report from Broadcast Networks Europe (BNE)[1].

BNE is currently filing its registration in the Transparency Register which I hope will be processed in time for the publication of consultation responses.

Yours sincerely

Lars Backlund
Secretary General, Broadcast Networks Europe

E-mail: lars.backlund@broadcast-networks.eu

Mobile: +46 708 742123

[1] BNE is a trade organization for Terrestrial Broadcast Network Operators for Radio and TV in Europe based in Brussels. The 16 BNE members are operating in 19 European countries. Members are, Arqiva (UK), Cellnex (formerly Abertis (Spain)), České Radiokomunikace (Czech Republic), Digea (Greece), Digita (Finland), ETV (Serbia), Elettronica Industriale (Italy), Norkring (Norway), OiV (Croatia), ORS (Austria), Swisscom Broadcast (Switzerland), Radiocom (Romania), Rai Way (Italy), 2RN (Ireland), TDF (France) and Teracom (Sweden). In addition Terrestrial Network Operators in Belgium, Denmark and Monaco are represented by their respective parent (and BNE member) company. For further info see www.broadcast-networks.eu

broadcast networks europe

Response to the Public consultation on the future use of the UHF TV broadcasting band: the Lamy Report.

This BNE response is structured as follows:

1. Preamble.

As an industry association, BNE is not in the position to address these questions seeking to gather insights into individual citizens' preferences. Nevertheless, BNE wants to express some considerations to the questions in particular and to the public consultation in general.

The Lamy report analyses a very complex issue involving both regulatory, technology and spectrum related aspects. To understand the balances and compromises between alternatives requirements substantial specialized knowledge and long term experience would be needed. Therefore, It is questionable whether YES and NO questions and simplified checkbox questions put to the general public can be regarded as giving any meaningful results particularly when the questions are designed to 'lead the witness'. In particular it is important to challenge the notion that Wireless Broadband is an alternative to Terrestrial Broadcast delivery of content when on the contrary terrestrial broadcasting remains a robust means of audio-visual content delivery. Furthermore, the two technologies are complimentary and utilised by the consumer on that basis.

In addition, in our view and in order to get relevant responses, BNE suggests consulting the data provided in the annexes of the Lamy report, in particular the data from the Euro Barometer or the European Audiovisual Observatory's Yearbook 2014. It seems reasonable to assume that the statistical relevance and the unbiased methodology of such documents would reflect a realistic consumer perspective, rather than the statistics coming from this current Public Consultation. Other sources of relevant information are the Convergence Study recently carried out by the EC and the report of the CEPT TG6 working group on the Long Term Future of the UHF Band.

Finally, BNE would like to emphasise that there is no benefit to be achieved from an arbitrage between the quality of wireless broadband services and the quality of TV services. BNE notes that the mandate given to the High Level Group and hence the objective of the Lamy Report is to establish a win-win proposal for Europe, not one where the improvement of quality of some services would be traded against the degradation of other services.

2. Response to the survey of the public consultation on the future use of the UHF TV broadcasting band: the Lamy Report

2.1 Respondents' profile

I am responding as the representative of Broadcast Networks Europe

2.2 Confidentiality

BNE contribution is public.

2.3 The citizens' dimension

BNE wants to express its particular concerns about the last 3 questions in this section. In this regard, we are not sure about the capabilities of the citizens in answering such questions from an informed and unbiased point of view. Even assuming the citizens have read the Lamy report, they will not get the answer for the proposed questions in the report.

In addition, BNE does not understand the link in the survey between the availability of mobile services and the need for consumers to purchase new DTT equipment. In fact, the answer "I see the need for network coverage in more locations and higher connection speeds and would be ready to accept a temporary degradation of TV services for a few days/weeks/months" assumes the coverage and speed improvements implies the degradation of DTT services. This kind of assumption is not supported by the Lamy report, on the contrary, this outcome would be against the "*win-win solution*" proposed by Mr. Lamy.

BNE challenges the need for more sub 1 GHz spectrum for Wireless Broadband taking into account recent analysis from a range of sources questioning the veracity of mobile data traffic forecasts and the predicted need for more spectrum. Furthermore, as *Appendix 1. Spectrum demand for Wireless Broadband.* describes, the supposed need for more spectrum could be addressed by several technical solutions other than reallocation of more of the UHF band. In our view, in addition to more realistic forecasts, there are additional aspects to be taken into account when assigning additional spectrum to IMT services. As examples - refarming of the current GSM bands (as the Lamy report recognises in page 4 and in page 27), use of more efficient network topologies, recognition that Wi Fi is expected to carry some 80-90% of data traffic to mobile devices and allocation of underutilised spectrum such as the L band.

It is important to note that most European Countries have already experienced degradation of existing DTT services in connection with clearance of the 800 MHz band. In countries where the 800 MHz band was heavily used by DTT the migration process has been complex for network operators, unpopular with consumers and costly for both. Any clearance of the 700 MHz band will entail the same challenges on a substantially larger scale.

Finally and in summary

- There is no relation between the willingness to buy new TV sets and new mobile services. If consumers decide to change their TV set, it is because they can get better services such as more channels, high definition content, interactivity or other enhanced services with a new TV set.
- In order to provide "better broadband coverage", the solution is investments in better and denser networks, not the inefficient accumulation of spectrum rights by the mobile operators to serve high traffic 'hot spot' locations. Assuming a release of the 700MHz, IMT services will have access to more than 50% of the available UHF spectrum between 450 MHz and 1 GHz.
- In order to provide "higher connection speeds", use of UHF spectrum is suboptimal for small and high capacity cells. Furthermore, WiFi using higher frequencies already carries the bulk of data traffic and is expected to expand further to support traffic growth, network capacity and enhanced services to consumers.

2.4 Potential repurposing of the 694-790 ('700') MHz band

What long-term advantages and disadvantages do you see in using the 700 MHz band for wireless broadband services in the Union?

Whilst BNE acknowledges the growing International momentum behind the future displacement of DTT services from the 700 MHz band, we continue to question the relevance of this frequency band in Europe to support growth in wireless broadband services. In particular, BNE and other Industry Stakeholders continue to urge mobile broadband spectrum forecasts to be recalibrated, based on proper estimation methods and unbiased analysis of traffic density, market sizing and technology improvements such as Wi-Fi offloading, mobile network configuration and compression[2].

Describing the long term advantages / disadvantages we envisage when using the 700 MHz band for wireless broadband services in the Union:

- Long term advantages:
  - More spectrum available for WBB services in the Union, although:
    - The real need is unclear. There is currently no need for additional spectrum harmonisation beyond the 1200 MHz target identified in the last Radio Spectrum Policy Programme (RSPP) in the range of 400 MHz – 6GHz for licensed wireless broadband[3].
    - The WRC-15 agenda 1.1 includes other candidate bands and most of them have greater availability than the UHF band.
    - The spectrum availability is not a goal by itself.
  - However, in the event that it the 700 MHz band is to be cleared of DTT, a coordinated long term process in moving from TV to mobile services in the 700MHz band may have benefits / minimize damages for the various sectors. As the Lamy report recognises, "*the 700 MHz band is not immediately needed for the mobile sector – this represents an opportunity for a* ***win-win solution*** *as it may offer buffer time facilitating a less costly transition*".
- Long term disadvantages:
  - Citizens' impact:
    - Costs of new TV equipment.
    - Cost of reception systems adaptation.
    - If the final result of the spectrum migration process reduces the current TV services, it will clearly have a negative impact on television platform competition, long term investment and innovation. Overall

[2] As described on Appendix 1. Spectrum demand for Wireless Broadband. section, there are other strategies to provide WBB services than the allocation of more and more spectrum.

[3] Article 3, section b) of the Decision No 243/2012/EU of the European Parliament and of the Council of 14 March 2012 establishing a multiannual radio spectrum policy programme

leading to a reduction in media pluralism, freedom of choice and cultural / linguistic diversity that is such a key component of European richness and diversity of the European citizens.

- Creative, cultural and audiovisual industry's' impact:
  - DTT is one of the key pillars for supporting the European creative and cultural sector. The loss of its competitiveness due to the lack of spectrum will impact on the European economy of the creative and cultural sector[4].
  - For many European countries, no terrestrial broadcasting would equate to significantly weakening this general interest objective with the loss of the national media industry and no production of local works and hence jobs.
- Impact on the current spectrum users (mainly, DTT and SAB/SAP):
  - Reduction of available spectrum (around a 30% for DTT additional to the reduction during the 800MHz band process).
  - In the case of SAB/SAP services, the need for other frequency bands to be identified for this service (if they exist).
  - Costs of migration.
- Loss of spectrum efficiency on UHF band:
  - The proposed exclusive use of the 700MHz band (see ECC 53 report) for IMT services is less efficient than the current shared use (DTT, SAP/SAB and others).
  - The feasibility of using the central gap for other uses, remains to be validated.

What merits do you see in a coordinated EU approach for changing the use of the 700 MHz band in the Union from broadcasting to wireless broadband services?

In the event that DTT services are to be displaced from the 700 MHz band it is important to acknowledge the complexity and challenges associated with reorganising the DTT networks across Europe to accommodate services that are constantly evolving, both qualitatively and quantitatively in less spectrum than is currently utilised. Furthermore, to address this complexity, BNE strongly endorses the establishment of a transition roadmap in line with the proposals in the Lamy report and implementation measures limiting the negative impact on consumers and current DTT spectrum users, who should be protected from any future displacement of DTT.

BNE recognises the importance of clear guidance and appropriate funding to be put in place to ensure that Member States can progress a clearance process in a timely manner providing adequate funding for network changes, consumer support, consumer equipment upgrades, interference mitigation, etc.

[4] See Appendix 2. The importance of DTT.

In this regard, a coordinated EU approach may enable a successful process for all involved stakeholders.

Finally, as the Lamy report recognises, the "*EU guidance should be considered to address from the outset any concerns regarding compatibility with state aid rules*".

In your opinion what should a potential EU coordination cover?

The potential EU coordination should cover the main points recognised in the *ANNEX 1: COMPROMISE PROPOSAL BY THE CHAIRMAN ON THE FUTURE USE OF THE UHF BAND (470-790 MHZ)* of the Lamy report:

- Point 1 – political reassurance for the future role of terrestrial broadcasting
- Point 2 – certainty regarding spectrum allocation below 700 MHz
- Point 3 – transition path including (technology) standards availability
- Point 4 – financial implications upon migration and compensation issues
- Point 5 – cross border coordination issues
- Point 6 – the international aspect: coordinated approach to ITU World Radiocommunication Conference (WRC) 2015

With wireless broadband services eventually deployed in the 700 MHz band, as it is clearly set-out in the Funding section in *ANNEX 2: AGREED TRANSITION ROADMAP* of the Lamy report, the following criteria need to be addressed in the EU coordination activity:

- The harmonised technical conditions of the 700MHz band and the rules for cross border coordination shall ensure the protection of broadcasting services in Channel 48 and below;
- All costs associated with the protection of the broadcast service in Channel 48 and below shall not be borne by the terrestrial broadcast industry or the Consumer;
- Whilst it is acknowledged that improvements to receiver specifications are needed to accommodate IMT services in the 700 MHz band. It is also worth noting that all the technical analysis has been undertaken assuming DVB-T2 networks, in the event the DVB-T systems are still in place post 700 MHz clearance, there is a heightened risk of disruption to DTT networks and additional local interference mitigation arrangements may be necessary;
- In addition, the channel plan under development should offer maximum flexibility for member states to utilise the duplex gap, since the terrestrial broadcast service will remain a primary service and could be deployed in the centre gap;
- Any binding legislative measure proposed by an eventual Radio Spectrum Policy Programme (RSPP) must take into account the fragmented nature of license duration / market situation across European Member States as outlined on the FACT SHEET for Diversity from the *ANNEX 3: FACT SHEETS* of the Lamy report.

Should there be a common EU deadline for making the 700 MHz band available for use for wireless broadband services across the EU?

- Yes
- No

Please provide justification of your answer on a common EU deadline including cost assessment.

This question cannot be meaningfully answered by a simple Yes or No.

Any proposed deadline needs to be considered against the added complexity associated with the clearance of the 700 MHz band which will result in the existing terrestrial broadcast services needing to be accommodated within 30% less spectrum than today and will not have the spectrum flexibility afforded to the 800 MHz clearance process.

Furthermore, the transition planning, migration funding arrangements and network upgrades required for the clearance of the 700 MHz band which is intensively used by DTT/PMSE/other, have not been decided but, in our view, *ANNEX 2: AGREED TRANSITION ROADMAP* of the Lamy report represents a good approach. Furthermore, without a clearly defined process for clearance that has been stress tested against a range of scenarios, there is a huge risk to the effective completion of the process in the suggested timescales.

Cross border frequency coordination could generate difficulties between neighbouring countries having different approaches/speeds on the release of the 700 MHz band. As acknowledged by the RSPG these co-ordination constraints on clearance timing may be exacerbated when dealing with third party countries. Hence they may need to be addressed in the common deadline for clearance with the potential option for an extension to the deadline where justified.

For the migration of broadcasting services below the 700 MHz band, it seems reasonable to communicate and negotiate with stakeholders and neighbours with a clear timeframe and framework in order to minimise disruption for the end users.

However, the accommodation of the various timelines for neighbouring countries to implement WBB should not result in interferences to the DTT service.

In addition, during the 800MHz migration process, different derogations in several countries were necessary due to the diversity of service penetration from country to country. Learning from this lesson and taking into account that the 700MHz band process will be more complex than the 800MHz one, an eventual common EU deadline for making the 700 MHz band available for use for wireless broadband services across the EU must take into account the diversity of all Member states and shall define a sufficiently *flexible* roadmap and calendar to avoid problems for some Member states.

Which date would you propose for such a deadline [The Lamy report proposes a deadline of 2020 +/- 2 years]?

BNE is of the opinion that the deadline proposed in the Lamy report for completing the release of the 700 MHz band (i.e. 2020 +/- 2 years) would not allow for both the frequency coordination and the transition process to be completed by all Member States.

At this point, it seems too early to judge which could be the most appropriate deadline for the completion of the 700 MHz clearance process in Europe as the detailed frequency planning / co-ordination process has only recently begun and the goal to achieve the cross-border coordination agreements during 2015 - 2016 – 2017 appears quite optimistic.

In addition, from a market perspective, the proposed date (2020 or 2022) seems too early as it should include time for:

- The Consumer Electronic manufacturers and retail channels to be primed with consumer equipment compatible with new standards (DVB-T2 MPEG4/HEVC for instance) to facilitate the technology transition in Member States where appropriate. It is anticipated that this process of enabling a possible technology transition of consumer equipment will take at least, 3 - 5 years.
- The normal television product renewal cycle is 7-10 years and, to accelerate this, a regulatory / Government intervention will be required.
- The need for a new standard in liaison with ETSI and CENELEC to ensure that the introduction of WBB in the 700 MHz band will be fully taken into account when writing or revising EMC and "radio" harmonized standards for TV receivers and for any other electronic products (such as antenna mast amplifiers) intended for TV installations.
- The consumer will not understand and will not agree on the need to change their TV equipment due to mobile services; the consumer will change their TV equipment if they receive more and better services. Any regulatory decision that compels the citizens to change their TV equipment due to mobile services will cause political tension, directly impact the attractiveness of the DTT platform and ultimately damage platform competition.

In addition, the *RSPG Opinion on a long-term strategy on the future use of the UHF band (470-790MHz) in the European Union "supports making the [700 MHz]* ***band available*** *for effective use by ECS by* ***the end of 2020****, noting that* ***Member states may decide*** *for duly justified reasons and* ***without the need for derogation to delay*** *the availability of the band by* ***up to two years****. This is without prejudice to constraints arising from cross border frequency coordination with third countries"*[5].

In conclusion, in our view it is too early to judge whether 2020 or 2022 are appropriate deadlines for the completion of the 700 MHz clearance process in Europe.

[5] http://rspg-spectrum.eu/wp-content/uploads/2013/05/RSPG15-595_final-RSPG_opinion_UHF.pdf
Bold, brackets and underlines are from BNE.

Should there be measures at EU level mandating use of the latest, most spectrum-efficient technologies for DTT equipment (such as DVB-T2, HEVC etc.)?

- (●) Yes
- ( ) No

Please specify which measures you would propose to mandate.

For BNE, the objective of introducing new DTT technologies should be part of a European industrial policy to secure the long term future of DTT, especially as an enabler to offering new services to viewers / citizens. The trend towards the consumption of higher resolution content formats, e.g. HD and ultra HD, will only be possible if DVB-T2 MPEG4/HEVC is adopted.

From a technical point of view, some of Europe's DTT platforms are in the early stages of introducing DVB-T2 MPEG4/HEVC services, either for HD (when not introduced with DVB-T) in parallel with the existing DVB-T, or directly as a result of the Analogue Switchover (ASO) by those converting later. However, many others are still in DVB-T only (including platforms with HD coding in MPEG-4), and only two countries are fully DVB-T2 as per the figure below:

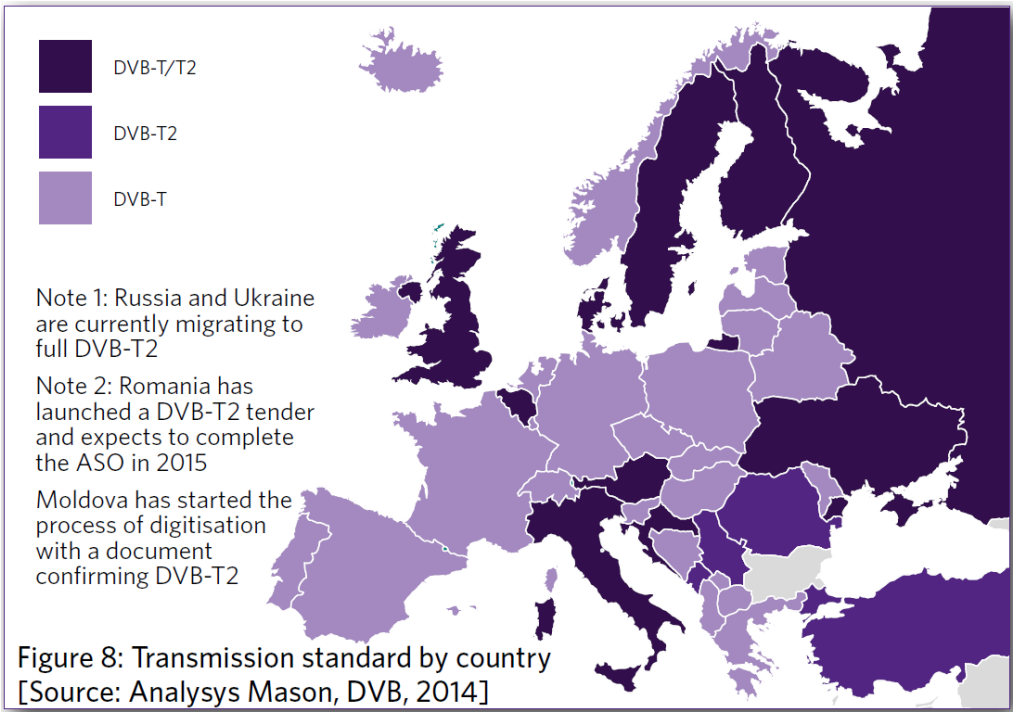


Figure 8: Transmission standard by country [Source: Analysys Mason, DVB, 2014]

Taking into account the various mix of transmission technologies which are present in Europe, and noting that the product / renewal cycle for the TV equipment is around 7 -10 years, BNE does <u>not</u> support measures mandating *transmission* in a certain standard throughout Europe. It is not clear that one size fits all, and in any case this would be possible only in a very long timeframe.

However, BNE supports to mandate a set of appropriate *receiver* standards to build a receiver base with future ready equipment to facilitate introduction of new services.

For instance, a minimal set of requirements for DTT receivers in Europe could include DVB-T2[6] reception, while for UHD capable TV sets it could include DVB-T2 and HEVC. This minimal set of requirements should be carefully assessed with industry stakeholders. It could be accompanied by the adoption of a Europe wide trade mark to support adoption by consumers of more efficient equipment.

In addition, it is important to emphasise that an eventual migration to more efficient technologies will not mean that DTT needs less spectrum. On the contrary, as the EC study[7] demonstrates, DTT will need spectrum to support its continued evolution:

Finally, it must be noted that if the most efficient use of spectrum is to be achieved migration to the latest and most efficient technologies must be required not only for DTT but also for mobile[8] and/or other services.

Which date would you propose to mandate such spectrum-efficient technologies?

In BNE's opinion, there is a clear need of an industrial policy which aligns a clear transition roadmap for the clearance of the 700 MHz band with the adoption of new technologies to ensure platform development and sustainability. To inform such an industrial policy BNE proposes the following interventions:

- DVB-T2 for all UE receiver equipment in 2016 or 2017 in order to encourage the transition of consumer equipment to the new standard whilst giving time for the consumer electronics industry and retail channel to prepare.
- Flexibility for individual Member states to fix the deadline to implement MPEG4 and/or HEVC, and also possible new and additional standards[9], on reception equipment.

However, such interventions should not compromise the competitiveness of any platform.

Finally, as noted above, if there is any inefficient / old technology using spectrum, measures should be considered to address this.

[6] As a reference, the Italian Law 44/12 stating that: "*From the first of July 2016 all TV receivers that will be sold on the wholesale market should integrate a digital tuner apt to receive audiovisual services through DVB-T2 with including codecs that have been approved by the International Telecom Union (ITU). From the 1st of January 2017 this provision should be extended also to the retail market.*"

[7] Analysis of technology trends, future needs and demand for spectrum in line with Art.9 of the RSPP, study undertaken by Analysys Mason for the European Commission, published by the European Union 2013.

[8] See pages 4 & 27 of the Lamy report, in regard to the use of GSM on the below 1GHz spectrum.

[9] The Commission has requested ETSI and CENELEC to undertake additional EMC and radio standardization work supporting the implementation of the WBB on the UHF band.

2.5 Ensuring regulatory certainty for current users of spectrum

Should there be a common EU deadline for safeguarding primary use of the 470-694 MHz band for DTT and further use for wireless microphones and other wireless audio equipment?

- (●) Yes
- ( ) No

The notion of "a common EU deadline" in the context of this question is understood as a minimum future date until which access to spectrum would be guaranteed for DTT on the basis of an exclusive primary allocation. Wireless microphones and other wireless audio equipment would continue to operate in the interleaved spectrum.

Please provide justification of your answer on a common EU deadline to safeguard existing uses.

250 million Europeans choose television via the digital terrestrial television (DTT) broadcasting platforms as their preferred means of media consumption. In recognition of the importance of DTT to European citizens all recent recommendations from a range of high profile and independent bodies (Lamy report, RSPG, CEPT ECC 224[10], Ofcom...) assert that the frequency band 470-694 MHz shall remain available for DTT for the foreseeable future, at least until 2030, in order to provide certainty for investments by consumers, network operators and users of the broadcasting infrastructure. This will be of particular importance in the event that the 700 MHz band will be utilized for mobile broadband and where receiver upgrades, frequency coordination and redesign of the broadcasting networks will become necessary.

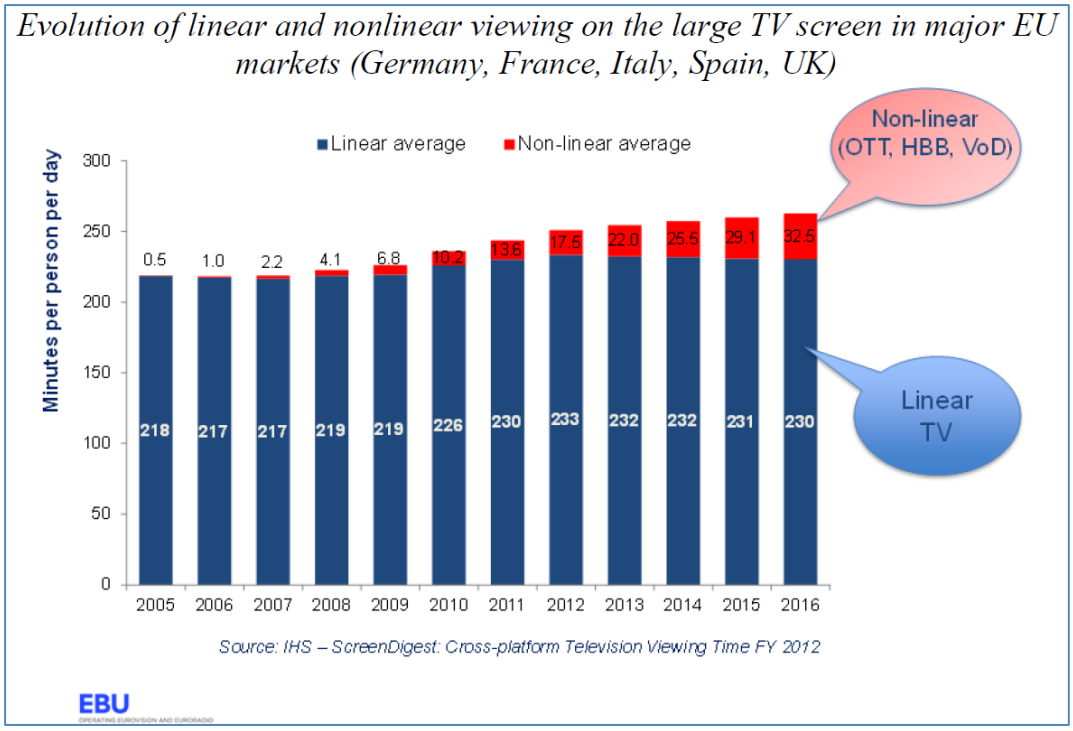
Terrestrial networks maintain a strong position and are likely to do so for the foreseeable future as willingness by households to change technology is usually a much slower process than forecasts have predicted. This is underpinned by new and attractive services being introduced on the DTT platform (Pay-TV/VOD, HD and 3D). In conclusion DTT will remain an extensively used and key distribution platform for broadcast TV and will play an important role in European content production, freedom of expression and information provision.

In addition, taking into account a rational and un-biased analysis, linear content will continue to be the most attractive form of audio-visual content consumption delivering many hours of entertainment to European consumers, as outlined by Pascal Lamy in his report:

- ***Linear TV*** *viewing over different delivery platforms (mix is country specific), on large TV screens, will remain at the present high level in the foreseeable future (today around 4 h/day and person, 87 % of population every day).*
- *As a complement,* ***non-linear TV****, including recorded (PVR) and on-demand TV viewing (including time shifted) is increasing fast but is still much smaller (today*

[10] It is important to note that the TG6 report recognised that the LTE eMBMS technology was not capable of replicating the DTT service due to technical limitations in the standard. In particular mobile radio technologies are not as spectrally efficient as DVB standards.

about 10% of viewing on large TV set screens). It is important to note that user demand for non-linear television is often triggered by linear TV.



From the social and pan European perspective, DTT has become an essential part of the European audiovisual model representing a key pillar of European content creation, enabling freedom of choice, cultural diversity and political cohesion as outlined in Appendix 2. The importance of DTT.

Terrestrial networks are, in most EU countries the only platform where free-to-air public service channels are broadcast unencrypted and without subscriptions and hence have a unique and central role in bridging the Digital Divide. Television and radio are the most trusted and economic rational means to address the reality of national identities and to uphold Europe's unique, comprehensive and virtuous content creation model. This model disperses content production across Europe creating jobs and growth. Broadcasting platforms, and in particular DTT and radio platforms, will continue to be instrumental in delivering linear broadcast content to European citizens.

Moreover, DTT is not the only user of spectrum in the 470–694MHz range:

- The Program Making and Special Events (PMSE) community use this spectrum for applications such as radio microphones, talkback, in-ear monitors and other audio links, which all are essential elements of television content production, theatre productions, outside broadcasts, major concerts and sporting events. Today, devices are only available for these applications in 470–694MHz. Therefore, if this spectrum is awarded to mobile, there would currently be no alternative solution available.

  Furthermore, DTT and PMSE have had an effective and successful coexistence arrangement for many years. The PMSE community has to be given security of

access to spectrum and appropriate assurances at least for the same timeframe as DTT. Were PMSE to be moved to an alternative frequency band there would be considerable disruption and potential risk to the audio visual content creation sector, a driver of high economic value creation and employment.

- White Space Devices (WSD) represent a class of emerging services that will use this spectrum.
- The radio astronomy community uses parts of this spectrum for the study of celestial objects,
- Aeronautical radio navigation services operate in the 645-790 MHz band.
- Wind profiler radars (radiolocation service) are in operation on a secondary basis in the band 470-494 MHz in some European countries.

There may be constraints on continued shared use of the 470-694 MHz if the primary DTT service is cleared from the 700 MHz band and thereby loses 30% of currently available spectrum which in turn may have a detrimental impact on the content creation sector amongst others.

BNE welcomes the position adopted by the Lamy report and also recommended in the RSPG draft opinion giving DTT certainty of spectrum access until 2030 and beyond. DTT will continue to develop and remain the European citizens' preferred platform for linear audio-visual content delivery. In BNE's opinion it would be **highly inappropriate to signal any future end date for DTT.** Any mention of a 'safeguard date' needs to be described in more detail – particularly in terms of 'what might happen next?' DTT is not only the preferred broadcast platform in Europe; it has a significant direct impact on the European economy as outlined in *Appendix 2. The importance of DTT.*

The need for long term access to spectrum for DTT is further endorsed in a recent report published by Aetha on the future use of the 470–694MHz band. The report concludes that there is no economic case for switching-off existing DTT networks across Europe on the grounds of spectral efficiency even with the most aggressive and optimistic mobile traffic forecast. Costs of clearing DTT from the spectrum significantly outweigh the potential value of using the spectrum for mobile by a factor of almost four *(see Appendix 3. Aetha study on "Future use of 470-694MHz".)*[11].

Consequently, in order to create certainty for the required investments for a potential clearance of the 700 MHz band, and as well as for allowing the DTT platform to further innovate, BNE supports the recommendation that the frequency band 470-694 MHz shall remain available for DTT in the foreseeable future.

[11] Aetha concludes that clearance of the 470 – 694 MHz spectrum was not justified as the costs of moving the DTT service from this spectrum to other platforms (EUR38.5bn) would significantly outweigh the potential value of using the spectrum for mobile (EUR10.3bn) by a factor of almost four when considering the most aggressive mobile traffic growth forecast by the mobile industry.

Which date would you propose for such a deadline [The Lamy report proposes a deadline of 2030]?

The recommendation in the Lamy report regarding the certainty of access to spectrum for DTT for the foreseeable future cannot be considered as a recommendation for a specific deadline. BNE's understanding of the recommendation is that DTT shall be able to use the sub 700 MHz spectrum for a currently undefined time extending beyond 2030 but subject to a stock-taking and further review around 2025.

2.6 Flexibility of use of sub-700 MHz (470-694 MHz) spectrum

[The Lamy Report recommends a "flexibility option" in the band 470-694 MHz. This means that broadcasting use would always have priority in this band, yet specific channels or locations not used for terrestrial broadcasting or wireless audio applications (PMSE) could become available for downlink-only wireless broadband applications depending on national circumstances.]

Do you support flexible downlink-only use of the 470-694 MHz band also for wireless broadband services, which safeguards primary use of this band for DTT according to national circumstances?

- ○ Yes
- ◉ No

What scenarios and conditions should be studied to allow flexible downlink-only use in the 470-694 MHz band? In particular, should these include primacy for the provision of audiovisual services to mass audiences?

In answering this question, it must be taken into account that Lamy report recommends further studies about the possibility of allowing flexible downlink-only usages in the 470 – 694 MHz band. The Report does not endorse or recommend any immediate deployment of such services. It is worthy to note that this aspect was not formally discussed during the HLG process and has not been substantiated. The main studies carried out regarding such "*flexibility*" concept, assuming White Space Devices are considered in this discussion, are the ECC 224 report and the EC study on convergence. Their conclusions were clear, there are no possibilities for such "*flexibility*".

Therefore, BNE doesn't support any proposal for any flexibility other than use cases that can be accommodated under the GE06 agreement in the UHF band.

However, BNE is sceptical with the economic viability, and therefore commercial relevance, of such a *flexibility* option. The need to provide flexibility for wireless downlink services is somewhat questionable as there is no clear economic or technical case for such a solution. Furthermore there are well understood incompatibility issues with the implementation and

operation of a low tower low power network adjacent to an existing high tower high power service. The technology to efficiently exploit this type of architecture has not been standardised and moreover the purported frequency efficiency gains cannot be achieved further questioning the relevance of such an approach. Plum Consulting, on behalf of the European Commission, has undertaken a detailed study programme involving industry stakeholders to consider the 'challenges and opportunities of broadcast-broadband convergence in the UHF band.'

Their final report[12] emphasised the complexity and cost of the displacement of the incumbent High Tower DTT service with a Low Tower / Low Power converged broadcast alternative – noting a significant increase in cost with no obvious benefits of such a change. Furthermore, their analysis concluded that there was neither the technical solution nor commercial demand to warrant such a regulatory intervention.

In addition, the ECC Report 224[13], the product of a detailed joint study group involving European administrations and Industry stakeholders found no compelling driver for downlink only services and clearly demonstrated the sustained importance of DTT to the European media landscape and hence the need to secure long term access to this spectrum for DTT. Moreover, the study group found that the technology to support downlink only services on a wide spread basis had not been developed nor standardised.

Finally, BNE notes that an extensive breadth of sharing / compatibility studies have been undertaken since WRC-12 for the 470 – 694 MHz frequency range. These studies confirm that co-existence between IMT and broadcasting services is not possible and hence that this frequency range should not be subject to further review – particularly in light of the proposed position for this frequency range for Agenda Item 1.1 and the need for long term protection and security of to this frequency range for terrestrial broadcast services.

2.7 Harmonisation of use of sub-700 MHz (470-694 MHz) spectrum in the long-term, the European approach and the International Telecommunication Union (ITU) context

Do you see merits in a common EU position on the UHF band for World Radiocommunication Conference 2015?

- (●) Yes
- ( ) No

[12] Challenges and opportunities of broadband-broadcast convergence - The economic costs and benefits of a converged platform, EU Convergence study, http://ec.europa.eu/information_society/newsroom/image/smart-20130014_final_report-v002_8222.pdf

[13] http://www.erodocdb.dk/Docs/doc98/official/pdf/ECCREP224.PDF

Do you see merits in a common EU position on the UHF band for future World Radiocommunication Conferences?

- (●) Yes
- ( ) No

What should be the EU position with regard to the 470-694 MHz band for World Radiocommunication Conference 2015?

The on-going process within CEPT to develop a European Common Proposal for submission to WRC15 regarding the 470-694 MHz band is nearing completion. There is strong support from CEPT member states for "No Change" of the allocation of the 470-694 MHz band in the Radio regulations. Amongst EU member states there is a solid majority for "No Change" which in consequence should be reflected in an official and common EU position.

In addition, the RSPG opinion on Common Policy Objectives for WRC-15 recommends 'No Change' to allocations in the band 470-694 MHz,

What should be the EU position with regard to the 470-694 MHz band for World Radiocommunication Conferences beyond 2015?

BNE welcomes the position adopted with regard to the long term sustainability of DTT, specifically the recommendation that the frequency band 470-694 MHz shall remain available for DTT in the foreseeable future taken by several high profile and independent bodies as Lamy report, RSPG, CEPT ECC 224 and Ofcom.

Therefore, BNE supports a "NO CHANGE" for the allocation of the 470-694 MHz frequency range for the foreseeable future.

To this end EU positions on this matter for future World Radiocommunication Conferences should be developed based on un-biased and well-informed analysis such as the Lamy report or other studies involving all relevant stakeholders.

What measures would be needed at national and/or EU and/or ITU level to safeguard flexible downlink-only use in the 470-694 MHz band?

BNE thinks that the priority for the EU should be to secure the long term future for DTT with continued use of the 470-694 MHz spectrum, as this is a necessary condition to any evolution in the 700 MHz band.

It has been acknowledged that the regulatory agreement that is GE06 affords flexibility for alternative services and as such we believe if there was a need to roll-out these services in the frequency range 470 – 694 MHz then they could be accommodated. Nevertheless, the above mentioned issues remain with regard to the commercial and technical case for supplemental downlink services in this band. Perhaps the soon to be available frequency band at 1427 – 1452 MHz which is aligned to SDL services should be the focus of immediate attention to test the concept.

In addition, BNE notes that an extensive breadth of sharing / compatibility studies have been undertaken since WRC-12 for the 470 – 694 MHz frequency range. These studies

confirm that co-existence between IMT and broadcasting services is not possible and hence that this frequency range should not be subject to further review – particularly in light of the proposed position for this frequency range for Agenda Item 1.1 and the need for long term protection and security of to this frequency range for terrestrial broadcast services.

2.8 Market review of the state-of-play of broadcasting and wireless broadband services

Should there be a common EU deadline for conducting a review exercise regarding market developments?

- (●) Yes
- ( ) No

Which date would you propose for such a deadline [The Lamy report proposes a deadline of 2025]?

In order not to create uncertainty for the needed investments for potential clearance of the 700 MHz band, and ensure that the DTT platform has the potential to further invest and innovate, BNE supports the Lamy report recommendation that the EU deadline for conducting a review exercise regarding market developments will be 2025 as a firm and fixed date.

What objectives, scope and method should such a review exercise pursue?

EU policy-makers in close consultation with all stakeholders and civil society need to define a European industrial policy, which will recognise the cultural, creative and media industries as a growth enabler for Europe and as a key component of European construction. This means policies that:

- Acknowledge the business, investment and funding models for the works produced; including content creation, distribution and licensing models that ensure sustained levels of efforts and investments in content from employees and enterprises; and infrastructure investments to spark innovations that meet evolving EU audience expectations;
- Uphold the importance of local/national works as supporting European employment, diversity and plurality with a thorough consideration of the added value these industries, driven by broadcasters, create through contextualising works and investing for citizens;
- Enshrine guaranteed access to critical resources such as spectrum for services that enable and sustain Europe's creative and cultural industry, to maintain free-to-air as a capacity for citizens to participate in the public discourse, have choice and preserve their local identity.
- Monitor consumer trends for audio-visual content consumption as outlined in Report ECC224.

The review suggested in the Lamy Report would be the opportunity to assess the results of this European Industrial Policy and to pave the way for the DTT technological roadmap and spectrum needs for the following decade, beyond 2030.

In our view, the objectives, scope and method pursued in the Lamy report exercise have provided an un-biased, rational and well-informed result. At this regard, the basis of the process seems a good way to ensure the win-win situation needed for all involved stakeholders.

2.9 Other comments

Do you have further comments related to the Lamy Report?

The Lamy Report is the result of discussion and debate of senior industry representatives and it represents a balanced policy perspective informed by this discussion and supporting data.

The findings in the report have subsequently informed European Administrations and Policy makers, in particular European regulatory agencies such as the RSPG.

BNE appreciates the transparent approach by the EC when undertaking this public consultation. However, we note that the public consultations on the RSPG Opinions have taken account of the Lamy Report and reflected this information in their recommendations and hence it appears unclear what impact the findings of this consultation will have.

In our view, it is time for policy makers to take decisive action and suspend the ongoing demands of the Mobile Sector to more sub-1GHz spectrum and secure DTT's access to this spectrum for the long term, beyond 2030..

Do you have further comments regarding relevant issues in the context of the future use of the UHF band (470-790 MHz)?

Europe's unique audiovisual model sustains its creative and cultural sector's economy and jobs. It is a huge asset for Europe's competitive position in the digital world, delivering cultural diversity and media pluralism.

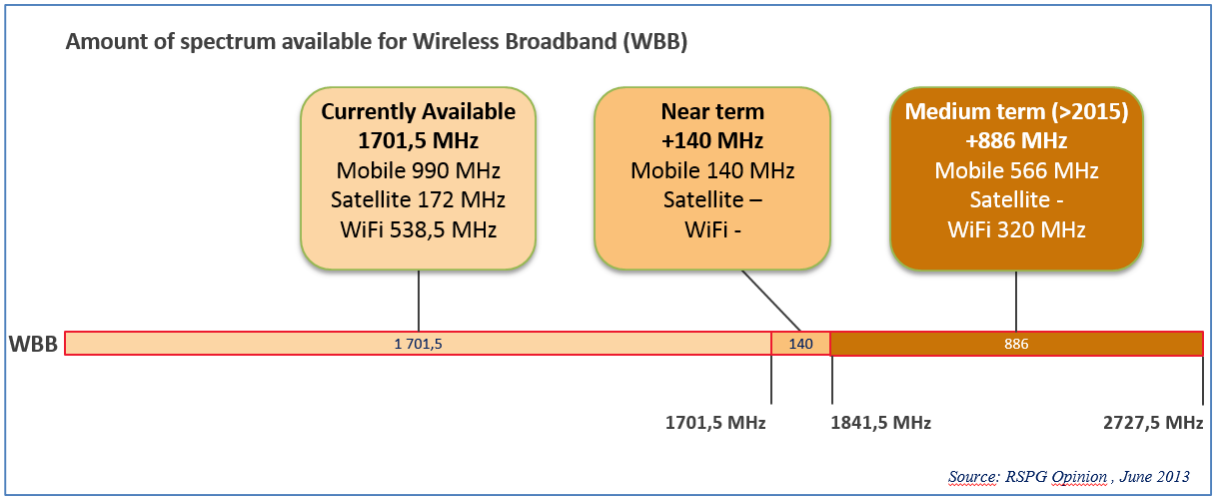
The creative and cultural sector, acknowledged as a leading employer and value driver in Europe, deserves a strong industrial strategy that reinforces the pillars it rests on. Spectrum allocation is one of those pillars. Free-to-air TV and radio make available to the general public local, diverse and plural European works and information.

The Lamy report, amongst others (RSPG, OFCOM, CEPT ECC 224, Aetha, etc.), made explicit the need for a change of mindset from platform convergence to co-existence. This is in order to meet different consumer expectations, support Europe's cultural diversity, support original content creation, promote media pluralism and sustain the development of an inclusive audiovisual and radio sectors.

Ensuring the long term certainty of access to the spectrum is key to securing these economic and societal benefits.

3. Appendix 1. Spectrum demand for Wireless Broadband.

Regarding the "RSPG13-521 opinion on STRATEGIC CHALLENGES FACING EUROPE IN ADDRESSING THE GROWING SPECTRUM DEMAND FOR WIRELESS BROADBAND", wireless broadband (WBB) will gain access to a huge amount of spectrum as illustrated below:



- 1701.5MHz is currently available for Wireless Broadband
- 140 MHz additional spectrum will be / is allocated in the near term.
- 886 MHz additional spectrum will be allocated in the medium term.

This additional spectrum is / will be allocated on the basis of existing mobile data traffic forecasts. However, mobile data demand forecasts are inherently uncertain and caution should be exercised when taking regulatory action which relies upon them. This is particularly the case where the acknowledged leader in the field of mobile data demand forecasts, Cisco, has twice reduced its mobile data forecasts. The adjusted estimates were subsequently challenged by other recognised authorities in this field, i.e. Analysys Mason, LS Telecom and OFCOM, as still significantly overstating the likely level of future data demand.

It has been recognised that a significant proportion of 'mobile' data consumption is static and facilitated by traffic offload on to Wi-Fi[14] somewhat questioning the need for additional sub-1GHz spectrum for Mobile Networks. Moreover, the expansion of the use of small cells or network densification in the Mobile Networks to increase data capacity is better addressed by access to higher frequency spectrum whether the user equipment is static or mobile.

Mobile data demand forecasts are also inherently uncertain and caution should be exercised when taking regulatory action which relies upon them. This is particularly the case where the acknowledged leader in the field of mobile data demand forecasts, Cisco, has twice reduced its mobile data forecasts. Furthermore, the adjusted estimates were challenged by another recognised authority in this field, Analysys Mason, as still significantly overstating the likely level of future data demand.

[14] Wik/Aegis, Study on Impact of traffic off-loading and related technological trends on the demand for wireless broadband spectrum, http://bookshop.europa.eu/en/study-on-impact-of-traffic-off-loading-and-related-technological-trends-on-the-demand-for-wireless-broadband-spectrum-pbKK0113239/

In addition, the reliability and accuracy of wireless data demand projections was recently the subject of a paper[15] presented at the 42nd Research Conference on Communication Information and Internet Policy in Washington DC. The paper reviewed the accuracy of previous projections of wireless demand and considered the spread of under to over estimates produced. It was noted in the paper that for the past seven Cisco mobile traffic forecasts for North America, overestimates were nearly twice as frequent as underestimates (19 vs. 10). Overestimates were also on average, greater in magnitude than the underestimates (103 vs. 81 PB/month).

The same report also notes that "In June 2013, the British telecom regulator Ofcom released a spectrum demand forecast conducted by Real Wireless. This report predicted a demand of 10 petabytes per square kilometer by 2020. After some criticism of this figure, the report was revised downward by a factor of 1,000 to 10 terabytes per square kilometer in the final version released March 11, 2014. Ofcom did not explain the change except to say that "since the report has served its purpose we do not plan to carry out any further work to update it." The magnitude of these swings in projections undermine its credibility, and by extension, the government agency who used it."

As this information suggests, there is growing evidence that mobile data demand forecasts are significantly overstated. Furthermore, the basis for the data growth estimates for mobile has been questioned as the base assumption for population density is two orders of magnitude too high[16]. Hence, the high data capacity growth projections for mobile will need to be significantly downgraded and regulatory policy adjusted accordingly.

Finally, in the preparations for WRC-15, future agenda items for 5G technology are focusing on frequencies above 6 GHz to address the anticipated need for high bandwidth applications. It is anticipated that 5G will be a technology platform that serves a diverse range of applications and contexts utilising higher frequencies which further questions the need for additional low frequency spectrum.

Therefore, there is clearly growing evidence that mobile data demand forecasts are significantly overstated. Furthermore, the basis for the data growth estimates for mobile have been questioned by some industry sectors with the claim that base assumption regarding population density are two orders of magnitude too high. If this claim is substantiated the high data capacity growth projections for mobile will have to be significantly downgraded and regulatory policy adjusted accordingly.

In our view, in addition to the need for more realistic forecasts, there are further aspects to be taken into account when assigning additional spectrum to IMT services:

- **Refarming**: the current mobile services still include mobile "narrowband" technologies GSM or 2G. The spectrum allocated to these technologies should be reallocated to more efficient technologies in order to improve the current use of the spectrum. The Lamy report recognises that fact in page 4 and in page 27.

[15] 'Overestimating wireless demand: Policy and investment implications of upward bias in mobile data forecasts,' presented at 42nd Research Conference on Communication, Information and Internet Policy, Washington DC, 13 September 2014

[16] Review of spectrum requirements for IMT, ITU Radiocommunications Study Groups, Document 4-5-6-7 / 573 E, submitted 13 February 2014, WRC-15 Agenda item 1.1.

- **Efficient roll out**: the expansion of the use of small / pico / femto cells and network densification of the Mobile Networks to increase data capacity is better addressed by access to higher frequency spectrum whether the user equipment is static or mobile.
- **Wi-Fi offloading**: has been recognised as a significant access solution for 'mobile' data consumption, which is typically static and facilitated by traffic offload on to Wi-Fi[17]. Wi-Fi plays an important role (around 80% of traffic to mobile devices is connected to Wi-Fi access points), this role is expected to grow and there is intention to release additional spectrum to the Wi-Fi service.
- **Rural coverage:** low frequency spectrum is considered important for rural broadband services, but in the current Mobile Operator deployments of the 800MHz band are not seeking to exploit this opportunity due to the lack of commercial benefit of Mobile Broadband network roll out to rural areas. If this is the case at 800 MHz, then, surely it will be the case at 700 MHz and hence the full benefit of the low frequency spectrum will not be realised without Regulatory intervention.

It is also worth noting that a recent report published by Aetha on the future use of the 470–694MHz band concluded that there was no economic case for switching-off existing DTT networks across Europe on the grounds of spectral efficiency as even with the most aggressive mobile traffic forecast, the costs of clearing DTT from the spectrum significantly outweighed the potential value of using the spectrum for mobile by a factor of almost four (see section Appendix 3. Aetha study on "Future use of 470-694MHz".). Further, the study also concludes the introduction of a co-primary allocation to mobile at WRC15 would have considerable negative impacts on DTT. Given the history of DTT spectrum being awarded co-primary status for mobile and that then leading to the spectrum being cleared for mobile, granting a co-primary allocation to mobile in the 470–694MHz band would undermine both consumer and investor confidence in the future of the platform. This would lead to the DTT platform falling behind other television platforms and even unnecessarily risk its viability, with little benefit to be derived, as such a Regulatory Intervention would result in Market Failure.

In conclusion, BNE calls for Mobile Broadband spectrum forecasts to be recalibrated, based on proper estimation methods and unbiased analysis of traffic density, market sizing and the impact of technology improvements such as Wi-Fi offloading, mobile network configuration and compression.

[17] Wik/Aegis, Study on Impact of traffic off-loading and related technological trends on the demand for wireless broadband spectrum, http://bookshop.europa.eu/en/study-on-impact-of-traffic-off-loading-and-related-technological-trends-on-the-demand-for-wireless-broadband-spectrum-pbKK0113239/

4. Appendix 2. The importance of DTT.

Spectrum management is a central issue intimately tied to the provision of terrestrial television and radio broadcasting, the capacity of citizens to participate in the public discourse, the breadth of consumer choice and the preservation of local identity. Over half of European households – 250M European viewers – choose television via digital terrestrial television (DTT) as their preferred means of media consumption. Low cost, accessible, local, reliable, regulated, plural - digital terrestrial television is incontestably the preferred choice of Europeans and a an economically rationale means of delivering AV works in Europe over the long term. Moving away from DTT would result in a loss of €38 billion to the EU economy[18]. Similarly, 80% of the EU population listens to the radio for 2 to 3 hours a day, mostly through broadcasting (analogue and digital).

Linear television continues to be the most efficient means to address the reality of national and local identities and upholds Europe's unique audio-visual model. This model is comprehensive and virtuous. Without it Europe would likely face a consolidation of production in only a few cities, to the detriment of a very high number of citizens.

Terrestrial networks are, in most EU countries the only platform where free-to-air public service channels are broadcast unencrypted and without subscriptions and hence have a unique and central role in bridging the Digital Divide.

DTT networks and Europe's broadcasting ecosystem are a key pillar of the European cultural, creative and media industries and these are an essential pillar of the digital economy and one of the key assets of Europe, in every dimension:

- Accounting for 6.8% share of GDP (€860 billion) and 6.5% of Europe's employment (approximately 14 million direct and indirect jobs), according to the TERA report[19];
- Creating and investing in digital platforms, Europe's digital market for cultural products and services are providing more and more choice to consumers despite enduring a huge and unfair competitive pressure from illegal or unregulated services that destroy jobs and investment opportunities;
- Combining the forces of large and successful European-based companies competing in a global market alongside +1.4 million small and medium sized enterprises[20] (responsible for over 80% of generated revenue) which tie together European territories and are deeply rooted within local economies and national cultures. They employ a highly skilled, non off-shorable and well-educated workforce;
- Including small, medium and large entities - employers and workers - that jointly constitute the flagship and the backbone of creative industries in Europe. Together they stand at the forefront of Europe's fresh start to provide more jobs for European citizens.

[18] AETHA study, see Appendix 3. Aetha study on "Future use of 470-694MHz".

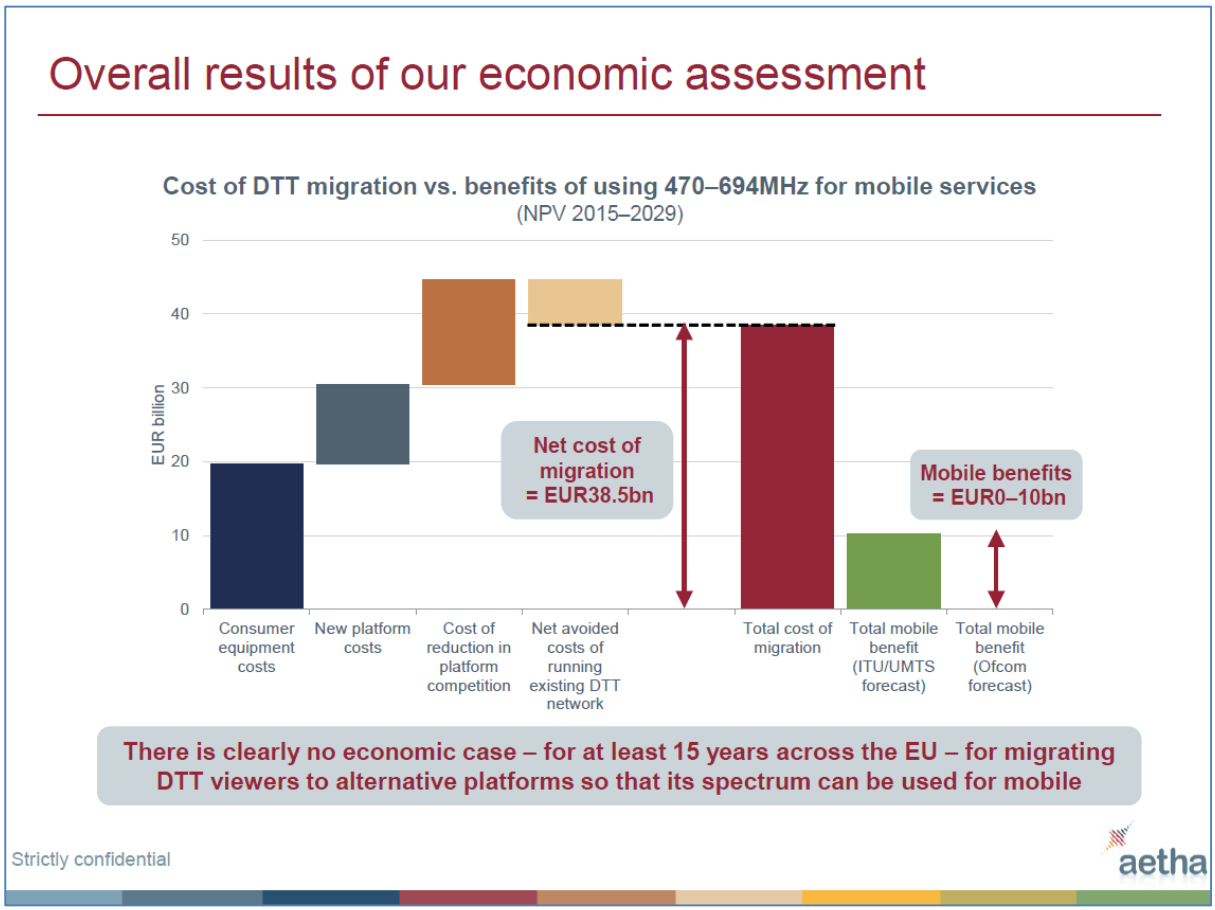
[19] Laurent Benzoni and Philippe Hardouin, The economic contribution of the creative industries to EU GDP and employment - Evolution 2008-2011, Paris, September 2014

[20] sic

5. Appendix 3. Aetha study on "Future use of 470-694MHz".

The Aetha study considers a scenario in which DTT transmissions cease and consumers are required to migrate to alternative platforms (a mixture of satellite, cable and IPTV). All 224MHz of spectrum in the band then becomes available for mobile services.

The study calculates the costs and benefits of this scenario over a 15year period (2015 to 2029) and compares them to the costs and benefits of continued use of the spectrum for DTT and other existing uses (PMSE, radio astronomy and 'white spaces'). The benefits from making spectrum available for mobile are highly sensitive to forecast traffic levels. Therefore, the study considers a range of traffic forecasts, the highest of which is based on forecasts from the ITU and UMTS Forum.



The results of the report show that even in the most aggressive mobile traffic forecast, the costs of clearing DTT from the spectrum (EUR38.5bn) significantly outweigh the potential value of using the spectrum for mobile (EUR10.3bn) by a factor of almost four. When a less aggressive traffic forecast is used, the costs of clearing DTT are unchanged but the value of using the spectrum for mobile would be near to zero.

As the study describes, it is clear that the economic benefits for the EU are maximised if the 470–694MHz band continues to be used for DTT for at least the next 15 years – there is clearly no economic case for switching-off existing DTT networks across Europe on the grounds of spectral efficiency.

Further, the introduction of a co-primary allocation to mobile at WRC15 would have considerable negative impacts on DTT. Given the history of DTT spectrum being awarded co-primary status for mobile and that then leading to the spectrum being cleared for mobile, granting a co-primary allocation to mobile in the 470–694MHz band would undermine investor confidence in the future of the platform. This would lead to the DTT platform falling behind other television platforms and even unnecessarily risk its viability, with little benefit to be derived.

The executive summary and full Aetha report can be found at:

http://www.broadcast-networks.eu/wp-content/uploads/2014/11/Aetha-Future-use-of-the-470-694MHz-band-in-the-EU-31-Oct-2014-Exec-Summary.pdf

http://www.broadcast-networks.eu/wp-content/uploads/2014/11/Aetha-Future-use-of-the-470-694MHz-band-in-the-EU-31-Oct-2014.pdf