

Broadcast Networks Europe response to the

Questionnaire of the Sub-group on Role of RSP to Help Combat Climate Change

Q1. How can the wireless technologies contribute to the efforts to reduce the climate impact of your sector?

[Broadcast Networks Europe](#) is the trade association for terrestrial broadcast network operators, whose main activity is to create and operate the technical infrastructure required to distribute television and radio channels through radio frequency broadcasting.

We therefore operate in the larger sector of television and radio distribution. This sector is extremely important for society and reaches all citizens: 95% of European households have at least one TV set, 85% watch TV at least once a week with the average viewing time in 2019, including non-viewers, being 3h32 per day with 90% of it being consumed live. Early indications are that viewing time in 2020 has increased as a consequence of the pandemic. Similarly, radio reaches 84% of European citizens weekly, with an average radio listening of 2h22 per day.

Terrestrial broadcasting being a one-to-many wireless technology is a very energy efficient way to distribute broadcast programs, as evidenced in a BBC study¹ published in 2020 comparing the energy efficiency of the various television service distribution platforms.

In particular, the BBC study allows one to conclude that TV distribution and viewing can account for a non-trivial share of national electricity use² and that **digital terrestrial broadcast is the least electricity-intensive distribution platform**, when compared to cable, satellite and streaming which can use up to 2.5 times more energy per device for each hour of viewing³.

The results of this study were established in the specific context of a set of leading channels - BBC services - in a country where DTT enjoys a strong market share, the UK. While envisaging a more detailed pan European analysis, Broadcast Networks Europe already estimates that the same qualitative conclusions of lower energy usage would also apply to the full bouquet of programmes distributed by DTT even in countries where the DTT market share is significantly lower⁴.

¹ BBC Research & Development White Paper WHP 372, September 2020

² with BBC services responsible for 2,171 GWh [1.12 MtCO₂e] in 2016, approximately 0.6% of total UK electricity use in that year and 0.24% of the UK GHG emissions.

³ iPlayer at 0.18 kWh/device-hour, cable also at 0.18 kWh/device-hour, satellite at 0.17 kWh/device-hour, and terrestrial at 0.07 kWh/device-hour.

⁴ In first analysis, we reckon that the BBC share of audience is approximately of the same order as the BBC share of occupation of the multiplex of the DTT platform in the UK, which was used to evaluate the energy consumption. Therefore we can expect that the conclusions in device-hour applying to the BBC would not change much for the full bouquet of programmes carried by DTT, provided that the content of the channels carried in the bouquet is representative of the large majority of the TV audience (which is the case, a sustainable DTT bouquet typically contains the most popular channels, representing typically 90% or more of the national audience).

Similarly the share of fixed terrestrial transmission is only 3% of the overall DTT energy consumption, showing that even for a DTT platform market share much lower, for instance divided by 4, the overall per device-hour estimate would be increased only by 36%, while the others platforms which show only limited fixed infrastructure would not vary by much. Thereby the gap would be only slightly reduced, still in the advantage of DTT.

Therefore, terrestrial broadcasting wireless technologies contribute to the efforts to reduce the climate impact by being the most energy efficient means of distributing audio visual content.

Q2. Which actions relating to radio spectrum issues and contributing to climate protection are taking place in or being planned for your sector(s)? These may be actions based on your own initiative, on the initiative of a group of stakeholders, or adopted as part of national or European policies.

The terrestrial broadcasting sector is investing towards the most energy efficient RF technologies and most efficient source and channel coding methods, such as DVB-T2 and HEVC. This translates into less transmission power needed for a given level of quality, or into higher quality (eg. 4K or UHD TV) for the same transmission power. In addition, investment in advances in transmitter efficiency is an opportunity to adopt higher yield RF transmitters, with corresponding savings in the energy required to operate them.

While some of these changes have happened during the clearance of the 700 MHz band, for some countries the discussions around the transition to DVB-T2/HEVC are currently ongoing, such as in France, and will to a large extent depend on a long-term certainty of access to spectrum for the industry.

Q3. How can radio spectrum administration help to reduce the climate impact of your sector?

The fight against climate change involves reconsidering some of the basic hypothesis and reasoning which have prevailed in the past decades. In spectrum management, a strong trend was that there was a need for more spectrum for wireless broadband services in the lower bands, and less need for terrestrial broadcasting, because of the progress of source and channel coding.

After 2 digital dividends, looking at real facts, now the problem has evolved:

- We can no longer take the assertion of needing more spectrum as an obvious fact: wireless broadband already has 14 GHz of spectrum identified, and has been allocated the majority of the UHF spectrum between 470 MHz and 1 GHz; moreover in most countries there are coverage obligations on existing spectrum, so overcoming the digital divide is possible simply by respecting current commitments. Besides, additional spectrum bands in the sub 1GHz band is not a solution for reducing the digital divide, the solution is to invest on the roll out of more infrastructure.
- The terrestrial broadcasting sector has made major efforts for spectrum efficiency, performance meaning more service— e.g. number of programs as well as quality – for less spectrum and has now reached a threshold where the viability of the service would be at stake if further reductions were contemplated.
- The terrestrial broadcasting platform is the most energy efficient one, significantly better than alternatives, therefore the large popularity of terrestrial broadcasting also plays in favor of environmental goals.

In such a situation, we recommend that radio spectrum administrations can help by fostering a stable regulatory framework which would be consistent with the strategy emphasized in the RSPG opinion on the UHF Band: namely noting that the 470-694 MHz band is being allocated in priority to downstream audiovisual content distribution and recommending that it remains as such for the long term, even beyond 2030.

The new RSPG is an opportunity to extend and reinforce certainty for the European Broadcasting industry regarding its access to the 470-694 MHz band which will be beneficial to reduce the climate impact of the sector.

Q4. Do you identify any issues involving radio spectrum administration which might prevent combat against climate change, decrease of carbon emissions and reducing energy consumption?

Decisions by administrations or signals such as the identification of IMT as a co-primary service in Region 1 at WRC-23 might create a threat to the long term access of Terrestrial Broadcasting to the 470-694 MHz spectrum, with negative impact on the carbon emissions of the overall sector of content distribution.

The eventual impact on 470- 694 MHz will not be only make the TV distribution being more polluting as it will be using other platforms, but also for audio distribution (Band III DAB and Band II VHF/FM) as both systems typically share the same masts and the associated costs.

Q5. Do you have any other comments that you would like to address to RSPG on this topic?

Broadcast Networks Europe members have identified the issue of the carbon emissions associated to the distribution of TV programs as a strategic issue and will welcome opportunities to further contribute to the fruitful debate of the RSPG on those issues.