Communications and climate change

Communications underpin how people live, learn, and work in in the UK today. From TV to radio, telecoms to post, over the airwaves and through cables – Ofcom's mission is to make communications work for everyone around the UK.

Climate change is one of the greatest challenges facing society and consequently is at the forefront of the agenda for companies, policy makers, and wider society. Internally we, and many other organisations, are reflecting this in how we work to reduce our own environmental impact. While we do not have a formal role to consider the environmental sustainability of the sectors we regulate under our statutory framework, we recognise the importance of understanding the contextual factors which drive decision making for our stakeholders.

Sustainability and climate change is an increasingly significant driver of commercial decision making: whether from the financial markets, wider Government regulation and reporting requirements, or companies' own sustainability ambitions. As a result, it is important that we understand how sustainability considerations will feed into decisions including about choices in future technology. Ofcom believes that it is important the communications sectors are sustainable so that they can continue to deliver for consumers in the future.

The energy required for the distribution of television services

Audiences are accessing TV content in their homes over a range of different platforms now. Traditional scheduled services continue to be broadcast over Digital Terrestrial Television (DTT), Cable and Satellite networks, but viewing on these platforms has been complemented with greater viewing of streamed TV over the internet.

In recent years there have been a range of claims that different technologies for TV distribution are more or less energy efficient. Some stakeholders have also made arguments that some technology options are more energy efficient than others. In order to better understand the dynamics, we have commissioned a report on the energy consumption of two technologies: DTT and over-the-top streaming services (OTT) served by fixed access networks.

This report takes a snapshot of energy consumption of viewing on both platforms today, rather than judging which has the potential to be more energy efficient in the future. Our goal was to develop an understanding of what factors are most significant in driving the energy consumption of the respective platforms. To conduct this analysis, we commissioned a report from Carnstone – an independent management consultancy which specialises in Environmental, Social, and Governance reporting. Carnstone convenes DIMPACT[1] and has conducted similar analyses both within the UK and Europe. Leveraging our stakeholder relations and internal expertise we have been able to facilitate access to accurate UK data. Globally recognised metrics were used to calculate the energy consumption of network transmission for OTT services.

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[1] DIMPACT is a collaborative project with researchers from the University of Bristol and eighteen media and technology companies.

The report employs an attributional approach – allocating the energy consumption of shared infrastructure on a usage basis. This approach was taken as it is widely accepted to be the best method to obtain a snapshot of the energy consumption of today's UK viewing population.

The report agrees with similar studies at an international level. Some of the key takeaways from the report include:

- For both OTT and DTT services and across the UK viewing population, most of the energy consumption is within the home rather than in the distribution system – TV sets, viewing devices, and in-home networks account for 90% of the energy used.
- Some devices used within the home, such as Wi-Fi networks and set-top boxes, are usually always-on and consuming power (albeit apparently low) – adding up to a significant proportion of this figure.
- Outside of the home, energy use in network transmission drives some differences between DTT and OTT. The network transmission uses six times more energy for OTT based on today's volume of viewing, noting that for both technologies it is not a very large driver of overall energy use.

Further work

Insights from this report have helped Ofcom to consider areas for further study:

- The energy consumption of in-home communication and media devices and the potential for consumer advice on how to use these more efficiently.
- Working with industry and our stakeholders to explore how in-home networking systems might be made more energy efficient.
- The relative energy consumption of content delivery network (CDN) multicast and IP multicast for broadcast channels delivered via IP networks.
- The energy consumption of some parts of the digital content value chain is not well understood today. More detailed analysis is needed in understanding how content delivery networks scale their power use in response to demand.