

Facebook's response to RSPG consultation on:

Draft RSPG Opinion on the role of radio spectrum policy to help combat climate change

Date: August 31, 2021

Dear all,

Facebook is pleased to respond to the RSPG consultation on the Draft RSPG Opinion on the role of radio spectrum policy to help combat climate change ("the RSPG draft opinion"). Facebook is convinced that the digital transition can help facilitate the green transition, as digital services can help other industries to become more sustainable.

Facebook and sustainability

We recognize the urgency of climate change and are committed to help tackle this global challenge. We are taking action by minimizing the environmental impact of our operations, supporting cross-sector collaboration to scale science-driven solutions, and leveraging our platforms to develop innovations for a more sustainable world. Our climate efforts build on more than 10 years of work and we are not done yet.

In the past years we have made significant strides with our direct operations. We achieved net zero for our global operations in 2020 and we are supported by 100% renewable energy. We set ourselves a net zero goal for our Global supply chain to achieve in 2030. In 2020, Facebook locally restored nearly as much water as we consumed to the watersheds where we operate.

We also acknowledge that it is our responsibility to use our platform, technological capabilities and influence to support climate action. We launched the [Climate Science Information Center](#), a separate, dedicated space on Facebook that connects our community with factual resources from the world's leading climate organizations and actionable steps people can take in their everyday lives to combat climate change. More than 1.3M people globally follow the Climate Science Information Center. More than 12M people globally have visited the CSIC, with an average of 100k visitors every day.

We are also supporting climate related research through our [Data for Good Program](#). Through that we launched a Climate Change Opinion Survey in Partnership with the Yale Program on Climate Change Communication that explores public climate change knowledge, attitudes, policy preferences, and behaviors across more than 30 countries and territories. Facebook's and Instagram's fundraiser supported more than 3.5M people donating over \$130M to date to combat climate change and support environmental protection.

Sustainability of digital services and spectrum management

ECS have a positive role to play in the green transition - and should be regulated accordingly

Spectrum management only addresses some of the challenges of the sustainability of digital services. While digital services have an ecological footprint, they also have the potential to reduce the footprint of other industries. It may be challenging to quantify these benefits and even more challenging to estimate what the respective footprint should be in a sustainable world. While it is important to ensure that digital services become more sustainable, their impact on the overall sustainability of our economies is likely to be due to elements such as the impact on other sectors (positive) or the increased production and consumption of terminals (negative), which may be out of the remits of spectrum regulators.

In particular, it would most likely be counter-productive to limit the growth of traffic and services consumption, as this would surely limit the scope of benefits that other sectors can obtain from digitisation of their industries. For example, AR/VR can positively impact the environment as reported in a [recent Ecorys report](#). While increased ECS traffic deriving from the accelerated trend towards remote activity (e-learning, working, e-health, etc) might increase the carbon footprint of digital services, we can also expect a notable positive impact on the CO2 emissions from the transport sector due to the reduced need for travel. In some cases, increased CO2 emissions from the digital sector may result in reduced emissions in other sectors and an overall reduction of CO2 emissions.

RSPG's proposal to better assess the impact of wireless ECS should aim at an improved understanding of both the positive and negative impacts of digital services on sustainability of the whole economy. Collaboration with regulators of other sectors to track the progress on sustainability enabled by digital services could help monitor how digital, including wireless ECS, is impacting other sectors.

Digital services can grow in a sustainable way

The direct environmental impact of the digital sector is now fairly well understood. The recent [ARCEP report on sustainability](#) highlights that 81% of the digital technology's environmental footprint is coming from terminals (only 5% from the network, 14% from the data centres).

On the data centre aspects, Facebook demonstrates through its sustainability achievement that digital growth and net zero emissions are compatible. Other large data center actors are reporting [similar achievements](#). While data centres are not directly impacted by spectrum policy, spectrum regulators can safely assume that spectrum decisions should not result in significant sustainability issues on the datacentre side.

On the network side, new technologies are more energy efficient than previous technologies, carrying the same traffic with less energy consumption. For example, [WIK reported](#) that Wi-Fi 6 is more energy efficient than previous generations of Wi-Fi. Ericsson reports that [5G is also more efficient than previous](#)

[generations](#). Whether the ecological footprint of networks increases or decreases, probably depends on the overall traffic rise compared with the efficiency improvements. Improved “methodologies to assess the impact of ECS wireless technologies on climate change”, as proposed by RSPG in its draft opinion (point 1), would be extremely useful to monitor this balance.

On the terminals’ side, spectrum regulators should adopt decisions that maximise the performance of terminals and therefore reduce the incentive to renew them quickly. For example, opening the full 5945-7125 MHz to licence-exempt RLANs (including Wi-Fi) would allow the equipment to operate more efficiently and deliver higher performance and Quality of Service. Ensuring that new equipment can take full benefits of a future proof and stable regulatory regime is an important step to increase the sustainability of wireless ECSs.

Spectrum decisions that have a direct impact on sustainability

The [ARCEP report](#) also highlights that 70-80% of the network emissions are due to the Access Network and that fibre networks are 10x more effective than mobile networks to deliver data in an energy efficient manner. This is a great example where regulators can have an impact on the sustainability of the digital sector by promoting an energy-efficient mix of technologies. Mobile networks should be deployed to deliver data efficiently, i.e. when there is a need for mobility or when there is no fibre coverage, while fibre networks should be the first connectivity option in the other cases to avoid undue energy consumption. Complementarity of different networks would not just increase the resilience of the overall digital infrastructure but also ensure that digital services are always delivered in an energy efficient manner.

Facebook agrees with RSPG that “the current EU framework to facilitate the roll-out of indoor small cells may also contribute to combat climate change” (point 27 of the RSPG draft opinion). Facebook urges RSPG to acknowledge that Wi-Fi is by far the dominant small cell technology and therefore plays a major role in combating climate change.

Another area where spectrum regulators can positively impact the green transition, is through ensuring that the performance of networks is not unduly restricted through insufficient availability of spectrum:

- A 5G network in a given frequency band will not consume much more energy when operating over 50 or 100 MHz, while its data delivery performance will be much larger over 100 MHz spectrum. Therefore, spectrum regulators can increase sustainability through ensuring that 5G networks are deployed over large contiguous carriers in as few frequency bands as possible.
- Conversely, Wi-Fi Access Points’ ecological footprint is virtually unchanged when operating over narrow or wide bandwidth. Opening the full 5945-7125 MHz band to WAS/RLAN will maximise the throughput of Wi-Fi across Europe without increasing the ecological footprint of equipment. On the contrary, minimising congestion is likely to increase the equipment’s efficiency.

Facebook agrees with RSPG that “the availability of large contiguous frequency blocks per operator could avoid the energy consumption associated with the support of multiple carriers and carrier aggregation. Member States may strive to improve the energy efficiency of networks by making available spectrum in the largest blocks possible where appropriate.” (point 24 of the RSPG draft opinion). However, Facebook would like to underline that this principle is not applicable to just operators, but essentially to all wireless technologies. In this sense, completing the assignment of the full 5945-7125 MHz band to WAS/RLAN would improve the energy efficiency of Wi-Fi, with a likely positive impact for the wireless sector as a whole, given that Wi-Fi is the wireless technology delivering most of the wireless traffic.

Opening the 6425-7125 MHz band to WAS/RLAN would trigger further environmental benefits going much beyond the energy efficiency of the Wi-Fi access points. Very High Capacity Wi-Fi would encourage users to send their traffic via a fixed fibre network (offload) whenever is possible, a greenest practice than carrying traffic over mobile networks, as highlighted above. Furthermore, availability of very high quality Wi-Fi would unlock a number of advanced and innovative applications, such as AR/VR, that hold the promise of contributing significantly to the green transition, [as recently reported by WIK](#).

Conclusion

- Facebook supports the RSPG proposal to better assess and report the impact of wireless ECS technologies on climate change. Impact should consider the potential of the digital sector to green other sectors.
- Facebook believes that the development and growth of digital products and services underpinning the digital transition of the EU economy and society, is a critical contribution to the green transition. This requires the environmental footprint of digital services not to outweigh the benefits of such technologies, but Facebook’s efforts around sustainability demonstrate that it is possible to combine service growth and net-zero emissions. We achieved net zero for our global operations in 2020 and we are supported by 100% renewable energy. We set ourselves a net zero goal for our Global supply chain to achieve in 2030. In 2020, Facebook locally restored nearly as much water as we consumed to the watersheds where we operate.
- Facebook launched the [Climate Science Information Center](#), a separate, dedicated space on Facebook that connects our community with factual resources from the world's leading climate organizations and actionable steps people can take in their everyday lives to combat climate change.
- Facebook supports climate related research through our [Data for Good Program](#).
- Given the potential of the digital sector to contribute to the green transition of the whole economy, Facebook recommends that the regulatory sustainability objectives should focus on limiting the environmental footprint of digital services, rather than on limiting the growth of digital services themselves.
- The environmental impact of spectrum decisions may not always be simple to assess, especially when they impact other areas. Yet some spectrum decisions have a direct impact on sustainability:
 - 5G networks should be deployed over as wide a bandwidth as possible over as few bands as possible (ideally 100 MHz per MNO in 3400-3800 MHz),

- Traffic should be carried as much as possible by fixed networks and therefore Wi-Fi QoS should be a priority. Small cells can contribute to combat climate change and RSPG should favour small cell deployments (including Wi-Fi) over networks with large cells.
- Following the recent EC Decision on the 5945-6425 MHz band, the 6425-7125 MHz band should be also opened to WAS/RLAN to maximise the benefit of the RLAN equipment as well as its efficiency. In general, making available spectrum in the largest blocks possible where appropriate would improve the energy efficiency of networks, not just for operators, but for all wireless technologies.
