

Public Consultation on the BEREC Draft Report on Sustainability: Assessing BEREC's contribution to limiting the impact of the digital sector on the environment

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During its 50th plenary meeting (10 March 2022), the BEREC Board of Regulators has approved the Draft BEREC Report on Sustainability: Assessing BEREC's contribution to limiting the impact of the digital sector on the environment for public consultation.

This Draft Report on Sustainability provides an overview of the results of BEREC's groundwork on ICT sustainability to assess and better understand the impact of the digital sector, including electronic communications networks and services, on the environment. It sets out an outline of BEREC's approach to environmental sustainability of the sector.

This Draft report constitutes the first step: BEREC will continue to build up its knowledge on the important topic of sustainability to be able to contribute with its expertise in shaping the green and digital twin transition. Collaboration with relevant stakeholders will be of importance in this process, notably to share analysis and experiences related to ICT sustainability.

For structured responses to this consultation, BEREC kindly asks you to submit your comments/remarks per each chapter of the draft report in the following questions below. You will have also the opportunity to upload a supporting document at the end of the survey (file size limit: 1 MB).

Responses should not be submitted later than **14 April 2022 (17:00 CET)**.

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Feedback on each chapter of the Draft Report

1) Please enter your comments on Chapter 1 (Introduction) here:

The European Telecommunication Network Operators' Association (ETNO) welcomes the opportunity to provide feedback to the BEREC draft report on sustainability: assessing BEREC's contribution to limiting the impact of the digital sector on the environment.

ETNO overall supports BEREC's focus on sustainability and climate change as key horizontal principles and high-level priorities. In addition to that, ETNO thankfully engaged in the debate and supported BEREC with its expertise on the matter.

First of all, we highly appreciate that BEREC, and the external study, indicate that ICT technologies are essential to achieve the climate targets, also through their fundamental enabling potential for the environmental transition.

Digital solutions are indeed a critical pre-requisite for achieving the EU Green Deal's sustainability goals across different sectors of the economy and society. In particular, telecom networks and services are the basis for digitalisation, and they are a catalyst for reaching ambitious climate targets.

Only through massive uptake of digital infrastructure and digital services can Europe reap the environmental and socio-economic benefit offered by new technologies. Manufacturing, healthcare, public administration, transports, and many other sectors have the opportunity to become more productive, more modern and more service-oriented, while dramatically reducing their carbon footprint (see ETNO's views on the EU Green Deal <https://etno.eu/news/8-news/675-etno-green-deal.html>).

As stated in the recent BCG study prepared for ETNO (<https://etno.eu/library/reports/96-connectivity-and-beyond.html>), this enabling potential can reach up to - 15% of the global CO2 emissions. In particular, the study points out to the bigger areas for contributing to carbon reduction involve, including:

- Smart cities and buildings: up to 30% emission reduction
- Transportation: up to 30% emission reduction
- Industry IoT and blockchain applications: up to 11% emission reduction
- Energy (such as smart grids): up to 7% emission reduction

Secondly, as per the various references within chapter 1, the telecommunications sector is well aware of its environmental footprint, and European telecoms companies continue investing heavily and their efforts to innovate and become greener are tangible.

Telecommunication companies have indeed a strong commercial incentive to ensure efficient deployments and operations. Accordingly, they invested and continue to invest heavily in the build-out and upgrade of energy efficient and high-speed network infrastructure. ETNO companies deployed 70% of the total network investment in Europe. This includes integrating energy efficiency objectives in business activities (e.g. site and platform optimization, retirement of legacy hardware, early efficiency modelling), and the transition to new generation networks. Full-fibre networks are much more power-efficient than copper networks as over the last decade innovation and investments have led networks where growth in data traffic is decoupled from energy consumption and carbon emissions, and 5G networks provide more efficient transmission of data for each kWh of energy consumed. In 2021, FTTH has passed the 50% mark and it reaches around 52% European homes. 5G is now available to 62% of the population

In addition to the above, telcos have taken decisive actions on (ETNO's State of digital communications 2022 available here <https://etno.eu/component/attachments/attachments.html?task=download&id=8165>):

- Massive use of and investments in renewable resources: in 2020, 75.3% of the total energy used by ETNO members was from renewable sources, up from 60.4% in 2017
- CO2 emissions of ETNO members in Europe: decreased by ~40% between 2017 (4.67 ktonne) and 2020 (2.77 ktonne)
- Increased energy efficiency in operations of existing mobile and fixed networks as well as of data centres
- Measures to increase circularity aimed also to encourage consumers making more sustainable choices. For example, it is worth mentioning the Eco Rating initiative that has been launched in May 2021 by five European mobile operators (Deutsche Telekom, Orange, Telefónica (operating under the O2 and Movistar brands), Telia Company and Vodafone) with the aim to evaluate the environmental impact of the entire process of production, transportation, use and disposal of mobile phones.
- Pioneering the green financial aspect: many European Telcos have already issued green bonds or sustainability-linked bonds.

Finally, ETNO appreciates BEREC's inclusive approach in gathering information from relevant stakeholders on ICT sector's impact on the environment through various workshops and ad hoc meetings.

2) Please enter your comments on Chapter 2 (Case studies) here:

On top of the relevant case studies presented in the draft BEREC Report, we would like to mention CNMC's program for decommissioning copper central offices.

With the decommission of the first two copper central offices (CO) announced in October 2014, under the direction of Spanish regulator Comisión Nacional de los Mercados y la Competencia (CNMC), Spain was one of the first countries in Europe to start replacing copper CO. This was just the first step in a much larger programme that has led to this milestone of 1,000 shuttered CO by the end of 2021 (out of a total of almost 3,000 programmed). It was in 2009, when the old regulator Comisión del Mercado de las Telecomunicaciones (CMT), now part of CNMC, established the procedure for copper decommissioning in locations where copper is no longer required – aiming to strike the difficult balance of incentivising replacement of copper with fibre networks while also protecting the investments of other operators.

The new fiber optic network (FTTH) needs a smaller number of sites to serve it, and therefore, many of them are no longer necessary. Operators have an interest in shutting down a copper CO if the users of the area served by it, can be served by alternative technologies (such as FTTH), making unnecessary to maintain the copper network in that area, thus reducing costs. However, given that Telefónica has an obligation to share its network, this closure has an impact on operators and therefore this process is regulated in the analysis of broadband markets.

The framework for the closure of CO has been updated in the last review of the broadband markets. To facilitate the definitive migration of copper services to fiber services, the new measure contemplates a reduction of 5 to 2 years in the regulated period for the closure of CO with disaggregated accesses. These CO, which until now had a term of 5 years, are the largest, and in them the operators have co-located their broadband equipment.

The objective of this transformation plan is to complete fiber coverage with a fully digital network in addition to consolidating environmental objectives. Since the beginning of the programme, Telefónica has dismantled 65,000 tons of cable; recycled 7,140 tons of WEEE (waste electrical and electronic equipment) and other items; it has reused more than 128,000 cards in its network and saved around 1000 GWh (355,000 tCo2, equivalent to planting six million trees). The energy and space savings together with the recycling of components and the environmental improvement implied by the shutdown of disused technologies allowed Telefónica to advance in the strategic environmental commitment of net zero emissions by 2040.

3) Please enter your comments on Chapter 3 (Outcomes on BEREC's previous work on sustainability) here:

We appreciate and welcome the work that regulators are devoting on environmental sustainability of the electronic communications sector. Among others, there are the Connectivity Toolbox, the ongoing review of the Broadband Cost Reduction Directive (BCRD), and the revised guidelines on State aid for broadband networks.

Then, as also stated in the study that Frontier Economics has prepared for ETNO on policies to support investment in VHCNs (<https://etno.eu/component/attachments/attachments.html?task=download&id=8164>), policy makers should set up green objectives to support the telecom sector and accelerate roll-out of 5G and fibre networks by removing regulatory hurdles. This would provide operators the means to further improve efficiency. As well, before imposing any obligation on the operators a cost/benefit must be done, notably in respect to the timing of the deployment.

- Main conclusions of the BEREC Opinion on the revision of the BCRD regarding sustainability-related issues

1) First, we note that BEREC states that “defining an ECN as environmentally sustainable is probably very challenging” (BoR (21) 30 BEREC Opinion, p. 51).

On the one side, we believe that linking such definition to exclusive benefits and possible incentives for the deployment of greener networks might be too prescriptive and might end up slowing roll-out instead of incentivising it.

As stated in our response to the EC public consultation on the BCRD review (<https://etno.eu/component/attachments/attachments.html?task=download&id=8026>), individual networks considerably vary depending on factors such as the specific hardware and software, as well as the network’s topology. A one-size-fits-all approach does not match with this heterogeneity. In addition to that, deciding upfront on each detail of the deployment and operational detail would result in an overly bureaucratic process. Many decisions such as around deployment techniques, the procurement of hardware or infrastructure sharing will only be taken after the deployment process has started.

On the other side, as indicated in the abovementioned BEREC Opinion, ECN operators are those best placed to provide with further knowledge and data also when developing more efficient technologies (see our reply to Question 1). In any case, if provisions will introduce benefits listed to environmentally sustainable networks, it is key that (a) this is based on a sufficiently broad category of environmentally sustainable networks and (b) that these positive incentives do not turn into obligations or constraints for any network. Some examples of such “negative incentives” can be found in the draft “Connectivity Toolbox”: mandatory multi-operator sites and especially stricter regulation when installing networks in the forest, protected areas and on cultural heritage sites.”

2) Secondly, we agree with BEREC in acknowledging that there are different approaches and methodologies to measure ICT’s environmental footprint, leading to various figures of energy consumption and carbon emissions.

In any case, we would like to stress that it is widely recognized that the sector is not part of the problem, but it can be part of the solution instead.

However, we believe that a narrow focus on direct emission in deployment and consumption during operation would be misleading. The starting point for assessing networks’ impact on the environment should be on networks’ primary positive role for the environment, which includes cutting edge as well as legacy networks with lower energy efficiency (see above).

Furthermore, in our consultation response on the BCRD review we have identified regulatory hurdles that impede more efficient deployment processes concerning deployment techniques. The updated BCRD should remove these regulatory hurdles and provide operators more flexibility to improve efficiency. This refers to hurdles concerning e.g. the sharing of mobile and fixed infrastructure, too restrictive EMF exposure limits, the use of micro-trenching and the deployment of fixed lines above the ground.

In general, we agree that fostering the exchange of info and best practices among NRAs and operators would improve coordinated actions.

4) Please enter your comments on Chapter 4 (Inputs from stakeholders) here:

As stated above, ETNO has highly appreciated the possibility to exchange with BEREC and to present its current initiatives on sustainability and main policy objectives.

It is highly valuable to learn about the various interviews that BEREC hold in addition to the fruitful exchange with ETNO.

Specifically related to the need to have reliable data and comparable methodologies mention in chapter 4.1, ETNO is proudly among the founding members of the European Green Digital Coalition (EGDC), and

pledged that their companies would be climate neutral by 2040 at the latest, to accelerate the European Commission's green ambitions.

Furthermore, ETNO, together with Global Enabling Sustainability Initiative (GeSI), European DIGITAL SME Alliance, DIGITALEUROPE, and GSMA (all together gathered in a consortium) were awarded by European Commission the European Parliament Pilot project earlier this year (<https://www.etno.eu/news/all-news/722:egdc-coalition.html>). ETNO, therefore, is currently busy in the consortium led by GeSI that is working with Carbon Trust, Deloitte, and Sustainable ICT Consulting to deliver science-based methods to estimate the net impact of green digital solutions on the environment.

We believe that the results delivered by the EGDC will be also instrumental for the EU taxonomy to give the adequate relevance to ICT activities as essential facilitators of the EU Green Deal, with the purpose of channeling long-term, sustainable finance into sustainable activities.

4.3 Solutions mentioned by stakeholders to steer ICTs' environmental footprint

IEA Energy Efficiency of digital infrastructures

As stated in IEA's study "Tracking Data Centres and Data Transmission Networks 2020": Global internet traffic surged by almost 40% between February and mid-April 2020, driven by growth in video streaming, video conferencing, online gaming, and social networking. This growth comes on top of rising demand for digital services over the past decade: since 2010, the number of internet users worldwide has doubled while global internet traffic has grown 12-fold. However, rapid improvements in energy efficiency have helped to limit energy demand growth from data centres and data transmission networks, which each accounted for around 1% of global electricity use in 2019. Strong government and industry efforts on energy efficiency, renewables procurement, and R&D are necessary to limit growth in energy demand and emissions over the next decade.

RSPG Sustainability and Spectrum management

We particularly warn against spectrum policy initiatives that can potentially have a negative impact on the enablement effect that was discussed above. Spectrum scarcity and high spectrum prices negatively impact coverage and end user prices, jeopardising the digitalisation of customers and the potential for them to be more energy efficient.

Regarding energy efficiency in mobile networks themselves, in our view there are three main factors through which spectrum regulators can have an impact: restricting spectrum supply, inducing licensees to maintain legacy technologies running, and restricting network sharing.

Broadly speaking, mobile operators can expand network capacity by using more spectrum frequencies or by reusing the frequencies they already own. In general, it is more energy efficient to expand capacity by adding spectrum, because densification increases the number of sites and overhead use of electricity. Artificially restricting spectrum supply for mobile services, or imposing unnecessary constraints to protect other spectrum users, can therefore result in higher energy use than necessary.

Overlapping technologies are a large source of energy use and result in large parts of the radio access being duplicated. The main barriers to switch off energy intensive legacy technologies are the installed base of end user devices and regulatory incentives or obligations to keep legacy technologies in use. Technology specific spectrum licences, for example, induce licensees to maintain legacy technologies longer than necessary, in order not to lose the spectrum rights. Similarly, the social benefits of imposing obligations on mobile operators to provide connectivity for legacy 2G e-call services embedded in cars should be weighed against the environmental costs of keeping an energy inefficient technology running.

Introducing rules that prevent sharing of active equipment is another way in which spectrum administrations could negatively impact the fight against climate change. Spectrum pooling, for example, generally requires explicit regulatory approval. When evaluating the benefits and drawbacks of sharing, environmental considerations should be given proper attention.

5) Please enter your comments on Chapter 5 (Key findings of the external study) here:

Network sharing

We think that policy and regulatory support for network sharing agreements appears relevant also from the sustainability viewpoint, while also helping to accelerate network deployment investment.

Voluntary network sharing agreements have become widespread in Europe as a means to decreasing costs, increasing coverage, reducing timing of network roll-out, deploying efficiently and rapidly new technologies and reducing the environmental impact and land usage.

In particular, RAN sharing agreements also pursue sustainability goals as they allow to reduce the number of mobile sites, and thus their environmental impact because of radio emissions. At the same time, this reduces the amount of radio equipment, i.e. lower production and less waste. They also contribute to reduce energy consumption. As regards in particular investments in 5G, it should be noted that the mobile access network in 5G has greater physical needs in the sense that the active and more energy efficient antennas that will be used more frequently is larger and will also increasingly require dense deployment of base stations and additionally there will also be a need for additional transmission links connecting them to the core network.

One of key obstacles to more widespread RAN sharing is the strict approach that in particular competition law enforcement bodies have towards network sharing disregarding numerous positive aspects of it.

Absence of consistent rules for legitimate network sharing makes it difficult for the interested parties to identify the boundaries of a legitimate sharing model.

We are in need of a more welcoming and flexible framework first of all for sharing of access networks, including active and passive elements of it. As an example of such more flexible framework we would cite presumption of a legality for active RAN sharing which does not go beyond RAN and permits full independence with regard to service platforms.

To decrease the environmental impact of 5G network deployment, it is necessary to ensure an easy and quick access to suitable infrastructure (e.g. rooftops) that are under the control of public entities such as government, municipalities and other entities acting on their behalf – we expect that the future BCRD review will resolve this bottleneck.

Switch-off of old legacy networks

Not only the deployment of new network technologies improves the energy efficiency.

ETNO members are additionally improving the operations of existing mobile and fixed networks, and gradual withdrawal of legacy fixed and mobile technologies, resulting in a reduction of energy consumption.

As energy is one of the primary sources of cost savings when phasing out legacy networks, ETNO members are also devoting significant efforts toward other action such as migration from PSTN to IP and retirement of no longer needed hardware.

To boost the fast rollout of energy efficient networks, clear and resolute public policies are needed for a fast decommissioning of legacy network and technologies such as 2G and 3G but also PSTN and xDSL and other forms of copper-based services. Key to ensure consistent and swift switch-off of legacy networks is that the incumbent is in the “driver’s seat” in the process, and is not subject to excessive bureaucracy.

Re-use of existing physical infrastructures, and co-ordination of civil works

As fully reflected by the BCRD, it is clear that when possible, to use existing infrastructure, instead of deploying new ones is virtuous to the extent it does not hamper incentives to invest. Co-ordination of civil works as well as long as the potential environmental benefit is not to be required to the extent that it becomes the detriment of the speed and profitability of deployment of VHCN. – commercial agreements and “symmetric rules” are always to be preferred over any asymmetric regulatory intervention.

Potential levers outside NRAs' traditional mandate

Many ETNO companies played a key role in driving the market towards greater transparency by committing to environmental reporting that was more stringent than the mandatory requirements.

In general, we are convinced that such transparency will increase the leverage of our sustainability requirements as it establishes sustainability as a competitive factor.

Such transparency measures should be adopted at the same time also by our partners in introducing sustainability features into their hardware design. Thereby, we will contribute with our experience in hardware robustness, harmful substance management, and circular economy to make this industry more sustainable throughout the value chain.

We also think that the code of conduct and similar options, since they are based on existing company-wide indicators, are simpler to implement and therefore they should be preferred.

Among the levers outside NRAs' traditional mandate, measures of sustainability should be included in the own cost-benefit analysis and proportionality tests.

6) Please enter your comments on Chapter 6 (Conclusions and outline for BEREC's future work on sustainability) here:

Specifically with regards to BEREC work to develop indicators for evaluating both the environmental sustainability of ECN/ECS and related initiatives from the sector, we would like to stress the need to ensure consistency with what has been already released in the market.

We do have a specific observation regarding this sentence: "While the exact figures contained in studies may vary, there is a general agreement in the academic community that ICTs' GHG contribution will significantly increase if no action is taken."

Measured data over a period of last 10 years showed that, especially in Europe, operators' actual energy footprint is more or less flat and, at the same time, greenhouse gas emissions are decreasing at a speed equal to the increased purchase of electricity from renewable sources (<https://doi.org/10.3390/su14052637>). There's no "common view" in academia that GHG emissions will increase if no actions are taken, but there are more different views on how to estimate and forecast energy and GHG based on actual data or extrapolated estimates based on limited dataset.

That being said, GHG emissions might of course start to increase again in the future for different reasons but again, the overall European trend (based on measured data) shows another result.

Furthermore, in light of the wide-range measures included in the EU Green Deal/Circular economy plans, coordination among policy makers is crucial to ensure the required legal certainty and strong incentive to invest in technologically up-to-date networks including FTTH and 5G networks.

Finally, we would like to stress that ETNO and its members remain committed to provide input and expertise on the telecommunications industry to support BEREC in gathering environmental data and sectoral knowledge.

7) Please enter any other comments you may have:

Please upload here any supporting document that you deem relevant:

In accordance with the BEREC policy on public consultations, BEREC will publish all contributions and a summary of the contributions, respecting confidentiality requests. Any such requests should clearly indicate which information is considered confidential.

Confidential contribution:

- ☐ Yes
☒ No

If yes, please specify the information which should be treated as confidential:

Background Documents

Draft BEREC Report on Sustainability

Contact

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