EUROPEAN COMMISSION
DIRECTORATE-GENERAL FOR COMMUNICATIONS NETWORKS, CONTENT AND TECHNOLOGY

Connectivity
Radio Spectrum Policy Group
RSPG Secretariat

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DG CNECT/B4/RSPG Secretariat

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Questionnaire

on the

Role of Radio Spectrum Policy to help combat Climate Change

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Background

In its Work Programme for 2022 and beyond, the Radio Spectrum Policy Group (RSPG) decided to establish the following Work item:

The RSPG Opinion on the Role of Radio Spectrum Policy to help combat Climate Change provides a series of recommendations to the European Commission, Member States and stakeholders to continue the path towards a more environmentally-friendly society through the use of wireless technologies.

The Opinion suggests further avenues in terms of spectrum regulation, harmonisation, voluntary initiatives, and information gathering. It is also recognised that the relationship between sustainability and electronic communications is also covered elsewhere. For example, BEREC has published its Report on Sustainability in 2022 and the BEREC Working Group on Sustainability is aiming to complete another deliverable on indicators of sustainability of telecom networks and services. Therefore, this work should be followed closely in order to avoid a potential overlap.

Two particular points raised by the Opinion fall into the purview of activities of the RSPG and it is therefore proposed to continue working on those points in the RSPG:

1) The need for a common set of methodologies in order to understand and assess the impact of ECS wireless technologies on climate change, involving ECS stakeholders and all interested parties, and with a particular focus on the ECS radio component.
2) The importance of having accurate information on emissions and energy efficiency related to spectrum use on a national level (e.g. reports from network operators).

These activities will help Member States and the EC to take appropriate regulatory actions within the spectrum area in order to combat climate change.

Scope of RSPG activity:

- Identifying methodologies to assess the energy efficiency of wireless technologies, including the influence of variables such as the frequency band, type of access technology, etc. Input from stakeholders (e.g. through a workshop) may be required.

- Collecting practices from Member States on how energy efficiency is measured and managed nationally in relation to the spectrum area, including how data to assess the energy efficiency is collected.
- Assess how efficient spectrum policies can facilitate a green digital transition of Europe, to reduce carbon emissions.

Glossary

ECN	Electronic Communication Network
Energy efficiency	Relation between the useful output (such as bit rate to receiving devices or more generally output RF power, which is also related to the number of users in a service area) and energy/power consumption.[1]
MNO	Mobile Network Operator

Questionnaire

The following questions aim to gather relevant information from Member States and stakeholders (and all interested parties).

Please focus on spectrum-related aspects of your wireless network(s) (MNO / Radio Access Network/ECN).

Questions directed to Member States and stakeholders:

1) In your country, is information being collected on **energy consumption** of the wireless ECNs? If so, which entity is collecting the information? What is the purpose? Is this based on regulation? If so, please specify the regulation.

2) In your country, is the **energy efficiency** of the wireless ECNs being calculated? If so, which entity is responsible for this? What is the purpose? Is this based on regulation? If so, please specify the regulation.

3) For the items described in Questions 1) and 2) above, which methodology/ methodologies are being used? Please name any standards that are being used. Is the information available for all wireless ECNs, or only for a part of these? Which data breakdowns are available: e.g., by operator, by service, by frequency band, by technology (e.g., 2G/3G/4G/5G), by region, by site, by network element, etc.? Please mention also the cases when incomplete breakdowns are available.

[1] Examples of the definition of energy efficiency for mobile networks can be found in the ETSI standard ES 203 228 1.3.1 (section 5).

4) In your analyses related to energy consumption and/or energy efficiency, what are your reflections on the influence of parameters such as frequency band, type of radio access technology, coverage addressing different areas (urban, suburban, rural)?

5) Is the energy efficiency of the wireless ECN not only measured / calculated but also subject to regulations in your country? If so, by which entity and for which purpose or objective? If so, please describe the provisions in place, including how these provisions are enforced and controlled (if applicable), and the experiences with these provisions so far.

6) Taking into account the scope of the work of the RSPG above, do you wish to share other thoughts or ideas which could be helpful to the RSPG to identify the role radio spectrum policy can play to help combat climate change and mitigate other adverse environmental impacts?

Questions directed to ECN stakeholders:

7) What information on **energy consumption** of the wireless ECNs does your company / the Members of your stakeholders' association collect? Which methodology/ methodologies are being used? Please name any standards that are being used.

8) Does your company / the Members of your stakeholders' association measure or calculate **energy efficiency** of wireless ECNs? Which methodology/ methodologies are being used? Please name any standards that are being used.

9) For the items described in Questions 7) and 8) above, which data breakdowns are available to your company / association[2]: e.g., by operator (if applicable), by service, by frequency band, by technology (e.g., 2G/3G/4G/5G), by region, by site, by network element, etc.? Please mention also the cases for which incomplete breakdowns are available.

10) Are you considering collecting any additional information that you could collect with reasonable effort?

11) Which actions is your company / the Members of your association taking to improve the energy efficient use of radio spectrum (e.g. switching to new technologies, advertisements to make energy efficient technologies more attractive, sleep mode for base stations, or other actions)?

[2] In order to consolidate the responses of your association's members, a table is proposed in the Annex

12) What were the triggers for these actions (e.g. legal requirement, economic interests, consumer expectations, competitiveness, etc.)?

13) Were there any difficulties when you attempted to introduce or perform these actions? Please specify.

14) What further actions would enable you to foster (a more) energy efficient spectrum use, if any? Should such an activity be done by national spectrum regulators / ministries / European entities? Please specify and explain.

15) Would some kind of spectrum regulation facilitate your motivation to use radio spectrum in a (more) energy efficient way?

16) Taking into account the scope of the work of the RSPG above, do you wish to share other thoughts or ideas which could be helpful to the RSPG to identify the role radio spectrum policy can play to help combat climate change and mitigate other adverse environmental impacts?

Contact name and email for follow up from the Radio Spectrum Policy Group:

Annex Possible presentation of responses to question 9 (for stakeholder associations)

The responses pertaining to different members of a stakeholder association could be submitted in table format as suggested below.

Energy consumption

Operator (Anonymous)	Service	Frequency/spectrum range	Technology	Geographic area	Radio Site	Network element	Consumption	Measurement method	Breakdown	Observations/ additional comments

Energy efficiency

Operator (Anonymous)	Service	Frequency/spectrum range	Technology	Geographic area	Radio Site	Network element	Energy efficiency	Measurement method	Breakdown	Observations/ additional comments