

Outline BEREC Work Programme 2020

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I. INTRODUCTION

The Body of European Regulators for Electronic Communications (BEREC) was established by Regulation (EC) No 1211/2009 of the European Parliament and of the Council of 25 November 2009 (the BEREC Regulation). According to Article 5(4) of the BEREC Regulation, the BEREC Board of Regulators shall, after consulting interested parties, adopt the annual work programme of BEREC before the end of each year preceding that to which the work programme relates. The Board of Regulators shall transmit the annual work programme to the European Parliament, the Council and the European Commission as soon as it is adopted. BEREC aims to ensure the independent, consistent and high-quality application of the European regulatory framework for electronic communications for the benefit of Europe and its citizens. The objectives of the outline BEREC Work Programme 2020 continue to be based on the mandatory tasks falling to BEREC in light of the new European Electronic Communications Code (EECC), but also fundamentally on the BEREC Medium-Term Strategy 2018-2020, with a keen focus on the following five strategic priorities:

- Responding to connectivity challenges and to new conditions for access to high-capacity networks;
- Monitoring potential bottlenecks in the distribution of digital services;
- Enabling 5G and promoting innovation in network technologies;
- Fostering a consistent approach of the net neutrality principles; and
- Exploring new ways to boost consumer empowerment.

While the work of implementing the new EECC is to the forefront of BEREC's work, BEREC would also like to note that its fundamental objectives and the objectives of the EECC – promoting competition and investment, promoting the internal market, empowering and protecting end-users, and promote connectivity in Europe – will be the relevant pillars guiding the work of BEREC in the coming years. As 2018 saw the completion of more than two years of negotiations on the EECC, the scope and scale of the draft Work Programme 2020 continues to illustrate the level of work both behind and before BEREC. The draft outline Work Programme 2020 reflects BEREC's commitment to serve as a body for thoughtful and proactive debate and advice for the European Parliament, the Council and the European Commission in the electronic communications field. Furthermore, BEREC's future aims are to play an important role in further improving the consistent application of regulatory rules, to enhance its working methodology and to engage cooperatively and effectively with stakeholders.

In line with the practice of previous years and in accordance with Article 5 of the BEREC Regulation, the BEREC Work Programme 2020 will be subject to consultation. The public consultation will run for a 4 week period in October and November 2019. The final BEREC Work Programme 2020 will be discussed and agreed upon at the BEREC Board of Regulators meeting in Malta, on 5-6 December 2019.

Mr. Jeremy Godfrey, ComReg

II. BACKGROUND

When people speak of electronic communications markets, they typically speak of rapid evolution in technology, new platforms, and recently, exponential growth in data consumption. However, in recent years, a regulatory evolution has also begun in the European electronic communications sector, which is intended to help improve the end-user experience, lead to greater competition and investment, and benefit all the different players in the digital ecosystem. In short, this regulatory evolution – in other words the new European Electronic Communications Code (EECC) – and the work that BEREC will undertake as part of it, is aimed at achieving the very clear objectives of:

- Promote competition and investment;
- Promote the internal market;
- Empower and protect end users; and
- Promote connectivity across Europe.

While the new EECC and the new BEREC Regulation¹ and the mandatory tasks flowing from such documents, provide the basis for the outline BEREC Work Programme 2020, we are in the final year of three years following on from BEREC's Medium-Term Strategy 2018-2020. Therefore, that document, its three objectives, and its five strategic priorities, remains fundamental to the work that BEREC will undertake in 2020. While the outline Work Programme 2020 seeks to address current regulatory challenges, it also most certainly has been developed to prepare for the new challenges set out in the EECC and the BEREC Regulation, as well as the challenges ahead resulting from not just political, but economic, technological, and social developments.

In BEREC's Work Programmes of 2018 & 2019, an important focus of BEREC's work related to 5G, in that BEREC indicated it would, within the scope of its competence, actively and closely follow the development of 5G. In 2020, some of that work will conclude under Strategic Priority 3. Equally, the work falling under Strategic Priority 4, related to Net Neutrality, will remain an important focus for BEREC, particularly as, over the last couple of years, given legislative changes, BEREC has played (and continues to play) a key role in this matter and contributed to the harmonised implementation of the TSM Regulation.

However, in 2020, the focus of BEREC's Work Programme will conclude the important, mandatory projects, which cover all five of BEREC's Strategic Priorities, tasked to BEREC in light of the EECC. As part of such mandatory tasks, BEREC will publish guidelines intended to foster the consistent application of the criteria for assessing co-investment on Very High Capacity Network (VHCN) elements. In addition, in 2020 BEREC may continue work on a study into the determinants of investment in VHCN, pending the delivery of Phase 1 in 2019.

The strong and focused work completed by BEREC in 2019 with regard to consumer empowerment will continue, and the welfare of end users will always be a key focus for BEREC, and most certainly in the BEREC Work Programme 2020. In line with its Medium-Term Strategy 2018-2020, BEREC will continue to play a very active role in assessing and

¹ Regulation (EU) 2018/1971 of the European Parliament and of the Council of 11 December 2018

promoting consumer empowerment and consumer protection. In 2020, BEREC intends, in light of the new EECC, to publish guidelines on quality of service parameters relevant for end users with disabilities.

Typically, when developing its annual work programme, BEREC includes work streams/projects/items that have been proposed by National Regulatory Authorities (NRAs), BEREC's own Expert Working Groups, and indeed third parties/stakeholders, during the initial consultation phase in the first half of a given year. The development of the Work Programme 2020 will be, in that sense, no different. However, in developing the Work Programme 2020, BEREC must allow sufficient capacity for the remaining tasks set out in the new EECC. And yet, BEREC expects that there should still be scope for, what could be termed as, "discretionary items of work" which will be defined as part of the Work Programme definition in 2019.

This outline Work Programme 2020 contains those items from the 2019 Work Programme which have been identified as carrying over into 2020, and other ad hoc or recurring items which are expected to be worked upon in 2020.

III. BEREC WORK IN 2020

Due to the extent of the mandatory work which BEREC is tasked with in light of the EECC, many of the projects set out in the following chapters of BEREC's outline Work Programme 2020 have been necessarily carried over from 2019. A number of items are also obligatory or recurrent tasks for BEREC. While the Annexes below provide an illustration and a list of BEREC's deliverables for 2020, the details per Strategic Priority are set out in the following chapters.

1. Strategic priority 1: Responding to connectivity challenges and to new conditions for access to high-capacity networks

In its Medium-Term Strategy 2018-2020, BEREC included as a strategic priority the continuation of its work on identifying competition problems that may arise in different Member States (MSs) as high-speed networks are being developed and legacy networks phased out or where markets have become mature – with the intention to increase awareness on how incentives to invest change with changing market conditions and how competition is affected. In 2020, such work continues to be at the forefront of BEREC's Work Programme, given the importance placed on Very High Capacity Networks (VHCN) by the EECC, particularly with respect to co-investment (Article 76). The outline Work Programme 2020 therefore includes the following activities that contribute to this strategic goal.

1.1. Guidelines on Very high capacity networks

The EECC (Article 82) provides that “by two years after the date of entry into force of this Directive [EECC], BEREC shall, after consulting stakeholders and in close cooperation with the Commission, issue guidelines on the criteria a network has to fulfil in order to be considered a very high capacity network”.

An essential basis of the project is a detailed analysis of the legal provisions in the EECC which define the term “very high capacity networks” (Article 2(2), recital 13). In addition, the project includes the collection of data on achievable network performance of networks defined in recital 13. The BEREC guidelines on very high capacity networks will then be based on this comprehensive database. Work commenced on this item in 2019.

<p>Deliverable: BEREC guidelines on very high capacity networks</p>
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<p>Public consultation: Yes; adoption at Plenary 2 2020</p>

<p>Adoption of final guidelines at Plenary 4 2020 for publication</p>

1.2. BEREC Study on the determinants of investment in very high capacity networks

This is a research project, with the objective of providing insight into the complex interplay of factors which impact investment in network infrastructure. The project will involve the development of a system dynamics model that captures these factors and enables simulation and testing of various hypotheses about the impact of regulatory measures within the EU, as well as other factors that can influence the level of investment in very high capacity fixed networks (VHCN).

Phase 1 of this project is due to complete in 2019 and the second Phase of the project would only proceed based on approval and adoption of the first Phase by the Board of Regulators.

Phase 2 of the project, if approved, is expected to involve:

- calibrating the conceptual model for at least one BEREC member state and simulating the impact of different regulatory levers
- the provision of training to NRAs to allow for the calibration and use of the model after the conclusion of the project

Deliverable: BEREC Study on the determinants of investment in very high capacity networks

Public consultation: No

Phase 2 deliverable and timing to be decided

1.3. Guidelines on the Identification of the network termination point

The EECC (Article 61(7)) provides that “by 18 months after the date of entry into force of this Directive [EECC] in order to contribute to a consistent definition of the location of network termination points by national regulatory authorities, BEREC shall, after consulting stakeholders and in close cooperation with the Commission, adopt guidelines on common approaches to the identification of the network termination point in different network topologies. National regulatory authorities shall take utmost account of those guidelines when defining the location of network termination points.” The objective of the project is to prepare these guidelines. The project will be based on the results of the BEREC report “Location of the network termination point” which was published in October 2018.

Deliverable: BEREC guidelines on common approaches to the identification of the network termination point in different network topologies

Adoption of final guidelines at Plenary 1 2020 for publication

1.4. Guidelines on the criteria for a consistent application of Article 61(3)

The EECC (Article 61(3)) foresees that NRAs may impose, upon reasonable request, access to wiring and cables and associated facilities inside buildings or up to the first concentration or distribution point as determined by the NRA on electronic communication network providers and owners of such network elements where replication of those network elements would be economically inefficient or physically impracticable.

Where these obligations do not sufficiently address economic or physical barriers to replication, it may extend the imposition of such access obligations (including active or virtual access obligations if justified) beyond the first concentration or distribution point, to a point capable of hosting a sufficient number of end-user connections to be commercially viable for efficient access seekers. BEREC shall publish guidelines to set out the relevant criteria for determining:

- the first concentration or distribution point;
- the point, beyond the first concentration or distribution point, capable of hosting a sufficient number of end-user connections to enable an efficient undertaking to overcome the significant replicability barriers identified;
- which network deployments can be considered new;
- which projects can be considered small; and
- which economic or physical barriers to replication are high and non-transitory.

Deliverable: BEREC Guidelines on the criteria for a consistent application of Article 61(3) (concentration point etc.)

Public consultation: Yes; adoption at Plenary 2 2020

Adoption of final guidelines at Plenary 4 2020 for publication

1.5. Guidelines on the consistent application of the co-investment criteria

According to the EECC (Article 76), undertakings which have been designated as having significant market power in one or several relevant markets in accordance with Article 67 of the EECC may offer commitments in accordance with the procedure set out in Article 79 and subject to a series of conditions to open the deployment of a new very high capacity network that consists of optical fibre elements up to the end-user premises or base station, to co-investment. Co-investment may take the form of co-ownership or long-term risk sharing through co-financing or through purchase agreements giving rise to specific rights of a structural character by other providers of electronic communications networks and/or services.

NRAs are required to assess whether the offer to co-invest complies cumulatively with a minimum set of conditions outlined in Art 76 (1) paragraphs (a) to (e), in order to decide

whether or not to impose any additional obligations pursuant to Article 67 and Article 68. Therefore, the objective of this project is for BEREC to publish guidelines to foster the consistent application by NRAs of the criteria set out in Article 76(1) of the EECC

Deliverable: BEREC Guidelines to foster the consistent application of the criteria for assessing co-investments in very high capacity network elements

Public consultation: Yes; adoption at Plenary 1 2020

Adoption of final guidelines at Plenary 4 2020 for publication

1.6. Opinion on the review of the EC Recommendation on Relevant Markets

According to the EECC (Article 64), the European Commission shall adopt a Recommendation on Relevant Product and Service Markets. The Recommendation shall identify those product and service markets within the electronic communications sector and the characteristics of which may be such as to justify the imposition of regulatory obligations set out in this Directive, without prejudice to markets that may be defined in specific cases under competition law. This Recommendation will be the evolution of the Recommendation in force on Relevant Product and Service Markets reviewed in 2014. This Recommendation shall be reviewed at the latest by transposition date of the EECC and the Commission shall thereafter regularly review the Recommendation. The European Commission must take utmost account of the opinion of BEREC on this Recommendation.

BEREC will prepare an Opinion based on the documents and draft Recommendation to be published by the European Commission. Given the importance of this Recommendation for market analyses, exchanges and workshops with the European Commission shall be organised, in order to provide the Commission with NRAs' knowledge of the functioning of the markets and to ensure that BEREC questions and concerns will be addressed.

Deliverable: BEREC Opinion on the review of EC Recommendation on relevant markets

Public consultation: No

Timing to be decided, dependent on when the European Commission will publish the draft Recommendation

1.7. Guidelines for geographical surveys of network deployments

According to the EECC (Article 22(7)), by 18 months after its entry into force, in order to contribute to the consistent application of geographical surveys and forecasts, BEREC shall, after consulting stakeholders and in close cooperation with the Commission and relevant national authorities, issue guidelines to assist NRAs and/or other competent authorities on the consistent implementation of their obligations under this Article. Regarding Article 22, NRAs and/or other competent authorities shall conduct a geographical survey of the reach of electronic communications networks capable of delivering broadband ("broadband networks")

within three years from deadline for transposition of the Directive and shall update it at least every three years.

The survey shall include:

- The geographic reach of networks (capable of delivering broadband) within the MS territory, and
- May also include a forecast for a period determined by the relevant authority of the reach of broadband networks, including very high capacity networks within the MS territory.

The information collected in the geographical survey shall be at an appropriate level of local detail and shall include sufficient information on the quality of service and parameters thereof.

Deliverable: BEREC Guidelines to assist NRAs on the consistent application of geographical surveys of network deployments

Adoption of final guidelines at Plenary 1 2020 for publication

2. Strategic priority 2: Monitoring potential bottlenecks in the distribution of digital services

BEREC's second strategic priority is to evaluate and analyse how the various digital markets evolve over the lifetime of the Medium-Term Strategy, with a particular focus on how market power is distributed and how the existence of bottlenecks to competition can be addressed by BEREC. While much of the work allocated to this strategic priority in 2020 relates to the remaining mandatory tasks flowing from the EECC, BEREC expects to also include "discretionary work items" which will be defined during 2019 in the development the 2020 Work Programme.

3. Strategic priority 3: Enabling 5G and promoting innovation in network technologies

In 2018 and 2019, BEREC made 5G a key focus of its Work Programme. BEREC intends, within the scope of its competence, to continue actively and closely following the development of 5G and will, where relevant, work in cooperation with other EU bodies (in particular RSPG) to identify potential hurdles to a smooth and quick implementation in the Member States. While the focus in 2020 will be on the mandatory work tasked to BEREC in light of the EECC, enabling 5G and the promotion of technological innovation remains a key objective for BEREC.

3.1. The impact of 5G on regulation

In 2018, BEREC commissioned a study on the implications of 5G deployments on future business models and published a report on infrastructure sharing. Further, following a public consultation, BEREC published a Common Position on mobile coverage information for consumers, which comprises the following:

1. Technical specifications for providing relevant and comparable information on mobile coverage to European consumers,
2. The use of signal predictions for mobile coverage estimation,
3. Ensuring the accuracy of coverage information provided to the public, and
4. Availability and presentation of mobile coverage information.

In 2019, BEREC will commence an assessment on the impact of 5G on regulation and the role of regulation in enabling the 5G ecosystem to include how regulation could influence the pace at which innovative services are brought to market – especially vertical solutions. Additional aspects to this work could also include focusing on other relevant aspects, such as:

- Aspects of 5G networks coverage and quality of service
- Exploring national practices in relation to the rollout of small cells.

The overall project will also consider other issues on which 5G may have an impact (market definition, network slicing and net neutrality², numbering, wholesale access to mobile networks to enable competition in vertical applications, roaming, switching barriers, and the extent to which similar issues might arise in the deployment of IoT solutions using pre-5G networks). BEREC intends to explore and highlight the expected benefits from a consistent and coherent presentation of coverage information for 5G deployments for use by market sectors other than mobile network operators (e.g. by new vertical applications and use cases; automotive,

² Concerning the net neutrality aspect of this project, coordination is foreseen in 2019 between the BEREC Open Internet Expert Working Group and the BEREC Planning and Future Trends Expert Working Group.

industrial, environmental monitoring use cases). The timing of the two deliverables set out below allows for the results of the “feasibility study” on development of coverage information for 5G deployments to provide input to the report on the impact of 5G on regulation

Deliverable: BEREC Report on the impact of 5G on regulation and the role of regulation in enabling the 5G ecosystem

Adoption of final report at Plenary 2 2020 for publication

Deliverable: BEREC Feasibility study on development of coverage information for 5G deployments

Adoption of final report at Plenary 1 2020 for publication

3.2. Peer review process

According to the EEC (Article 35), when an NRA and/or competent authority intends to undertake a selection procedure in relation to radio spectrum bands for which technical conditions have been harmonised in order to enable their use for wireless broadband electronic communications networks and services, it shall inform the RSPG about any such draft measures and indicate whether and when it requests the RSPG to convene a Peer Review Forum.

When requested to do so, the RSPG shall organise a Peer Review forum in order to discuss and exchange views on the draft measures transmitted and shall facilitate the exchange of experiences and best practices on the draft measures transmitted by NRAs or competent authorities.

The Peer Review forum shall be open to voluntary participation by experts from other competent authorities and BEREC.

In 2018, BEREC published a report on practices on spectrum authorisation, award procedures and coverage obligations with a view to considering their suitability to 5G. In 2019, BEREC experts will build upon this report to further exchange good practice in preparation for the Peer Review forum.

Deliverable: As required, BEREC participation in peer review forums to discuss and exchange views on draft national measures related to internal market procedures for radio spectrum

Public Consultation: No

4. Strategic priority 4: Fostering a consistent approach of the net neutrality principles

BEREC has a long history of working on Net Neutrality issues and with the growing trend among consumers towards internet-enabled services expected to continue, preserving open internet access will become ever more important and BEREC will continue to work actively to support national regulators in applying the Regulation in a consistent way throughout Europe. In 2020, that work will continue as BEREC examines and analysis the ways in which net neutrality is affected by changes in markets and new technologies and encourages national regulators to share experience on the practical implementation of the Regulation and the BEREC guidelines.

4.1. Update to the Guidelines on Net Neutrality

In 2018 BEREC conducted a public consultation of the evaluation of the application of Regulation 2015/2120 and BEREC Net Neutrality Guidelines. Based on this, BEREC published an Opinion, in which it recommended to update or clarify selected parts of the 2016 NN Guidelines. Based on the 2018 evaluation of the Net Neutrality Guidelines, as expressed in more detail in the BEREC Opinion and the consultation report, this work stream³ will finalize and publish updated NN Guidelines.

Deliverable: Update to the BEREC Guidelines on Net Neutrality

Adoption of final Guidelines at Plenary 1 2020 for publication depending on the relevant EC decision

4.2. Report on the implementation of Regulation (EU) 2015/2120 and BEREC Net Neutrality Guidelines

In 2016 BEREC published Net Neutrality guidelines as mandated by Regulation 2015/2120. This regulation also prescribes that NRAs shall “closely monitor and ensure compliance” with the Regulation, and that NRAs shall “publish reports on an annual basis regarding their monitoring and findings”. In 2017 and 2018 BEREC published a report on the implementation of the Regulation, based on the NRAs annual reports.

In 2020, BEREC will monitor the implementation of the Net Neutrality provisions among NRAs and will develop an annual European-level Net Neutrality report. In addition, a forum will be maintained to allow NRAs to informally discuss national cases and questions relating to the coherent application of the Net Neutrality Regulation, including cases of zero-rating.

Deliverable: BEREC Report on the implementation of Regulation (EU) 2015/2120 and BEREC Net Neutrality Guidelines

Public consultation: No

³ It should be noted that the Net Neutrality Guidelines review might be postponed if the Commission decides to revise the regulation.

Adoption of final report at Plenary 3 2020 for publication
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5. Strategic priority 5: Exploring new ways to boost consumer empowerment

The empowerment of end users is one of the three strategic pillars of BEREC. This objective was given added weight when BEREC put in place the five strategic priorities in its Medium-Term Strategy 2018-2020. BEREC always seeks to ensure that consumers have the information and tools to make informed choices and engage effectively with the market. One of the key provisions of the EECC is the imposition of consumer protection rules on the basis of full harmonisation at EU level, based on best practices in member states. As a result, the work of BEREC in 2020 continues the distinct focus on mandatory tasks flowing from the EECC which are intended to improve the welfare of consumers with regards to electronic communications markets. The Work Programme 2020 therefore includes the following activities that contribute to this strategic goal.

5.1. Guidelines on common criteria for undertakings other than ECN/ECS to manage numbering resources

According to the EECC (Article 93(2)), NRAs and/or other competent authorities may also grant rights of use for numbering resources from the national numbering plans for the provision of specific services to undertakings other than providers of electronic communications networks or services, provided that those undertakings demonstrate their ability to manage those numbers and sufficient and adequate numbering resources are made available to satisfy current and foreseeable future demand. Those undertakings shall demonstrate their ability to manage the numbering resources and comply with any relevant requirements set out pursuant to Article 94. It has to be taken into account that granting rights of use of numbering resources for undertakings other than ECN or ECS is a national competence and not an obligation required by the EECC. In this respect implementation may vary from MS to MS.

The EECC provides (Article 93(2)) that BEREC shall adopt, after consulting stakeholders and in close cooperation with the Commission, guidelines on common criteria for the assessment of the ability to manage numbering resources and the risk of exhaustion of numbering resources. Guidelines on the risk of exhaustion of numbering resources should be based on benchmarking NRA inputs and best practices, given that the legislative framework, the processes and the practices may vary from MS to MS. The purpose of this project is to produce these guidelines.

Deliverable: BEREC Guidelines on common criteria for the assessment of the ability of undertakings other than ECN or ECS to manage numbering resources

Adoption of final Guidelines at Plenary 1 2020 for publication
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5.2. Guidelines detailing quality of service parameters

According to the EECC (Article 104(2) and Annex X), in order to contribute to a consistent application of this paragraph and of Annex X, BEREC shall adopt, after consultation of stakeholders and in close cooperation with the Commission, guidelines on detailing the relevant quality of service parameters, including parameters relevant for end-users with disabilities, the applicable measurement methods, the content and format of publication of the information, and quality certification mechanisms. BEREC is therefore tasked with producing guidelines in order to contribute to the consistent application of Article 104(2) and Annex X.

The purpose of this project is to prepare and publish these guidelines. The project will address the constituent elements of the legislative task assigned to BEREC, including:

- What are the relevant Quality of Service (QoS) parameters, including, where appropriate the ETSI and ITU standards set out in Annex X of the EECC in relation to Interpersonal Communications Services (ICS) and Internet access service (IAS), respectively
- What are parameters relevant for end-users with disabilities
- What are the applicable measurement methods for these QoS parameters
- What QoS information should be published and in what form should it be published, including factors that may impact the QoS such as control of signal transmission or network connectivity

Deliverable: BEREC Guidelines detailing QoS parameters of IAS and publicly available ICS an/d the publication of information

Adoption of final guidelines at Plenary 1 2020 for publication

5.3. Report on Member States' best practices to support the defining of adequate broadband internet access service

According to the EECC (Article 84(3)), BEREC shall, in order to contribute towards a consistent application of this Article, after consulting stakeholders and in close cooperation with the Commission, taking into account available Commission (Eurostat) data, adopt a report on Member States' best practices in respect of defining the adequate broadband internet access service.

BEREC is tasked with adopting a report on Member States' best practices in respect of defining the adequate broadband IAS, in accordance with their obligation to ensure that all consumers have access at an affordable price, in light of specific national conditions, to an available adequate broadband IAS. The best practice report shall seek to gather and analyse relevant information including:

- Relevant data available from the EU Commission (Eurostat) regarding the availability and quality of broadband IAS in MS

- How to determine the bandwidth necessary for supporting the minimum set of services set out in Annex V of the EECC
- What criteria MS might use to deem that an available adequate broadband IAS, not provided at a fixed location, should be made available at an affordable price in order to ensure consumers' full social and economic participation in society

Deliverable: BEREC report on Member States' best practices to support the defining of adequate broadband IAS

Adoption of final report at Plenary 2 2020 for publication

5.4. Guidelines on how to assess the effectiveness of public warning systems transmitted by alternative means to mobile NB-ICS

According to the EECC (Article 110), Member States shall ensure that, when public warning systems regarding imminent or developing major emergencies and disasters are in place, public warnings are transmitted by providers of mobile NB-ICS to end-users concerned. Article 110 further provides that Member States may determine that public warnings may be transmitted through means other than mobile NB-ICS and broadcasting services, or through a mobile app (relying on an IAS) provided that the effectiveness of the system is equivalent (to that transmitted by NB-ICS) in terms of coverage and capacity to reach end users. Further, public warnings must be receivable by end users in an easy manner.

BEREC has been tasked with publishing Guidelines on how to assess whether the effectiveness of public warnings transmitted through ECS, other than mobile NB-ICS and broadcasting services, or through a mobile app (relying on an IAS) are equivalent to those transmitted through mobile NB-ICS.

Deliverable: BEREC Guidelines on how to assess the effectiveness of public warning systems transmitted by different means

Adoption of final Guidelines at Plenary 2 2020 for publication

6. BEREC obligatory work and stakeholder engagement

Beyond the work of BEREC explicitly set out above and intended to be delivered over the next 12-18 months, there are also a significant number of tasks that BEREC carries out on an ongoing basis under a number of different headings. Those headings can be summarised as follows:

- European Electronic Communications Code
- Roaming
- Quality and efficiency (which focuses on the regular benchmarking of statistics and indicators)
- Communication and cooperation

This obligatory work and BEREC's engagement with its stakeholders is intended to promote effective regulation based on high-quality professional standards applied by independent national regulators. BEREC will continue to engage with stakeholders, with the goal of focusing its work on issues that are relevant to them, and BEREC will also strive to enhance its cooperation with the EU institutions and international forums. BEREC is committed to such principles. The outline Work Programme 2020 therefore includes the following activities that contribute to BEREC's objective with respect to these principles.

European Electronic Communications Code

6.1. Ad hoc input to the European Union institutions/NRAs

Other than the inputs, already mentioned, to be provided to the European Commission as required (i.e. the Opinion on the Commission's evaluation on the functioning of the wholesale roaming market and the Opinion on the review of the Commission's Recommendation on relevant markets), BEREC will remain available to provide ad hoc input on request to the European Union institutions (European Commission, Parliament and Council)/NRAs, particularly during the implementation process for the EECC.

Deliverable: BEREC Opinions, Reports, position and input papers, technical background analyses, depending on specific requests by the EU Institutions (European Commission, Parliament and Council)/NRAs and on needs emerging during the implementation process

6.2. Database of E.164 numbers of European emergency services

According to the EECC (Article 109(8)), BEREC shall maintain a database of E.164 numbers of European emergency services to ensure that they are able to contact each other from one Member State to another, if such a database is not maintained by another organisation. The referred PSAP-DIR (Public Safety Answering Point Directory), which is a directory of contact information for PSAPs in Europe, is currently maintained by a non-governmental organisation (the European Emergency Number Association (EENA), based in Brussels). In 2015, EENA requested that CEPT/ECO would take over responsibility for the database. After a careful

consideration of the request and carrying out a feasibility study (ECC Report 264), the CEPT/ECO agreed to commit resources to the project and work has now commenced on the development of a new and more secure PSAP Directory (PSAP-DIR) which will be developed by the ECO until 1st December 2018.

In 2020, BEREC will continue to communicate with European Conference of Postal and Telecommunications (CEPT)/ European Communications Office (ECO), in order to get all necessary information on this project and decide whether this activity should be carried out under BEREC's remit.

Deliverable: Database of E.164 numbers of European emergency services

Database to be finalised and functioning by Plenary 3 2020, pending communication with CEPT/ECO

6.3. Database of numbering resources with a right of extraterritorial use within the European Union

According to the EECC (Article 93(4)), BEREC shall establish a central registry database on the numbering resources with a right of extraterritorial use within the Union. For this purpose, to which NRAs and/or competent authorities shall transmit the relevant information to BEREC. There are numbering resources that exist in some MS, and there are other MS where these resources do not exist, or their use is forbidden.

The EECC made a step towards harmonisation, but many details remain in national competence. In this respect, BEREC will be required to constantly monitor the implementation status of each MS in order to be able to establish and keep the database up to date. NRAs should communicate to BEREC an up to date list on the competent authority on numbering issues in their MS. BEREC will rely on the resources of the BEREC Office for maintaining the database.

Deliverable: Database of numbering resources with a right of extraterritorial use within the European Union

Database to be finalised and functioning by Plenary 4 2020

6.4. BEREC input to the setting of single EU-wide maximum fixed/mobile voice termination rates

According to the EECC (Article 75), by 31 December 2020 the Commission shall, taking utmost account of the opinion of BEREC, adopt a delegated act setting a single maximum EU-wide mobile voice termination rate and a single maximum EU-wide fixed voice termination rate, which is imposed on any operator active on each of the markets of mobile voice termination and fixed voice termination respectively in any Member State. To that end the Commission shall, when setting the single maximum EU-wide fixed voice termination rate and mobile voice termination rate for the first time, take into account the weighted average of efficient costs in fixed and mobile networks.

NRAs shall closely monitor and ensure compliance with the application of the single maximum EU-wide mobile and fixed voice termination rates by providers of termination services. NRAs shall annually report to BEREC and the Commission concerning the application of this Article.

Depending on the Commission's plan, ahead of the expected deadline for adoption, a BEREC Opinion on the draft delegated act will be required. BEREC may also be requested to produce comments and specific analysis for providing feedback to the Commission. The scope of the opinion will be to assess the evolution of fixed and mobile termination rates (FTRs and MTRs), the changes in consumption patterns for fixed and mobile services, and the potential effects on operators of setting single maximum EU-wide wholesale termination rates for both fixed and mobile voice.

Deliverable: BEREC input to the Commission's delegated act setting single EU-wide maximum MTR and FTR

Public consultation: No

Adoption of final Opinion at Plenary 3 2020 for publication

Roaming

6.5. BEREC input on the weighted average of maximum mobile termination rates across the EU

According to Article 6e(2) of the Roaming Regulation as amended by Regulation 2015/2120, the European Commission has to review the Implementing Acts setting out the weighted average of maximum mobile termination rates every year in accordance with the same procedure. BEREC needs to provide an annual input to the European Commission on this matter. The input to the Commission will be drafted based on the data that is collected as of 1 July 2020.

Deliverable: BEREC Input to the European Commission regarding the implementing acts setting out the weighted average of maximum mobile termination rates across the Union

Public consultation: No

Adoption of final input by 19 October 2020, at the latest, for submission to the European Commission

6.6. International Roaming benchmark data report

According to the Roaming Regulation, BEREC has to produce two benchmark reports on the evolution of prices and volumes. For 2020 it is planned to publish:

- 24th benchmark report (including the 2nd and 3rd quarter 2019)
- 25th benchmark report (including the 4th quarter 2019 and the 1st quarter 2020)

According to the EECC, BEREC will report on technical matters within its competence, in particular on (among others) the evolution of pricing and consumer patterns both for domestic and roaming services, the evolution of actual wholesale roaming rates for unbalanced traffic, the relationship between retail prices, and wholesale charges and wholesale costs for roaming services.

The data to be collected by BEREC shall be notified to the European Commission at least twice a year. On the basis of the collected data, BEREC shall also report regularly on the evolution of pricing and consumption patterns in the Member States, both for domestic and roaming services and the evolution of actual wholesale roaming rates for balanced and unbalanced traffic. BEREC shall assess how closely those elements relate to each other.

Deliverable: 24th BEREC International Roaming Benchmark Data Report

Public consultation: No

Adoption of final report at Plenary 1 2020 for publication

Deliverable: 25th BEREC International Roaming Benchmark Data Report

Public consultation: No

Adoption of final report at Plenary 3 2020 for publication

6.7. Transparency and comparability of international roaming tariffs

According to Article 19(4) of the Roaming Regulation, BEREC is obliged to annually collect information from NRAs on the transparency and comparability of different roaming tariffs offered by operators to their customers. The eighth of these reports is due at the fourth Plenary of 2020.

Deliverable: 8th BEREC Report on transparency and comparability of international roaming tariffs

Public consultation: No

Adoption of final report at Plenary 4 2020 for publication

Quality and efficiency

6.8. Termination Rates at the European level

Termination rates data is collected from BEREC members and observer states, and the report aims to monitor the evolution of rates and the cost model/methodology adopted for the definition of Termination Rates. These benchmarks have reached a satisfactory level of maturity and have proved extremely useful, not just for monitoring consistency but also in the regulatory process. The integrated report, including fixed and mobile termination rates, is

published every six months, and it includes an overview of FTRs and MTRs, as well as the cost model/methodology adopted for the definition of TRs. Annually, the report will also include an overview of SMS TRs and revenues of F/MTRs.

Deliverable: BEREC Report on Termination Rates at European level

Public consultation: No

Adoption of final reports at Plenary 2 and Plenary 4 2020 for publication

6.9. Article 7/7a Phase II process

Since 2014, BEREC has undertaken an annual analysis of Article 7/7a Phase II cases, aimed at gaining a better understanding of both the procedural and substantive aspects of these cases and at informing the prospective review of BEREC Common Positions. In 2015, a comprehensive database of Phase II cases was developed, including the main elements of the cases, in particular the reasoning put forward by the European Commission, the analyses in the BEREC Opinions, and the final outcomes of the cases. In 2016, BEREC revised the Guidelines for the elaboration of Opinions in Article 7/7a Phase II cases (and the procedures for the composition of Phase II case teams) addressing the issues raised in the BEREC and the EC Internal Audit Service assessments.

BEREC will continue to add new Phase II cases to this database as and when they arise. The objective is that the database can be consulted by BEREC members, in particular experts of Phase II cases, both for referencing a particular case and to analyse key themes amongst the cases over time.

In the context of the EECC, an evaluation of the applicability of BEREC's Guidelines for the elaboration of Opinions in Article 7/7 is timely and BEREC will consider whether an update is required.

Deliverable: Internal workshop and summary report on whether there is a requirement to update the Article 7/7A Phase II process in the context of the EECC

Workshop to be held in April 2020; summary report adoption at Plenary 3 2020 for publication

6.10. Report on regulatory accounting in practice

The Regulatory Accounting in practice Report 2019 will provide an up-to-date factual overview of the regulatory accounting frameworks used in Europe and an assessment of the level of consistency achieved by NRAs. The Report is prepared annually and updates the previous versions published since 2005. In 2020, emphasis will continue to be placed on consistency in regulatory accounting with respect to key access products (incl. e.g. fibre) and will seek to maintain the detail and the in-depth analysis of the methods covered to identify commonalities and reasons for differences. The Report will continue to collect data on the methodology and input parameters used to calculate the rate of return on capital employed and look into the impact of both on the result.

The 2020 Report will continue to develop a deeper analysis that concentrates on the following key wholesale markets: Wholesale Local Access (Market 3a/2014), Wholesale Central Access (Market 3b/2014) and Wholesale high quality access (Market 4/2014). Moreover, an analysis will be given of the cost base and allocation methodologies used for fixed (Market 1/2014) and mobile (Market 2/2014) termination markets. For those markets it will contain a comparison of the most “popular” combinations of cost base and cost allocation methodologies.

Deliverable: BEREC Report on Regulatory Accounting in Practice

Public consultation: No

Adoption of final report at Plenary 4 2020 for publication
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Communication and cooperation

6.11. BEREC Annual reports

According to the new BEREC Regulation, BEREC shall provide its annual activity report to the European Parliament, the Council, the Commission, and the European Economic and Social Committee by 15 June of the year subsequent to the year reported on in the annual activity report. BEREC shall report annually on technical matters within its competence, in particular on the market developments in the electronic communications sector.

BEREC will continue to publish its annual report on its activities and an annual report on developments in the sector as part of a single document. Whereas the Annual Report on BEREC activities focuses on the outcome of the work of its Expert Working Groups and ad-hoc teams based on the Work Programme, the Annual Report on developments in the electronic communications sector summarises BEREC’s view on the past year as well as a perspective of future developments and challenges in the sector.

Deliverable: BEREC Annual Reports (Annual Activity Report)

Public consultation: No

Adoption of final reports at Plenary 2 2020 for publication

6.12. Stakeholder Forum

The focus of the Stakeholder Forum in 2020 will continue to be the BEREC Work Programme for the coming year (i.e. 2021), and it will provide a platform for stakeholders and BEREC to engage in strategic dialogue for the work that BEREC is committing to going forward. The feedback received at the Stakeholder Forum will continue to be an important complement to the written inputs received during the public consultation for the BEREC Work Programme.

Deliverable: BEREC Stakeholder Forum in October 2020

6.13. BEREC Communications Plan 2020

In 2016, BEREC developed its first external Communications Strategy, which was afterwards complemented by the annual communications plans. BEREC's Communications Plan 2020 will be finalised for internal use in December 2019, setting in place the communications activities that BEREC is committed to in 2020. Typically, BEREC conducts 5-6 communications projects per year to support and promote specific work streams in its Work Programme. The projects are normally linked to the regular BEREC events, such as public debriefings and Stakeholder Forum and include a number of specific communications activities, for example, organisation of the event, production of a video, press releases, information for the website, a social media campaign, press interviews etc.

Deliverable: Multiple deliverables set out within the BEREC Communications Plan 2020 to be delivered as required in 2020

Adoption of BEREC Communications Plan 2020 at Plenary 4 2019 for internal use

6.14. BEREC Work Programme 2021

Typically, BEREC begins development of a new Work Programme for a given year at the end of the first quarter of the preceding year, and then finalises the Work Programme at the fourth Plenary in December, ahead of the New Year, for which the Work Programme is then set out.

According to the new BEREC Regulation, BEREC's Board of Regulators shall adopt the outline of its annual work programme by 31 January of the year preceding that to which the annual work programme relates. After consulting the European Parliament, the Council and the Commission on their priorities, as well as consulting other interested parties, the Board of Regulators shall adopt the final annual work programme by 31 December of the same year. The Board of Regulators shall transmit the annual work programme to the European Parliament, the Council and the Commission as soon as it is adopted. BEREC will provide a draft/provisional Work Programme in outline as per the new Regulation by the end of January 2021, and then work through the year to finalise the Work Programme by the end of the year.

Deliverable: Outline of BEREC Work Programme 2021

Public consultation: No

Adoption of Outline of BEREC Work Programme 2021 by 31 January 2020

Deliverable: BEREC Work Programme 2021

Public consultation: Yes

Adoption of BEREC Work Programme 2021 by 31 December 2020

6.15. Cooperation with EU institutions and institutional groups

As it has since it was founded, BEREC will continue to engage with the European Commission, the Council and the European Parliament, providing advice and opinions on draft decisions,

recommendations and guidelines, and taking on any questions related to electronic communications that fall within the scope of its competence. According to the new BEREC Regulation, BEREC is expected to issue guidelines ensuring the consistent implementation of the regulatory framework for electronic communications and consistent regulatory decisions by the NRAs on its own initiative or upon a request from an NRA, the European Parliament, the Council or the Commission, in particular for regulatory issues affecting a significant number of Member States or with a cross-border element.

In addition to carrying out its advisory duty for all EU institutions, BEREC will also promote in 2020 thematic exchanges and the possibility of common studies with other European regulatory cooperation platforms and bodies, operating both in adjacent and different economic sectors, such as the ITU, OECD, RSPG, ENISA, ERGA, ERGP, ECN and BEUC.

6.16. International cooperation

In 2020 BEREC will continue to engage in dialogue with NRAs based outside the EU, as well as with international regulatory networks, policy makers and institutions involved in electronic communications matters. BEREC will closely follow international trends in technology and changing business models, so that it retains the capacity to address challenges swiftly and effectively as they arise.

As regions outside the EU regulators' networks have been expressing great interest in the European regulatory approach, in 2020 BEREC will continue to provide support to the European Commission with respect to the Western Balkans initiative, as well as continuing to develop and strengthen contacts with international regulatory authorities such as the FCC, TRAI, CRTC, and with regional regulatory networks (EMERG, EaPeReg, and Regulatel), in accordance with the BEREC Regulation and in cooperation with the EU external action services.

7. Additional Items

In addition to the items described previously in this document, the items in this section will be considered for implementation in 2020. The specific deliverable type (e.g. Guidelines, Workshop etc.) will be defined during the preparation of the 2020 Work Programme over the course of 2019.

BEREC Strategy beyond 2020

The current BEREC Medium term Strategy covers the period 2018-2020 and, as such, BEREC will need to draft a new strategy for the period beyond 2020. The work on the next BEREC Medium term Strategy has to be initiated in 2019.

BEREC input to the Roaming Regulation

In 2020, BEREC will continue to work closely with the European Commission, European Parliament and Council in case the European Commission in its report to the EP and Council will propose amendments to the Roaming Regulation.

Exchange on the impact of the PSI Directive

In light of the planned update of the Public Sector Information (PSI) Directive and based on BEREC's previous work in the field of open data, BEREC and the individual NRAs will consider to what extent they can support the goals of the updated PSI Directive to support the provision of data for general business opportunities and other purposes such as algorithm training.

Workshop on NRA experiences with 5G

BEREC will exchange information on NRA's first experiences on 5G city networks. The primary focus of this exchange will cover the crucial issues raised, the hurdles encountered and the early best practises which have developed.

Exchange on regulatory system on platform markets

In some European countries, there is ongoing discussion on the potential need for a regulatory system on platform markets and the role of various organizations in contributing to such system. BEREC will engage with other organizations and agencies involved in the digital ecosystem on the European level to contribute to the discussion.

Internet Value Chain

BEREC will continue the task of monitoring the effects on the internet value chain of factors such as mobile Handsets, Operation Systems and Application stores, and build on previous and ongoing work by BEREC.

Abbreviations

BCRD	Broadband Cost Reduction Directive
BEREC	Body of European Regulators for Electronic Communications
BEUC	The European Consumer Organisation
BIAC	Broadband Internet Access Cost
CEPT	European Conference of Postal and Telecommunications
CRTC	Canadian Radio-television and Telecommunications Commission
EaPeReg	Eastern Partnership Electronic Communications Regulators Network
ECN	Electronic Communication Network
ECN	European Competition Network
ECO	European Communications Office
ECS	Electronic Communication Service
EECC	European Electronic Communications Code
EMERG	Euro-Mediterranean Regulators Group
ENISA	European Union Agency for Network and Information Security
ERGA	European Regulators Group for Audiovisual Media Services
ERGP	European Regulators Group for Postal Services
ETSI	European Telecommunications Standards Institute
FCC	Federal Communications Commission
FTR	Fixed Termination Rate
IAS	Internet Access Service
ICS	Interpersonal Communications Services
IoT	Internet of Things
ITU	International Telecommunications Union
MS	Member State
MTR	Mobile Termination Rate
NB-ICS	Number-based Interpersonal Communications Services
NN	Net Neutrality
NRA	National Regulatory Authority
OECD	Organisation for Economic Cooperation and Development
PSAP- DIR	Public Safety Answering Point Directory
QoS	Quality of Service
RegulateI	Latin American Forum of Telecommunications Regulators
RO	Reference Offer
RSPG	Radio Spectrum Policy Group
TRAI	Telecom Regulatory Authority of India
VHCN	Very High Capacity Networks
VULA	Virtual Unbundled Local Access