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Body of European Regulators for Electronic Communications

BEREC

Work Programme 2019

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Work Programme 2019

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 BEREC Work Programme 2019 are certainly 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 the consistent application of the net neutrality principles; and
- exploring new ways to boost consumer empowerment.

While the work of implementing the new EECC is at 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 promoting 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 2 years of negotiations on the EECC, the scope and scale of the Work Programme 2019 illustrates the level of work before BEREC not just in the next 12 months but, indeed, over the next 2 years.

The Work Programme 2019 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 2019 was subject to consultation. The public consultation ran from 10 October to 7 November 2018, with 18 stakeholders submitting responses. BEREC has also prepared a report summarising the responses received during the public consultation. One of the overarching themes in stakeholder responses to the public consultation was that stakeholders requested ongoing engagement with BEREC. BEREC will continue in its efforts to ensure such ongoing engagement. The final BEREC Work Programme 2019 was discussed and agreed upon at the BEREC Board of Regulators meeting in Prague, Czechia, on 6 and 7 December 2018.

Jeremy Godfrey, ComReg
Chair 2019

Johannes Gungl, RTR
Chair 2018

Work Programme 2019

BACKGROUND

Body of European Regulators for Electronic Communications

BEREC

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 development 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 development – in other words the new European Electronic Communications Code (EECC) – and the work that BEREC will undertake as part of it are aimed at achieving the very clear objectives of:

- promoting competition and investment;
- promoting the internal market;
- empowering and protecting end-users; and
- promoting connectivity across Europe.

While the new EECC and the new BEREC Regulation ([1]), and the mandatory tasks flowing from those documents, provide the basis for the BEREC Work Programme 2019, we are in the second of 3 years following on from BEREC's Medium-Term Strategy 2018-2020. Therefore, that document, its three objectives and its five strategic priorities remain fundamental to the work that BEREC is undertaking in 2019 and 2020. While the Work Programme 2019 seeks to address current regulatory challenges, it has also most certainly been developed to prepare for the new challenges set out in the EECC and the new BEREC Regulation, as well as the challenges ahead resulting from not just political but also economic, technological and social developments.

In BEREC's Work Programme 2018, an important focus of BEREC's work is related to 5G, in that BEREC indicated it would, within the scope of its competence, actively and closely follow the development of 5G. In 2019, that work will continue 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.

However, in 2019 and beyond into 2020, the focus of BEREC's Work Programme will turn primarily to the important, mandatory projects, which cover all five of BEREC's strategic priorities, tasked to BEREC in light of the EECC ([2]). As part of such mandatory tasks, BEREC will develop guidelines intended to foster the consistent application of the criteria for assessing co-investment on Very High Capacity Network (VHCN) elements. In addition, in 2019 BEREC will commission a study into the determinants of investment in VHCN. Enhancing the conditions for investment is a key activity for national tele-

([1]) The original draft of this Work Programme was completed ahead of the final adoption of the EECC and the BEREC Regulation. BEREC will amend the language, article numbers, etc., accordingly in light of the final adoption of both documents, in order to reflect the language appropriately. Therefore, any and all references to articles etc. in the EECC and the new BEREC Regulation are subject to adjustment, although it is to be expected that the content will essentially remain the same in the final adopted texts. While the version of this document to be adopted (provisionally) at BEREC's 37th Plenary meeting in December will take into account all responses to the public consultation, the final version of BEREC's Work Programme 2019 to be published can be prepared only when the language of the EECC and the new BEREC Regulation has been finalised.

([2]) The following dates for Plenaries in 2019 can be noted: Plenary 1 (6-8 March, 2019); Plenary 2 (12-14 June, 2019); Plenary 3 (2-4 October, 2019); Plenary 4 (5-6 December, 2019). Although the dates for Plenaries in 2020 have not been confirmed, it can be assumed that the dates will be approximately the same.

communications regulatory authorities, seeking to promote competition and optimise end-user welfare. The proposed project, using an innovative technique (system dynamics modelling), is intended to provide insight into the complex interplay of factors that affect investment in network infrastructure. This project will have a particular focus on regulatory measures imposed within the EU and how they can influence the level of investment in VHCN.

The strong and focused work completed by BEREC in 2018 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 2019. In line with its Medium-Term Strategy 2018-2020, BEREC will continue to play a very active role in assessing and promoting consumer empowerment and consumer protection. In 2019 and 2020, BEREC intends, in light of the new EECC, to produce guidelines on relevant quality of service parameters, including for end users with disabilities ([3]). Furthermore, taking into account the experience and views of the European Consumer Organisation (BEUC) in this matter, BEREC will work towards developing a vision for Europe's telecommunications consumers.

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 (EWGs) and indeed third parties/stakeholders, during the initial consultation phase in the first half of a given year. The development of the Work Programme 2019 was, in that sense, no different. However, in developing the Work Programme 2019, BEREC took care to allow sufficient capacity for the tasks set out in the new EECC. Still, BEREC felt that there could be scope for what could be termed discretionary items of work. Beyond what has already been mentioned above, two other such discretionary items were proposed to BEREC, and it was felt that there was a necessity to analyse such topics in 2019-2020. Those discretionary items of work will cover:

- regulatory approaches and experiences on migration from legacy infrastructures to fibre-based networks; and
- the scope of data that should be gathered from Authorised Undertakings and OTTs that might be the subject of a BEREC template, which would promote the modernisation, coordination and standardisation of the collection of data by NRAs.

These, and other areas that BEREC will concentrate on in 2019, will be presented and discussed in more detail in the following sections. In addition to the list of deliverables identified in the Work Programme, BEREC will continue to undertake its mandatory and annually repeating work. BEREC expects to be involved continuously in Article 7/7a Phase II cases, which will be addressed by delivering relevant opinions with the highest priority within strict statutory deadlines. BEREC will also consider possible ad hoc requests for advice from the European Union (EU) institutions (namely the European Commission, the Council and the European Parliament) and will meet these requests appropriately and on time. As in previous years, BEREC will continue to provide insights and advice to the European Parliament, the Council and the European Commission.

The implementation of the Work Programme 2019 will be undertaken by EWGs, comprising experts from NRAs. Each EWG addresses a number of topics, analyses the relevant issues and prepares, inter alia, reports for discussion and adoption by the Board of Regulators. BEREC believes that this well-established 'bottom-up' approach, drawing on and informed by NRAs' on-the-ground experience of the implementation and impact of regulation at the national level, is what makes its outputs particularly relevant and valuable. The support of the BEREC Office is of key importance to the success of the BEREC Work Programme 2019. Under the guidance of its Administrative Manager, the BEREC Office provides professional and administrative support services to BEREC and its EWGs.

BEREC will continue to follow the approach whereby NRAs work together to produce Common Positions, guidelines and best practices, and will continue to engage with stakeholders in public consultations and industry forums and by making information

([3]) See Article 104(2) of the EECC.

more accessible to the public and to its stakeholders. In BEREC's Medium-Term Strategy 2018-2020, BEREC committed to early engagement with stakeholders. Such early engagement helps BEREC to identify the right questions, shows BEREC's openness and will further improve the work of BEREC.

According to the new BEREC Regulation, BEREC shall make public the final regulatory decisions, opinions, guidelines, reports, recommendations, Common Positions, best practices and any commissioned studies, as well as the relevant draft documents for the purpose of the public consultations.

In addition, BEREC shall issue recommendations and Common Positions, and disseminate regulatory best practices addressed to the NRAs in order to encourage better and consistent implementation on any technical matter within its mandate of the regulatory framework for electronic communications. BEREC shall make public its regulatory tasks. This public information shall be updated when new tasks are assigned to BEREC.

Regarding the implementation phase of the EECC, BEREC will provide ongoing support to NRAs. BEREC will provide a forum for exchanging views on national transposition formulas, provide an opportunity to submit questions and hold a discussion on any specific national transposition issue that might arise.

Finally, it is worth noting that in 2019 BEREC enters its 10th year in existence. This is the 10th Work Programme, and Mr Jeremy Godfrey (Commission for Communications Regulation, Ireland) is BEREC's 10th Chairperson. In 2019, BEREC will engage in a programme of activities to mark a decade of harmonised regulation in Europe. The programme of activities will be set out in BEREC's Communications Plan 2019, due to be adopted at the 37th BEREC Plenary meeting, in Prague, Czechia, in December 2018.

BEREC WORK IN 2019 AND 2020

Work Programme 2019

Body of European Regulators for Electronic Communications

BEREC

Because of the extent of the mandatory work which BEREC is tasked with in light of the EECC, some of the projects set out in the following sections of BEREC's Work Programme 2019 will necessarily be carried over into, and be completed in, 2020. Given the timing for transposition deadlines set out in the EECC, particularly with respect to guidelines, BEREC has paid specific attention to when public consultations are due to take place, in order to allow stakeholders sufficient opportunity to respond to such consultations. While the annex below provide an illustration and a list of BEREC's deliverables throughout 2019 and into 2020, the details for each Strategic Priority are set out in the following sections.

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 as high-speed networks are being developed and legacy networks phased out or where markets have become mature – with the intention to increase awareness of how incentives to invest change with changing market conditions and how competition is affected. In 2019 and 2020, such work will be at the forefront of BEREC's Work Programme, given the importance placed on Very High Capacity Networks by the EECC, particularly with respect to co-investment (Article 76). The Work Programme 2019 therefore includes the following activities that contribute to this strategic goal.

1.1 Guidelines on very high capacity networks

The EECC (Article 3(3)) has among its objectives to "promote connectivity and access to, and take-up of, very high capacity networks" and several provisions refer to the term "very high capacity network". For example, the EECC defines a specific regulatory treatment of very high capacity network elements (Article 76), and the conditions under which NRAs shall not impose certain (symmetric) obligations on wholesale-only undertakings depend on access to a very high capacity network (Article 61(3) in connection with Article 80) [4].

[4] Note also that the Guidelines on geographical surveys (Article 22) may include a forecast of the reach of very high capacity networks – see 1.9 below.

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". As part of its input to this work stream, BEREC will hold an initial call for stakeholder input early in the second quarter of 2019.

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 will include 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.

Deliverable:
BEREC Guidelines on very high capacity networks
Call for initial stakeholder input: Yes, Q2 2019
Public consultation: Yes; adoption at Plenary 2 2020
Adoption of final guidelines at Plenary 4 2020 for publication

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

Enhancing the conditions for investment is a key activity for national telecommunications regulatory authorities seeking to promote competition and optimise end-user welfare. This is a research project, with the objective of providing insight into the complex interplay of factors that impact investment in network infrastructure. The project will involve the development of a system dynamics model that captures these factors and enables the 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 VHCNs. The key research question for the project is: what are the factors, including regulatory factors, which influence the level, nature and timing of investment in very high capacity telecommunication networks in BEREC member states? The key objectives of this project are:

- to generate a conceptual system dynamics model that captures and illustrates the complex interplay and feedback loops of factors that influence the timing, level and nature of investment in very high capacity digital infrastructure in countries in Europe; and
- to use this model to simulate the effects of different regulatory choices and the interaction between investment and competition.

The intention is that this project will proceed in two phases.

Phase 1 will be a report comprising the following:

- a survey of the relevant literature;
- the development of a conceptual or theoretical system dynamics model;
- qualitative conclusions arising from the analysis of the conceptual model;
- the identification of the data required to calibrate the model;
- the identification of the country/countries for inclusion in the calibration/simulation exercise in Phase 2.

Phase 2 of the project involves:

- 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.

The second Phase of the project would proceed only based on approval and adoption of the first Phase by the Board of Regulators.

Deliverable:
BEREC Study on the determinants of investment in very high capacity networks
Public consultation: No
Adoption of Phase 1 report at Plenary 3 2019 for publication
Phase 2 deliverable and timing to be decided

1.3 Guidelines on the identification of the network termination point

The EECC (recital 19) and previously the Universal Service Directive (2002/22/EC, recital 6) lay down that "the network termination point represents a boundary for regulatory purposes between the regulatory framework for electronic communications networks and services and the regulation of telecommunication terminal equipment. Defining the location of the network termination point is the responsibility of the national regulatory authority." The location of the network termination point therefore has an impact on whether a piece of equipment is part of the public network or part of the telecommunications terminal equipment.

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, according to the BEREC Work Programme 2018, BEREC will publish in October 2018.

Deliverable:
BEREC Guidelines on common approaches to the identification of the network termination point in different network topologies
Public consultation: Yes; adoption at Plenary 3 2019
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 Opinion on the functioning of the roaming market

According to Article 19 of the Roaming Regulation, the Commission shall, after consulting BEREC, submit a report to the European Parliament and to the Council, accompanied, if appropriate, by a legislative proposal to amend the maximum wholesale charges for regulated roaming services laid down in the Regulation.

The scope of BEREC's opinion will be to assess the evolution of retail tariff plans, the changes in data consumption patterns for domestic and roaming services, the ability of home network operators to sustain their domestic charging model and the derogations granted, the ability of the visited network to recover the efficiently incurred costs, and the impact of the application of the fair use policy by operators.

BEREC, as it did for the previous review of the Roaming Regulation, will assess the roaming market and plans to draft an input to the Commission's consultation on its report to the European Parliament and to the Council. In addition, BEREC will continue to contribute to the development of the Commission's cost model that is planned to be finalised in summer 2019.

Deliverable:
BEREC Opinion on the functioning of the roaming market, as input to the Commission's evaluation
Public consultation: No
Submission in Q2 2019; upon request from the European Commission

1.6 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 Article 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 ([5]).

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

([5]) The scope of these guidelines, the proposed guidelines on very high capacity networks (see 1.1 above) and the proposed guidelines on geographical surveys of networks (see 1.9 below), should be very clearly defined to avoid overlap/duplication.

1.7 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 on Relevant Product and Service Markets reviewed in 2014, currently in force. This Recommendation shall be reviewed at the latest by the 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's 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

1.8 Migration from legacy to fibre-based networks

The roll-out of next-generation access (NGA) networks, in particular of FTTH, results increasingly in situations in which the legacy copper network infrastructure becomes redundant and incumbent operators may want to decommission this legacy network infrastructure. In this case, wholesale customers may have to be migrated from copper unbundling to NGA wholesale access products (e.g. duct access, fibre unbundling or virtual unbundled local access (VULA). Rules for such a migration, which NRAs have to follow, are provided for in the European Commission's Recommendation on NGA of 2010 ([6]) (Articles 39-41) and also in the BEREC Common Positions on best practices in remedies on Markets 3a, 3b and 4, which were published in 2012 ([7]). Going forward, NRAs also have to comply with the provisions for such a migration in the EECC (Article 81).

In light of the existing and future rules, BEREC will hold an internal workshop on the migration from legacy infrastructures to fibre-based networks, which will allow NRAs to share ideas and experience intended to foster a consistent approach across Europe to the relevant issues. BEREC will publish a short summary report of the outcomes of the workshop.

Deliverable:
Internal workshop and summary report on the migration from legacy infrastructures to fibre-based networks
Workshop to be held in September/October 2019; summary report adoption at Plenary 4 2019 for publication

([6]) European Commission's recommendation of 20 September 2010 on regulated access to Next Generation Access Networks (NGA) (2010/572/EU).

([7]) BoR (12) 127, BoR (12) 128 and BoR (12) 126.

1.9 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 3 years from the deadline for transposition of the Directive and shall update it at least every 3 years.

The survey shall include:

- the geographic reach of networks (capable of delivering broadband) within the Member State's (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
Public consultation: Yes; adoption at Plenary 3 2019
Adoption of final guidelines at Plenary 1 2020 for publication

1.10 Guidelines on the minimum criteria for a reference offer (obligation of transparency)

According to the EECC (Article 69), NRAs may impose obligations for transparency in relation to interconnection/access, requiring operators to make public specified information, and terms and conditions for supply and use. The Code goes on to state that, when an operator has an obligation of non-discrimination, NRAs may require that operator to publish a reference offer (RO) "which shall be sufficiently unbundled to ensure that undertakings are not required to pay for facilities which are not necessary for the service requested, giving a description of the relevant offerings broken down into components according to market needs, and the associated terms and conditions including prices."

The EECC further requires that no later than 1 year after the adoption of the Directive, in order to contribute to the consistent application of transparency obligations, BEREC shall, after consulting stakeholders and in close cooperation with the Commission, issue guidelines on the minimum criteria for a RO and shall review them whenever necessary in order to adapt them to technological and market developments. Where there is an obligation for transparency in relation to interconnection/access, this may lead to publishing a RO and there is a requirement for BEREC to issue guidelines on the minimum criteria for such a RO.

In cooperation with stakeholders and the Commission, Guidelines will be established on the minimum criteria for a reference offer relating to the obligation of transparency as required by Article 69 of the EECC. BEREC's existing Common Positions on Markets 3a, 3b, and 4 address the information that ROs might include and these could be further developed for the purpose of this project.

Deliverable:
BEREC Guidelines on the minimum criteria for a reference offer relating to obligations of transparency
Public consultation: Yes; adoption at Plenary 2 2019
Adoption of final Guidelines at Plenary 4 2019 for publication

1.11 Carry-over work on pricing for access to infrastructure and civil works

The Broadband Cost Reduction Directive (Directive 2014/61/EU) is intended to reduce the cost of high-speed broadband deployment by increasing transparency on and enabling access to existing physical infrastructure, including non-ECN infrastructure that is deployable for high-speed broadband networks; by promoting the coordination of civil works between different network operators and ECN operators; and, finally, by fostering access to existing passive in-building infrastructure. In 2018, BEREC conducted a public consultation on a report on pricing for access to infrastructure and civil works, which looked at the determination of pricing terms with respect to the Broadband Cost Reduction Directive. In 2019, BEREC will publish a response to the public consultation and a final report on pricing for access to infrastructure and civil works.

Deliverable:
BEREC Report on pricing for access to infrastructure and civil works
Public consultation: carried out in 2018
Adoption of final report at Plenary 1 2019 for publication

1.12 Carry-over work on access to physical infrastructure in market analyses

Duct and pole access have become more and more relevant in the context of increasing infrastructure competition and as a result of convergence between fixed and mobile, with operators needing access to the incumbents' fixed ducts and poles to deploy high-capacity access and backhaul networks. In 2018, BEREC published a report for public consultation, which provided a snapshot of how access to physical infrastructure is regulated in BEREC countries. In 2019, BEREC will publish a response to the public consultation and a final report on access to physical infrastructure in market analyses.

Deliverable:
BEREC Report on access to physical infrastructure in market analyses
Public consultation: carried out in 2018
Adoption of final Report at Plenary 2 2019 for publication

Body of European Regulators for Electronic Communications

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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 2019 and 2020 relates to mandatory tasks flowing from the EECC (e.g. guidelines to assess the sustainability of the domestic pricing model in the context of retail price caps being imposed on regulated intra-EU calls and SMS), BEREC has also included 'discretionary work items' with a focus on the harmonised collection of data from both authorised operators and OTTs, as well as taking the opportunity for Member States to share experience regarding margin squeeze tests. In addition, BEREC will continue the work initiated in 2018 on the data economy. The Work Programme 2019 therefore includes the following activities that contribute to this strategic goal.

2.1 Guidelines on intra-EU communications

According to the co-legislators' agreement on intra-EU calls, any retail price (excluding VAT) charged to consumers for regulated intra-EU communications shall not exceed a maximum of 0.19€ per minute for calls and 0.06€ per SMS message. In the event that these rules cannot be sustained by particular providers, the Regulation empowers NRAs to grant a derogation at the request of the provider in justified and exceptional cases.

Where an NRA grants a derogation, the provisions of the Regulation to be adopted requires it to determine the maximum price level that a provider could apply for regulated intra-EU communications and which would enable it to maintain a competitive price level for domestic communications. BEREC will draft Guidelines with the aim of ensuring coherent application of the Regulation in the Member States, insofar as it is required for the guidance of the derogation.

These Guidelines will include general provisions, as well as specific rules where BEREC defines parameters to assess the sustainability of these provisions. As the provisions governing intra-EU communications will be enforceable as of 15 May 2019, BEREC will publish guidelines ahead of that date in order to allow NRAs to make use of the guidelines for the first application and therefore ensure a consistent approach among the Member States.

Deliverable:
BEREC Guidelines on intra-EU communications
Stakeholder workshop to be held in January 2019
Adoption of guidelines at Plenary 1 2019 for publication

2.2 Report on harmonised collection of data from Authorised Undertakings and OTTs

In 2015, BEREC assessed the potential to conduct a European benchmarking of OTT indicators. In that report, the majority of NRAs stated that European benchmarks of unmanaged OTT services are needed, particularly regarding services with functionalities similar to electronic communication services, such as unmanaged Voice over Internet Protocol and instant messaging. In 2016, in its report on OTT services (BoR (16) 37), BEREC identified the need for the ECN/ECS Framework review to address the absence of legal competences for NRAs to seek information from providers of OTT services. In some cases, there is a short-term need for evidence in order to inform national regulatory decisions.

Because of this, and given the limited possibilities to gather information directly from all appropriate providers, it may be necessary that the European Commission, in collaboration with BEREC, to improve the tools they are currently using to gather information on penetration rates (Eurobarometer and Eurostat's Information Society Statistics). Subsequently, in 2017 BEREC conducted an exchange with the European Commission and Eurostat regarding the urgent need for evidence that helps inform European policies (telecoms regulation, e-privacy, etc.) and national regulatory decisions in the development of over-the-top (OTT) communication services area.

The intention of this project is to publish a report on what types of data would be advantageous to collect in a harmonised way and to potentially develop a template for such data collection. In other words, what is the scope of data that should be gathered from Authorised Undertakings and OTTs that might be the subject of a BEREC data collection questionnaire? In light of this report, BEREC could consider developing guidelines on the collection of data from OTT service providers (including indicators and data definitions), on enforcement of obligations to provide data and cooperation among NRAs in sharing of data when OTTs established in one Member State provide services in another. BEREC could then potentially develop its template for a questionnaire on the harmonised collection of data from both Authorised Undertakings and OTT operators.

Deliverable:
BEREC Report on the harmonised collection of data from both Authorised Undertakings and OTT operators
Public consultation: No
Adoption of final report at Plenary 4 2019 for publication

2.3 Ex-ante margin squeeze tests

Margin squeeze tests involve difficult judgements, particularly when regulated products are bundled with unregulated ones, and where there is a substantial difference in scale between access seekers and the incumbent. Sharing of experience among NRAs would be useful in this regard. This will be done by organising an internal workshop covering the concept of ex-ante margin squeeze tests and case studies from NRAs. The Recommendation on Consistent Non-Discrimination Obligations and Costing Methodologies (2013/466/EU) of 11 September 2013 sets out the so-called Economic Replicability Test (ERT) as a price control obligation. The ERT is an ex-ante margin squeeze test, i.e. a test applied by NRAs when imposing price control obligations. In 2014, BEREC developed Guidance on the regulatory accounting approach to the ERT (BoR (14) 190).

The workshop will discuss the concept of the ERT as set out in Recommendation 2013/466/EU, the BEREC Guidance document and the experience of NRAs in applying ex-ante margin squeeze tests, i.e. the economic rationale of margin squeeze tests, the methodological choices to be made (such as the level of efficiency) as well as difficulties in practical implementation. It will address, among other issues, margin squeeze tests for bundles (including bundles with unregulated products), issues such as choosing the relevant wholesale and retail (e.g. flagship) products, the cost calculation methods to be used, the time horizon and how to deal with temporary discounts/promotions.

Deliverable:
Internal workshop and summary report on margin squeeze tests applied by NRAs
Workshop to be held in Q3 2019; summary report adoption at Plenary 4 2019 for publication

2.4 Carry-over work on the data economy

The role of data is becoming increasingly relevant in most sectors of the economy. The telecommunications sector is no exception, especially given its growing interactions with other sectors that are at the core of the data economy (online telecommunication platforms, audio-visual content providers, etc.). Taking this into account, BEREC considers that it is important to study the implications of the data economy on the telecommunications sector.

In 2018, BEREC held a 'Heads workshop' and seminars with stakeholders on the data economy. A public consultation for a BEREC report on the data economy was launched after Plenary 3 2018. In 2019, BEREC will publish a response to the public consultation and a final report on the data economy.

Deliverable:
BEREC Report on the data economy
Public consultation: carried out in 2018
Adoption of final Report at Plenary 2 2019 for publication

2.5 Carry-over work on Internet of Things indicators

As the number of internet-enabled devices, and consequently the requirement for network resources, increases, the importance of the Internet of Things (IoT) needs to be reflected in the work of BEREC. The purpose of this workstream is to assess the type of measurement of IoT that NRAs are already conducting on the supply side and also on the demand side, and to assess if there is, at this stage, any common set of IoT-related indicators that BEREC could regularly collect in the coming years to provide a realistic statistical overview of the IoT landscape.

In 2018, BEREC published a report for public consultation which summarised the results of questionnaires circulated to NRAs on the matter of the collection of IoT statistical indicators, and to what extent such data will be collected in future. In 2019, BEREC will publish a response to the public consultation and a final report on Internet of Things indicators.

Deliverable:
BEREC Report on Internet of Things indicators
Public consultation: carried out in 2018
Adoption of final report at Plenary 1 2019 for publication

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STRATEGIC PRIORITY 3: ENABLING 5G AND PROMOTING INNOVATION IN NETWORK TECHNOLOGIES

In 2018, 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 the RSPG) to identify potential obstacles to a smooth and quick implementation in the Member States. While the focus in 2019 and 2020 will be on the mandatory work tasked to BEREC in light of the EECC, enabling 5G and promoting technological innovation remains a key objective for BEREC. The Work Programme 2019 therefore includes the following activities that contribute to this strategic goal.

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. Furthermore, 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, which will 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; and
- exploring national practices in relation to the roll-out of small cells.

The overall project will also consider other issues on which 5G may have an impact (market definition, network slicing and net neutrality ([8]), 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, industrial, environmental monitoring use cases). The timing of the two deliverables set out below enables 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
Public consultation: Yes; adoption at Plenary 4 2019
Adoption of final report at Plenary 2 2020 for publication

Deliverable:
BEREC Feasibility study on development of coverage information for 5G deployments
Public consultation: Yes; adoption at Plenary 3 2019
Adoption of final report at Plenary 1 2020 for publication

3.2 Peer review process

According to the EECC (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

([8]) 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.

3.3 Carry-over work on Common Position on infrastructure sharing

In promoting infrastructure sharing, NRAs have been trying to achieve a good balance between the enhancement of competition through infrastructure roll-out and a limitation of the cost and impact of the roll-out of existing mobile networks.

In 2018, BEREC published a report on infrastructure sharing, which provides a provisional analysis of mobile network infrastructure sharing arrangements that are currently in place in various individual European markets. Following the report, BEREC identified best practices on mobile infrastructure sharing arrangements and developed a draft BEREC Common Position on infrastructure sharing.

This project is a follow-up on the work done in 2018 on infrastructure sharing. In 2019, BEREC will consider the answers received to the public consultation on the draft Common Position in order to make the necessary adaptation before its adoption.

Deliverable:
BEREC Common Position on infrastructure sharing
Public consultation: carried out in 2018
Adoption of final Common Position at Plenary 2 2019 for publication

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STRATEGIC PRIORITY 4: FOSTERING A CONSISTENT APPROACH OF THE NET NEUTRALITY PRINCIPLES

BEREC has a long history of working on Net Neutrality issues. 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 2019, that work will continue as BEREC examines and analyses 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. The Work Programme 2019 therefore includes the following activities that contribute to this strategic goal.

4.1 Update to the Guidelines on Net Neutrality

In 2018, BEREC conducted a public consultation on the evaluation of the application of Regulation 2015/2120 and BEREC Net Neutrality (NN) Guidelines. Based on this, BEREC will publish an Opinion, in which it may recommend updating selected parts of the 2016 NN Guidelines. Based on the 2018 evaluation of the NN Guidelines, as expressed in more detail in the BEREC Opinion and the consultation report, this 2019 work stream ([9]) will:

- propose updates to the current NN Guidelines;
- run a public consultation of a draft version; and
- finalise and publish updated NN Guidelines.

Deliverable:
Update to the BEREC Guidelines on Net Neutrality
Public consultation: Yes; adoption at Plenary 3 2019
Adoption of final Guidelines at Plenary 1 2020 for publication

([9]) It should be noted that the Net Neutrality Guidelines review might be postponed if the Commission decides to revise the regulation.

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 reports on the implementation of the Regulation, based on the NRAs' annual reports.

In 2019, BEREC will monitor the implementation of the Net Neutrality provisions among NRAs. BEREC will also receive the annual national Net Neutrality reports and the answers to an internal questionnaire in order to 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
Adoption of final report at Plenary 3 2019 for publication

4.3 Carry-over work on BEREC Net Neutrality measurement tool

In 2018 BEREC ran a procurement process for a Net Neutrality measurement tool. This work stream will provide for the follow-up and supervision of the development of the NN measurement tool performed by the awarded contractor and will also prepare for the roll-out of the tool among those NRAs choosing to deploy the tool, either as a supplement to an existing national tool or as their main national tool.

The development of the tool is scheduled to take one year, followed by a three year maintenance phase. The development phase consists of five milestones as specified in the tender specification, and the BEREC Office and an advisory committee (comprised of NRA experts) will oversee the user acceptance tests and sign off on accepted deliverables. BEREC will engage in multi-NRA coordination of the tool when this is rolled out on a larger scale after the finalisation of the development.

Deliverable:
BEREC Net Neutrality measurement tool
Adoption of measurement tool in Q3 2019 for launch

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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 2019 and 2020 has a distinct focus on mandatory tasks flowing from the EECC, which are intended to improve the welfare of consumers with regard to electronic communications markets. The Work Programme 2019 therefore includes the following activities that contribute to this strategic goal.

5.1 Guidelines on general authorisation notifications transmitted to competent authorities

According to the EECC (Article 12(4)), in order to approximate notification requirements, BEREC shall publish guidelines for the notification template and maintain an EU database of the notifications transmitted to the competent authorities. BEREC must elaborate guidelines for the national notification templates in view of simplification and harmonisation of existing national forms. The notification should contain a minimum set of data and a declaration by a legal or natural person of the intention to commence the provision of electronic communications networks or services. Article 12(3) sets out the minimum set of data to be provided.

During the period after the entry into force of the EECC, BEREC must adopt the guidelines, as well as implementing a database to receive notifications and serve as a point of information.

Deliverable:
BEREC Guidelines on the general authorisation notifications transmitted to competent authorities
Public consultation: Yes; adoption at Plenary 2 2019
Adoption of final Guidelines at Plenary 4 2019 for publication

5.2 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 one MS to another.

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 one MS to another. 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
Public consultation: Yes; adoption at Plenary 2 2019
Adoption of final Guidelines at Plenary 1 2020 for publication

5.3 Input to European Commission regarding contract summary template

In 2018, BEREC produced a benchmarking report to provide relevant information, which NRAs could use or refer to for any initiatives they may undertake to simplify consumer contracts with providers of publicly available ECS. With the conclusion of the negotiations on the EECC, the provisions of Article 102(3) task the Commission, after consulting with BEREC, to adopt an implementing act specifying a contract summary template to be used by the providers of publicly available ECS (other than transmission services used for the provision of machine-to-machine (M2M) services) to fulfil their obligations to provide consumers with a concise and easily readable contract summary, which identifies the main elements of the information requirements.

The scope of BEREC's work will largely depend on the nature and form of the request for input that it receives from the Commission. However, with the completion of its 2018 work, BEREC will be well prepared to provide its Opinion to the Commission, based on the material in the final report, about what basic minimum information elements the contract summary template should contain, having regard for the complexity of the contract with single or multiple product types.

Deliverable:
BEREC input to Commission Implementing Act on Contract summary template
Public consultation: carried out in 2018
Adoption of final input to Commission in Q2 2019 for publication

5.4 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 (QoS) 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 QoS parameters, including, where appropriate, the European Telecommunications Standards Institute (ETSI) and International Telecommunications Union (ITU) standards set out in Annex X of the EECC in relation to ICS and internet access service (IAS), respectively;
- what parameters are 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; and
- appropriate quality certification mechanisms.

Deliverable:
BEREC Guidelines detailing QoS parameters of IAS and publicly available ICS and the publication of information
Public consultation: Yes; adoption at Plenary 3 2019
Adoption of final guidelines at Plenary 1 2020 for publication

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

According to the EECC (Article 83(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 an adequate broadband internet access service.

BEREC is tasked with adopting a report on Member States' best practices in respect of defining an 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 European 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
Public consultation: Yes; adoption at Plenary 4 2019
Adoption of final report at Plenary 2 2020 for publication

5.6 Workshop to move towards a vision for Europe's telecoms consumers

BEREC's Medium-Term Strategy 2018-2020 places end-users at the centre of its actions, which will allow it to build on already completed consumer-related topics in its previous Work Programmes, including reports related to transparent and comparable tariffs, switching, contract information, termination of contracts and equivalence of access for end users with disabilities.

Following a series of informal meetings between the Chair and (incoming) Vice-Chair of BEREC with representatives from BEUC, in June 2018 BEUC put forward a series of concrete proposals on how to enhance BEREC's work on consumer issues and build a closer collaboration between BEREC and BEUC and between their respective member organisations at national level.

BEREC will hold a workshop with representatives from BEUC in order to help BEREC and NRAs gain a deeper understanding of consumer concerns and perspectives, and to work towards developing a vision for Europe's telecoms consumers. This workshop could also include discussions on some ideas for an enhanced cooperation between NRAs and national consumer organisations.

Deliverable:
Workshop to move towards a vision for Europe's telecoms consumers
Workshop to be held at Plenary 2 2019

5.7 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 number-based interpersonal communications services (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 easy for end-users to receive.

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. The purpose of the Guidelines is to ensure that there is a common approach across Member States to the assessment of the effectiveness of the two public warning systems, namely:

- those that transmit public warnings using mobile NB-ICS; and
- those using ECS, other than mobile NB-ICS and other than broadcasting, or through a mobile app (relying on an IAS).

In preparing the Guidelines, BEREC is required to consult with the authorities in charge of public safety answering points (PSAPs). In addition, the guidelines may include:

- Input from national emergency authorities across MS.
- Consideration of the extent to which the availability of end-users' location data is available to those charged with operating a public warning system//transmitting public warning messages.
- Examination and evaluation of what is considered to be "receivable by end-users in an easy manner". Aspects could include whether end-users should be required to register/log in with relevant authorities or an application provider and whether any app should be free of charge.
- Methodology to assess the effectiveness of alternative public warning systems to those that transmit using mobile NB-ICS. This could include a defined set of key performance indicators such as reliability, reach, geo-targeting performance, security, alerting speed or wake-up effect.

Deliverable:
BEREC Guidelines on how to assess the effectiveness of public warning systems transmitted by different means
Public consultation: Yes; adoption at Plenary 4 2019
Adoption of final Guidelines at Plenary 2 2020 for publication

5.8 Workshop on the use of E.164 numbers in cross-border fraud and misuse

In recent years, BEREC's constituent NRAs have worked closely regarding cross-border regulatory cooperation within the scope of Article 28(2) of the Universal Service Directive. In 2014, BEREC reviewed this cooperation by holding an internal workshop for NRAs to present their experiences of representative incidents in their Member States. Furthermore, going back to 2012, BEREC published a guidance paper, which highlighted the background to fraud or misuse and its potential impact on end-users if, for example, they fall foul of instances of fraud or misuse, or lack confidence in the integrity of numbers.

In the new EECC, Article 97(2) reflects the same scope as Article 28 (2) of the Universal Service Directive. In 2019, BEREC will hold a further internal workshop intended to discuss NRAs' recent experiences of cases of fraud and misuse, and publish a short summary of the workshop. The cross-border aspect of purposely fraudulent connection fees will be discussed and examined at this workshop.

Deliverable:
Internal workshop and summary report on the use of E.164 numbers in cross-border fraud and misuse
Workshop to be held in Q3 2019; summary report adoption at Plenary 4 2019 for publication

5.9 Carry-over work on termination of contracts and switching providers

In 2018, BEREC published a report for consultation on the termination of contracts and switching providers. The report for consultation analysed the different aspects that have an impact in the change of a provider, considering number portability procedures but also the identification of other matters that may facilitate or hinder switching. The work stream covered (among other issues) notice periods, data portability, treatment of failures in the process, technical developments, and early termination compensations. In 2019, BEREC will publish a response to the public consultation and a final report on termination of contracts and switching providers.

Deliverable:
BEREC Report on termination of contract and switch of provider
Public consultation: carried out in 2018
Adoption at Plenary 1 2019 for publication

5.10 Input to European Commission's methodology on pricing of bundles

In 2018, BEREC published a report on methodology guidelines for the pricing of bundles. The purpose of this report is to provide advice and input to the European Commission with respect to its Broadband Internet Access Costs (BIAC) study, which currently uses a methodology that reflects the 2008 ERG Opinion on the methodology for broadband retail prices ([10]). In 2019, the Commission will further develop its methodology on the pricing of bundles, ahead of a data collection, using the revised methodology (based on BEREC's guidelines). As part of this process, the Commission will organise a workshop

([10]) ERG (08) 44 Final BB Retail Prices Methodology 081017.

to discuss the proposal and the methodology. BEREC will provide further contribution and input at this workshop.

Deliverable:
BEREC input to the European Commission's methodology on the pricing of bundles
Public consultation: No
Timing to be decided, dependent on when the European Commission will organise its workshop on the methodology for the pricing of bundles

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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 (focusing on the regular benchmarking of statistics and indicators);
- Communication and cooperation.

This obligatory work and BEREC's engagement with its stakeholders are 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 Work Programme 2019 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 or NRAs

Other than the inputs, already mentioned, to be provided to the European Commission as required (e.g. 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) or NRAs, particularly during the implementation process for the EECC.

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

6.2 Implementation of the BEREC Regulation

The BEREC Regulation is expected to be adopted by the end of 2018. Tasks foreseen in the BEREC Regulation include, but are not limited to, the following:

- Update of the Board of Regulators Rules of Procedure;
- Update of internal guidelines for BEREC Expert Working Groups;
- Board of Regulators detailed rules of the application of the Regulation No. 1049/2001 (Access to documents): 6 months after entry into force of the BEREC Regulation;
- Board of Regulators establish measures regarding personal data for Regulation No. 45/2001: 6 months after entry into force of the BEREC Regulation.

Deliverable:
Update to the BEREC Rules of Procedure and the Internal Guidelines for the operation of BEREC Expert Working Groups
Adoption in Plenary 1 2019

Deliverable:
Rules on the application of Regulation No. 1049/2001 and Measures regarding personal data for Regulation No. 45/2001
Adoption in Plenary 2 2019

6.3 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 1 December 2018.

In 2019, BEREC will communicate with CEPT/ECO, in order to obtain all necessary information on this project and decide if 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

6.4 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, 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 the database and keep it 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

6.5 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 (MTR) and a single maximum EU-wide fixed voice termination rate (FTR), which is imposed on any operator active in 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, 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

6.6 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, using 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 collected as of 1 July 2019.

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 2019, at the latest, for submission to the European Commission

6.7 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 2019, it is planned to publish:

- the 22nd benchmark report (including the 2nd and 3rd quarters of 2018);
- the 23rd benchmark report (including the 4th quarter of 2018 and the 1st quarter of 2019).

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:
22nd BEREC International Roaming Benchmark Data Report
Public consultation: No
Adoption of final report at Plenary 1 2019 for publication

Deliverable: 23rd BEREC International Roaming Benchmark Data Report
Public consultation: No
Adoption of final report at Plenary 3 2019 for publication

6.8 Transparency and comparability of international roaming tariffs

According to Article 19(4) of the Roaming Regulation, BEREC is obliged to collect information from NRAs annually on the transparency and comparability of different roaming tariffs offered by operators to their customers. The seventh of these reports is due at the fourth Plenary of 2019.

Deliverable:
7th BEREC Report on transparency and comparability of international roaming tariffs
Public consultation: No
Adoption of final report at Plenary 4 2019 for publication

Quality and efficiency

6.9 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 6 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 ([11]).

Deliverable:
BEREC Report on Termination Rates at European level
Public consultation: No
Adoption of final reports at Plenary 2 and Plenary 4 2019 for publication

6.10 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 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 among 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 or not 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 2019; summary report adoption at Plenary 3 2019 for publication

6.11 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 2019, emphasis will continue to be placed on consistency in regulatory accounting with respect to key access products (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.

[11] Already in 2018, BEREC has been working in close cooperation with the European Commission on the issue of cost modelling for fixed and mobile termination rates. This work will continue into 2019.

The 2019 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 2019 for publication

Communication and cooperation

6.12 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 EWGs 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 on future developments and challenges in the sector.

Deliverable:
BEREC Annual Reports (Annual Activity Report)
Public consultation: No
Adoption of final reports at Plenary 2 2019 for publication

6.13 Stakeholder Forum

While 2019 will mark the year of BEREC's 10th anniversary, it will also be the year of BEREC's 7th Stakeholder Forum. The focus of the Stakeholder Forum in 2019 will continue to be the BEREC Work Programme for the coming year (i.e. 2020), 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 on the BEREC Work Programme.

Deliverable:
BEREC Stakeholder Forum in October 2019

6.14 BEREC Communications Plan 2019 (including 10th anniversary programme of activities)

In 2016, BEREC developed its first external Communications Strategy, which was afterwards complemented by the annual communications plans. BEREC's Communications Plan 2019 was finalised for internal use in December 2018, setting in place the communications activities that BEREC is committed to in 2019, the year of its 10th anniversary.

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 the 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 and press interviews. In 2019, one of the communications projects will be the 10th anniversary itself, which will include a list of communications activities to recognise the decade of BEREC's work.

Deliverable:
Multiple deliverables set out within the BEREC Communications Plan 2019 to be delivered as required in 2019
Adoption of BEREC Communications Plan 2020 at Plenary 4 2019 for internal use

6.15 BEREC Work Programme 2020

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 2019, and then work, as per its usual practice, to finalise the Work Programme by the end of the year.

Deliverable:
Outline of BEREC Work Programme 2020
Public consultation: No
Adoption of Outline of BEREC Work Programme 2020 by electronic clearance by 31 January 2019

6.16 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 shall 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, in 2019 BEREC will also promote thematic exchanges with other European regulatory cooperation platforms and bodies, operating in both adjacent and different economic sectors, such as the ITU, OECD, RSPG, ENISA, ERGA, ERGP, ECN and BEUC.

6.17 International cooperation

In 2019, 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 2019 BEREC will continue to provide support to the European Commission with respect to the Western Balkans initiative. BEREC will also provide support to the Commission regarding the Policy and Regulatory Initiative for Digital Africa (PRIDA), as well as continuing to develop and strengthen contacts with international regulatory authorities such as the FCC, TRAI and 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.

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 Administrations
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
ERT	Economic Replicability Test
ETSI	European Telecommunications Standards Institute
EWG	Expert Working Group
FCC	Federal Communications Commission
FTR	Fixed Termination Rate
IAS	Internet Access Service
IoT	Internet of Things
ITU	International Telecommunications Union
MS	Member State
MTR	Mobile Termination Rate
NB-ICS	Number-based Interpersonal Communications Services
NGA	Next Generation Access
NN	Net Neutrality
NRA	National Regulatory Authority
OECD	Organisation for Economic Cooperation and Development
OTT	Over The Top

PSAP	Public Safety Answering Point
PSAP-DIR	Public Safety Answering Point Directory
QoS	Quality of Service
Regulatel	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

ANNEX

BEREC Work Programme 2019 timeline

The tables below set out the timeline of all public deliverables from January 2019 through to the end of 2020, including (as requested) those deliverables currently without a definitive timing.

January 2019

Work Programme (WP) 2019 Reference	Deliverable Title	Deliverable Type
2.1	BEREC Guidelines on intra-EU communications	Stakeholder workshop
6.15	Outline of BEREC Work Programme 2020	Outline Work Programme

Plenary 1 2019

WP 2019 Reference	Deliverable Title	Deliverable Type
1.11	BEREC Report on pricing for access to infrastructure and civil works (carry-over)	Report
2.5	BEREC Report on Internet of Things indicators (carry-over)	Report
5.9	BEREC Report on termination of contract and switch of provider (carry-over)	Report
6.2	Update to the BEREC Rules of Procedure	Rules of Procedure
6.2	Update to BEREC's internal Rules of Procedure for the operation of Expert Working Groups	Rules of Procedure
6.7	BEREC International Roaming Benchmark Data Report	Benchmarking report
2.1	BEREC Guidelines on intra-EU communications	Guidelines

Q2 2019

WP 2019 Reference	Deliverable Title	Deliverable Type
1.5	BEREC Opinion on the functioning of the roaming market, as input to the Commission's evaluation	BEREC Opinion
5.3	BEREC input to European Commission Implementing Act on Contract summary template	Input to European Commission

Plenary 2 2019

WP 2019 Reference	Deliverable Title	Deliverable Type
1.12	BEREC Report on access to physical infrastructure in market analyses (carry-over)	Report
3.3	BEREC Common Position on infrastructure sharing (carry-over)	Common position
2.4	BEREC Report on the data economy (carry-over)	Report
1.10	BEREC Guidelines on the minimum criteria for a reference offer relating to obligations of transparency	Public consultation
5.1	BEREC Guidelines on the general authorisation notifications transmitted to competent authorities	Public consultation
5.2	BEREC Guidelines on common criteria for the assessment of the ability of undertakings other than ECN or ECS to manage numbering resources and the risk of exhaustion of numbering resources	Public consultation
5.6	Workshop to move towards a vision for Europe's telecoms consumers	Workshop
6.2	Board of Regulators establish detailed rules on application of 10/49/2001 regarding access to documents	Rules of Procedure
6.2	Board of Regulators establish measures for Reg. 45/2001 regarding personal data	Rules of Procedure
6.9	BEREC Report on Termination Rates at European level	Benchmarking report
6.12	BEREC Annual Reports (Annual Activity Report)	Annual report

Q3 2019

WP 2019 Reference	Deliverable Title	Deliverable Type
4.3	BEREC Net Neutrality measurement tool (carry-over)	Measurement tool

Plenary 3 2019

WP 2019 Reference	Deliverable Title	Deliverable Type
1.2	BEREC Study on the determinants of investment in very high capacity networks	Report
1.3	BEREC guidelines on common approaches to the identification of the network termination point in different network topologies	Public consultation
1.9	BEREC Guidelines to assist NRAs on the consistent application of Geographical surveys of network deployments	Public consultation
4.1	Update to the BEREC Guidelines on Net Neutrality	Public consultation
4.2	BEREC Report on the implementation of Regulation (EU) 2015/2120 and BEREC Net Neutrality Guidelines	Report
5.4	BEREC Guidelines detailing QoS parameters of IAS and publicly available ICS and the publication of information	Public consultation
6.7	BEREC International Roaming Benchmark Data Report	Benchmarking report
6.10	Summary report on Article 7/7A Phase II process	Summary report of internal workshop
3.1	BEREC Feasibility study on development of coverage information for 5G deployments	Public consultation

October 2019

WP 2019 Reference	Deliverable Title	Deliverable Type
6.6	BEREC Input to European Commission regarding the implementing acts setting out the weighted average of maximum mobile termination rates across the Union	Input to European Commission
6.13	BEREC Stakeholder Forum	Stakeholder Forum

Plenary 4 2019

WP 2019 Reference	Deliverable Title	Deliverable Type
1.8	Summary report on the migration from legacy infrastructures to fibre-based networks	Summary report of internal workshop
1.10	BEREC Guidelines on the minimum criteria for a reference offer relating to obligations of transparency	Guidelines
2.2	BEREC Report on the harmonised collection of data from both Authorised Undertakings and OTT operators	Report
2.3	Summary report on margin squeeze tests applied by NRAs	Summary report of internal workshop
3.1	BEREC Report on the impact of 5G on regulation and the role of regulation in enabling the 5G ecosystem	Public consultation
5.1	BEREC Guidelines on the general authorisation notifications transmitted to competent authorities	Guidelines
5.5	BEREC report on Member States' best practices to support the defining of adequate broadband IAS	Public consultation
5.7	BEREC Guidelines on how to assess the effectiveness of public warning systems transmitted by different means	Public consultation
5.8	Summary report on fraud and misuse cases	Summary report of internal workshop
6.8	BEREC Report on transparency and comparability of international roaming tariffs	Benchmarking report
6.9	BEREC Report on Termination Rates at European level	Benchmarking report
6.11	BEREC Report on Regulatory Accounting in Practice	Report

Plenary 1 2020

WP 2019 Reference	Deliverable Title	Deliverable Type
1.3	BEREC guidelines on common approaches to the identification of the network termination point in different network topologies	Guidelines
1.6	BEREC Guidelines to foster the consistent application of the criteria for assessing co-investments in very high capacity network elements	Public consultation
1.9	BEREC Guidelines to assist NRAs on the consistent application of Geographical surveys of network deployments	Guidelines
3.1	BEREC Feasibility study on development of coverage information for 5G deployments	Report
4.1	Update to the BEREC Guidelines on Net Neutrality	Guidelines
5.2	BEREC Guidelines on common criteria for the assessment of the ability of undertakings other than ECN or ECS to manage numbering resources and the risk of exhaustion of numbering resources	Guidelines
5.4	BEREC Guidelines detailing QoS parameters of IAS and publicly available ICS and the publication of information	Guidelines

Plenary 2 2020

WP 2019 Reference	Deliverable Title	Deliverable Type
1.1	BEREC guidelines on very high capacity networks	Public consultation
1.4	BEREC Guidelines on the criteria for a consistent application of Article 61(3) (Concentration point etc.)	Public consultation
3.1	BEREC Report on the impact of 5G on regulation and the role of regulation in enabling the 5G ecosystem	Report
5.5	BEREC report on Member States' best practices to support the defining of adequate broadband IAS	Report
5.7	BEREC Guidelines on how to assess the effectiveness of public warning systems transmitted by different means	Guidelines

Plenary 3 2020

WP 2019 Reference	Deliverable Title	Deliverable Type
6.3	Database of E.164 numbers	Database
6.5	BEREC input to the Commission's delegated act setting single EU-wide maximum MTR and FTR	BEREC Opinion

Plenary 4 2020

WP 2019 Reference	Deliverable Title	Deliverable Type
1.1	BEREC guidelines on very high capacity networks	Guidelines
1.4	BEREC Guidelines on the criteria for a consistent application of Article 61(3) (Concentration point etc.)	Guidelines
1.6	BEREC Guidelines to foster the consistent application of the criteria for assessing co-investments in very high capacity network elements	Guidelines
6.4	Database of numbering resources with a right of extraterritorial use within the European Union	Database

As required

WP 2019 Reference	Deliverable Title	Deliverable Type
1.7	BEREC Opinion on the review of EC Recommendation on relevant markets	BEREC Opinion
3.2	Peer review process	Peer review forums
5.10	BEREC input to the European Commission's methodology on the pricing of bundles	Input to European Commission
6.1	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.	Ad hoc input to the European Union institutions/NRAs
6.14	BEREC Communications Plan 2019 activities	Communications activities

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