

BEREC Work Programme 2020

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I. INTRODUCTION

The Body of European Regulators for Electronic Communications (BEREC), established by a Legislative Act of the European Parliament and of the Council on November 25 2009, 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 2020 are based on the mandatory tasks arising from 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 open internet principles; and
- Exploring new ways to boost consumer empowerment.

According to the BEREC Regulation, the BEREC Board of Regulators shall, after consultation, adopt the annual work programme of BEREC before the end of the year. 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.

The implementation of the new EECC will continue to be at the forefront of BEREC's work in 2020. In addition, BEREC would like to note that its fundamental objectives and the objectives of the EECC will be the relevant pillars guiding the work of BEREC in the coming years. In 2020, BEREC will also tackle newer topics such as digital platforms and security issues especially in relation to 5G networks.

The Work Programme 2020 reflects BEREC's commitment to serve as a body for thoughtful and proactive debate and advice for the European Parliament, the European Council and the European Commission in the electronic communications field. BEREC will closely follow the development of the new Commission's agenda, which identifies "digital" as one of its top three priorities. It is recognized that BEREC's Work Programme 2020 may need to be supplemented with activities relating to initiatives stemming from the new Commission.

Furthermore, BEREC's future goals include playing an important role in improving the consistent application of regulatory rules, to enhance its working methodology and to develop and broaden its stakeholder cooperation and engagement efforts. In 2020 BEREC will also revise its strategic objectives and decide on a new Strategy.

In accordance with Article 5 of the BEREC Regulation, the BEREC Work Programme 2020 was subject to public consultation, which ran from 7 October to 6 November 2019. In addition, an early call for input was open from March 19 through to April 23 2019. The BEREC Work Programme 2020 was approved for publication by the BEREC Board of Regulators at its plenary meeting in Malta, on 5 and 6 December 2019.

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II. BACKGROUND

The electronic communications sector is characterised by rapid evolution in technology and consequently a digital ecosystem that is under constant development. This development brings new regulatory challenges for BEREC and NRAs. BEREC's Medium-Term Strategy 2018-2020 sets out clear objectives to address these challenges:

- 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, and the mandatory tasks flowing from those documents, provide the basis for the BEREC Work Programme 2020, BEREC's Medium-Term Strategy 2018-2020, its three objectives and its five strategic priorities remain fundamental to the work of BEREC. The Work Programme 2020 has been developed to prepare for the new challenges set out in the EECC and the new BEREC Regulation. It focuses on challenges resulting from political, economic, technological and social developments and their impact on electronic communications.

In 2020 BEREC's Work Programme remains focused primarily on the important, mandatory projects, which cover all five of BEREC's strategic priorities, tasked to BEREC in light of the EECC¹.

The implications of 5G continue to be a strong focus in the BEREC Work Programme, in particular the implications 5G may have on the ecosystem and consequently on regulation. In relation to 5G, security has become an even more important issue. Net neutrality or Open Internet will also remain an important focus for BEREC, with the update of the Net Neutrality Guidelines² due in the first half of 2020.

The focus on consumer empowerment will continue, and the welfare of end users will always be a key focus for BEREC. 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 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 BEREC will also produce a report on Member States' best practices to support the defining of adequate broadband internet access service⁴

In addition to its mandatory work, BEREC aims to develop its understanding and thinking when it comes to future trends and trends of growing importance such as work on market &

¹ The following dates for Plenaries in 2020 can be noted: Plenary 1 (5-6 March, 2020); Plenary 2 (10-12 June, 2020); Plenary 3 (30 September - 2 October, 2020); Plenary 4 (10-11 December, 2020). Although the dates for Plenaries in 2021 have not been confirmed, it can be assumed that the dates will be approximately the same.

² BEREC Guidelines on the Implementation of the Open Internet Regulation

³ See Article 104(2) of the EECC.

⁴ See Article 83(3) of the EECC.

economic analysis of Digital Platforms, the impact of 5G on regulation and security issues related to 5G implementation

The implementation of the Work Programme 2020 will be undertaken by WGs, comprising experts from NRAs, with final policy decisions to be adopted by the Board of Regulators. The support of the BEREC Office is of key importance to the success of the BEREC Work Programme 2020. Under the guidance of its Director, the BEREC Office provides professional and administrative support services to BEREC and its WGs.

According to the new BEREC Regulation, BEREC shall make public its 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 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.

BEREC will continue to actively engage with stakeholders in public consultations and industry forums and by making information 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.

In 2020 BEREC will continue to undertake its mandatory and annually recurring work. BEREC will also 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.

Due to the global nature of electronic communication services, BEREC values and will further develop its international cooperation with NRAs based outside the EU, as well as with international regulatory networks, policy makers and institutions involved in electronic communications matters. BEREC will continue to provide support to the European Commission with respect to the Western Balkans initiative and other relevant initiatives. BEREC will also develop thematic exchanges with other European regulatory cooperation platforms and bodies, operating both in adjacent and different economic sectors.

Finally, it is worth noting that 2020 will be the year after the new Parliament and Commission takes office. In this context, some initiatives have already been announced for which BEREC may have valuable input, such as the Digital Services Act or the subject of digital platforms on which a specific work flow is already foreseen. BEREC remains mobilised and at the European institutions' disposal to share its expertise on these subjects and the regulatory developments that could mark the next legislature.

The focus areas of BEREC in 2020 will be presented and discussed in more detail in the following sections.

III. BEREC WORK IN 2020 AND BEYOND

Due to the extent of the mandatory work, with which BEREC is tasked in light of the EECC, some of the projects set out in the following sections of BEREC's Work Programme 2020 are carry-overs from the Work Programme 2019. Given the timing of 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 provides a list of BEREC's deliverables throughout 2020 and beyond, the details for each Strategic Priority are set out in the following sections.

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

In its Medium-Term Strategy 2018-2020, BEREC included as a Strategic Priority the continuation of its work on identifying competition problems that may arise in different Member States 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 such work was 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). In 2020 BEREC will continue this work and finalise much of the work initiated in 2019. In addition BEREC will also initiate work on quality evaluation of electronic communication networks and application of the State aid rules in relation to broadband. The Work Programme 2020 therefore includes the following activities that contribute to this strategic priority.

1.1. Carry-over work on 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 specific regulatory treatment for 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)⁵.

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

An essential part 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 the achievable performance of networks as defined in recital 13. This data collection exercise started in the second quarter of 2019, including a call for initial stakeholder input. Next, the data collected need to be analysed and 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: Carried out in 2019

Public consultation: Yes; adoption at Plenary 2 2020

Adoption of final guidelines at Plenary 4 2020 for publication

⁵ 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.

1.2. Carry-over work on 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 telecommunications 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 on the “Location of the network termination point”, which BEREC published in October 2018 (BoR(18)159).

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

Public consultation: carried out in 2019

Adoption of final guidelines at Plenary 1 2020 for publication

1.3. Carry-over work on 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 communications 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, the NRA 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.)

Call for initial stakeholder input: Carried out in 2019

Public consultation: Yes; adoption at Plenary 2 2020

Adoption of final guidelines at Plenary 4 2020 for publication

1.4. Carry-over work on 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 63 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 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 EECC⁶.

A first stakeholder workshop was organised in March 2019. A second stakeholders' workshop will be organised in Q1 2020 with the same aim namely to collect views from stakeholders' associations on the most relevant issues to be addressed in the guidelines.

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

⁶ 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.

Public consultation: Yes; adoption at Plenary 2 2020

Adoption of final guidelines at Plenary 4 2020 for publication

Deliverable: Stakeholder workshop to be held in Q1 2020

1.5. 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 new Recommendation will be the evolution of the Recommendation on Relevant Product and Service Markets reviewed in 2014. 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 its Opinion based on the documents and draft Recommendation to be communicated by the European Commission. In the meantime, BEREC is willing to participate actively in the process. Given the importance of this Recommendation for market analyses, exchanges and workshops with the European Commission will 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. A first workshop with the EC and WIK-Consult (commissioned by the EC to prepare an external report) will take place in January 2020, as notified by the EC to BEREC.

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

Public consultation: No

Publication: Yes

Documents sent by the Commission: TBD by the Commission

Opinion delivered: TBD depending on when the EC will publish the draft recommendation

1.6. Carry-over work on Guidelines for geographical surveys of network deployments

According to the EECC (Article 22(7)), by 21 June 2020, 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 surveys 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.

This project will require two deliverables:

- a) Delivery of Guidelines characterising the reach and performance of broadband networks, based on QoS-1, theoretical information and Guidelines on future deployment data.
- b) Delivery of Guidelines regarding verification, including QoS2 and QoS3 information to verify QoS1 information and guidelines on the procedures to invite undertakings and public authorities to declare their intention to deploy VHCN over the duration of the relevant forecast period (Art 22.3 and Art 22.4).

This second project will also require a BEREC external workshop with OCAs and stakeholders. The focus of the workshop will be methods and data to verify QoS1 information and guidelines on how to invite undertakings and public authorities to declare their intention to deploy VHCN in an area, and subsequent actions. Art 22.4 says that these measures should be non-discriminatory, efficient, transparent and objective.

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

Public consultation: carried out in 2019

Adoption of final guidelines at Plenary 1 2020 for publication

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

Public consultation, Yes; adoption at Plenary 3 2020

Adoption of final guidelines, phase II, at Plenary 1 2021 for publication

Deliverable: External workshop to be held in June 2020

1.7. External workshop with OECD on QoS and QoE of communication networks and services

Building on positive outcomes from previous workshops with OECD and BEREC, as well as on the ongoing communication between the two bodies on specific topics (e.g. IoT), the project deliverable is an expert workshop during 2020.

The workshop focus is on a specific topic with relevance for both BEREC and the ongoing review of OECD's broadband recommendation from 2004. The theme for the workshop is aspects related to quality characteristics of end customer services referred to as QoS and QoE of such services. This relates to technological aspects like the performance of the connectivity and communication services that are provided to the users and on the experience and perception of the quality of the networks and services from the users perspective. OECD contributes with an international perspective on QoS as well as QoE adding valuable insights to BERECs work on QoS guidelines and related issues. Altogether, the workshop aims to add insights about the factors that determine users' perception of electronic communication services.

Findings from the workshop could feed into the work that BEREC is conducting on QoS parameters of internet access services (IAS) and publicly available interpersonal communications services (ICS). It is also relevant for aspects of 5G services.

The transition to all IP networks means that all traffic rely on a common transmission technology which facilitates the convergence of telecommunications, broadcasting and media. This means that digital infrastructure plays a key role for society and if there are capacity constraints respective, traffic management measures are necessary to contribute to an efficient use of resources when provisioning of services.

Given that the workshop will address key aspects that are relevant for the development and provisioning of digital services, it could generate insights that facilitate more informed decisions by regulators as well as policy makers on issues related to QoS and QoE.

<p>Deliverable: External workshop with OECD on QoS and QoE of communication networks and services – to be held in June Q2 2020</p>

<p>Deliverable: Adoption of final workshop summary report at Plenary 3 2020 for publication</p>
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1.8. BEREC Report on Access Regulation (including prices) based on EU State Aid

The “EU Guidelines for the application of the State aid rules in relation to the rapid deployment of broadband networks” set out general conditions for State aid for broadband network projects, including non-discriminatory open access to the funded broadband infrastructure and they generally foresee a role for NRAs in State aid schemes.

In December 2017 BEREC published a report titled “Analysis of individual NRAs’ role around access condition to State Aid funded infrastructure” (BoR (17) 246), which examined how access conditions based on the EU State Aid Guidelines have been implemented in different Member States (MS) focusing on the role of the NRAs. It is based on information provided to a questionnaire, which was filled out by 25 NRAs and summarises information on access conditions and pricing methods in State aid cases. While in some MS only limited information is available in general it has turned out that access products and prices used for State Aid case are often the same or very similar to the reference offer of the regulated products of the SMP operator.

In March 2019, BEREC published a report on pricing for access to infrastructure and civil works according to the BCRD (BoR (19) 23). The report is based on replies to a questionnaire from NRAs of 24 MSs in which the relevant regulations regarding access to existing physical infrastructure and to civil works have been transposed and are in place. In general and across MSs, access to these infrastructures can be granted according to the BCRD, State aid regulations, an asymmetrical access regime which addresses ECN operators with SMP and finally on a voluntary basis. The replies to the questionnaire indicated that pricing methodologies which are comparatively strict (e.g. asymmetric SMP regulation or State aid regulations) usually prevail over the principles of fair, reasonable and non-discriminatory prices as defined in the BCRD.

It may have to be considered that Art. 61 (3) EEC also foresees access obligations that - subject to certain conditions being fulfilled - NRAs may impose regardless of any findings of significant market power (“symmetrical access regime”).

The European Commission (DG Competition) has commissioned a study on best practice cases for implementing the State Aid Guidelines across Europe, which foresees an extensive data collection exercise, including access conditions and prices.

BEREC will have an information exchange with the Commission. Based on this exchange and on the results of the study it will be decided whether additional information is required and if so, which data should be collected in a questionnaire from NRAs to best generate further insight on access regulation (including prices) based on EU State Aid rather than other access regimes.

<p>Deliverable (tentative): BEREC Report on Access Regulation (including prices) based on EU State Aid</p>

<p>Public consultation: No</p>

Adoption of final report at Plenary 2 2021 for publication
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2. Strategic priority 2: Monitoring potential bottlenecks in the distribution of digital services

BEREC's second strategic priority is to evaluate and analyse how the various digital markets evolve over the lifetime of the Medium-Term Strategy, with a particular focus on how market power is distributed and how the existence of bottlenecks to competition can be addressed by BEREC. While much of the work allocated to this strategic priority in 2020 relates to 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 initiated work on Digital Platforms and on data collection from Authorised Undertakings and OTTs. The Work Programme 2020 therefore includes the following activities that contribute to this strategic priority.

2.1. Update to the 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 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 published Guidelines in March 2019, with the aim of ensuring a coherent application of the Regulation in the Member States, insofar as it is required for the guidance of the derogation.

These Guidelines state that BEREC shall update the Benchmark defined in the Guidelines on a yearly basis, by taking into account data collected for monitoring purposes. This project constitutes the first of these updates. The occasion may be used to update other parts of the Guidelines where possible further clarification is needed.

Deliverable: Update to the BEREC Guidelines on intra-EU communications

Public consultation: Yes; adoption at Plenary 1 2020
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Adoption of updated guidelines at Plenary 3 2020 for publication
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2.2. Intra-EU communications Benchmark Report

According to Article 5a paragraph 6 of the TSM Regulation⁷ as amended by Regulation (EU) 2018/1971, NRAs shall monitor the price developments of regulated intra-EU communications services. For this purpose, BEREC provides a template to contribute to a harmonised data collection in the EU/EEA. NRAs are therefore collecting data from both fixed and mobile operators on a yearly basis and will submit the data to BEREC.

In 2020 BEREC is planning to publish the 1st Benchmark Report (including data from 2019) on the findings of the data collection.

Based on the data collected by NRAs on intra-EU communications services, BEREC will draft and publish a Benchmark Report once a year.

<p>Deliverable: 1st Intra-EU communications benchmark report</p>

<p>Public consultation: No</p>

<p>Adoption at Plenary 3 2020 for publication</p>

2.3. Report on Market & Economic analysis of Digital Platforms

The development of digital platforms has raised questions about what their impact is in the markets they operate in and if regulators are adequately equipped to address any potential market failures.

This work should be seen as a first insight from BEREC into the digital platforms, with the aim to provide a better understanding of digital platforms and the interest and potential role for BEREC in this area. Therefore, it is important that BEREC starts considering how to address digital platform issues in a more specific manner, and if the need for regulatory intervention is identified – what type of regulation could be implemented. The aim of the report is to identify characteristics and issues related to digital platforms, whilst outlining their relevance for NRAs and BEREC and providing possible innovative methodologies and policy approaches.

The report will provide a common understanding of terms, clarify concepts, provide an analysis of digital platforms, and describe the potentially positive and negative competition issues currently under discussion. The report will describe how competition concerns related to digital platforms have been handled so far through the application of competition law and other relevant legislative provisions. Furthermore, the report will describe views put forward on how to tackle potential competition problems, in particular in relation to the development of *ex ante* regulatory tools, some of which could be comparable to those traditionally used in the telecoms sector, is also currently under discussion, with arguments both in favour and against using such tools.

⁷ Regulation (EU) 2015/2120 of the European Parliament and of the Council of 25 November 2015 laying down measures concerning open internet access and amending Directive 2002/22/EC on universal service and users' rights relating to electronic communications networks and services and Regulation (EU) No 531/2012 on roaming on public mobile communications networks within the Union (Text with EEA relevance)

Finally, the report will address the relevance of digital platforms for NRAs and BEREC and how the experience gained by BEREC and its members in the context of electronic communications services, could be used in the context of digital platforms.

In addition, BEREC plans to conduct a Head's workshop addressing Digital Platforms, with a possibility to share experiences and discuss future developments.

Deliverable: Heads workshop to be held tentatively at Plenary 2 2020

Deliverable: BEREC Report on Market & Economic analysis of Digital Platforms

Public consultation: Yes; tentative adoption at Plenary 2 2020

Adoption of final report and summary of the public consultation at Plenary 4 2020

2.4. BEREC study on consumer behaviour and attitudes towards Digital Platforms

Digital platforms have had a fundamental effect on the electronic communications sector. The widespread use and benefits of digital platforms represents a major reason for consumer demand for broadband subscriptions and connection to electronic communications networks, including demand for Very High Capacity Networks.

While it is widely known that consumers have embraced digital platforms and that most consumers use them on a daily basis, we know less about consumer attitudes in relation to such platforms and what guides their choice.

In order to gain a better understanding of how consumers perceive and behave regarding available options on digital platforms, how consumers value and benefit from them and how digital platforms affect the demand for electronic communication services, BEREC will commission a study that will look at what aspects guide consumer choice in relation to digital services or platforms. The focus will primarily be on the substitutes for traditional interpersonal communications services.

The objective of the study is to provide BEREC and NRAs with an evidence-based understanding of digital platforms from the consumer perspective. The result of the study could also provide valuable input to BERECs work on digital platforms (as detailed under 2.3 above) and the related policy discussion.

Deliverable: BEREC study on consumer behaviour and attitudes towards Digital Platforms

Public consultation: No

Adoption of final report and summary of the public consultation tentatively at Plenary 2 2021

2.5. Report and workshop on a harmonised data collection regarding OTT services

By the end of 2019, BEREC will complete its public report on the harmonised collection of data from both Authorised Undertakings and OTT operators. This report is considered a necessary first step before considering whether to proceed with a proposal for BEREC to develop “Guidelines on the collection of data from OTT service providers, including indicators and data definitions, enforcement of obligations to provide data and cooperation amongst NRAs in the sharing of data when OTTs established in one Member State provide service in another”.

The report covers the types of data that it would be advantageous to collect, identifies who to collect it from, and may develop some templates that should be checked with the providers of information.

This work follows on from previous work carried out in 2016 (i.e. a report on OTT services (BoR (16) 37), in which BEREC assessed the potential to conduct a European benchmarking of OTT indicators and identified the need for the ECN/S Framework review to address the absence of legal provisions for NRAs to seek information from providers of OTT services. Subsequently, in 2017 BEREC conducted an exchange with the European Commission and Eurostat regarding the urgent need for evidence that helps to inform European policies (telecoms regulation, e-privacy, etc.) and national regulatory decisions in the development of over-the-top (OTT) communications services area.

In 2020, BEREC will organise of a workshop where stakeholders can be consulted on the templates for data collection. The preparatory work for this workshop will be undertaken in three phases:

- a) Phase 1: Delivery of a questionnaire to different providers to assess their capability to provide information by assessing the information they collect, the definitions and methods providers use to collect this information and other related issues. The call for inputs on this questionnaire should be public, but any contributions will remain confidential.
- b) Phase 2: Elaboration of draft definitions and templates taking into consideration the phase 1 questionnaire results and production of a BEREC internal Report
- c) Phase 3: Workshop to discuss draft definitions and templates, which will be provided before the workshop.

Deliverable: Report on Harmonised data collection regarding OTT services

Public consultation: No

Adoption of report on definitions and templates at Plenary 3 2020 for internal use

Deliverable: External workshop on a harmonised data collection regarding OTT services – Q4 2020

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

5G has been a key focus of BEREC's Work Programmes since 2017/2018. 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 timely implementation in the Member States. In 2019 BEREC focused on the mandatory work that it was assigned under the EECC, namely enabling 5G and promoting technological innovation. This remains a key objective for BEREC, but in 2020 BEREC will also work on coverage information for 5G deployments and the security of 5G networks. The Work Programme 2020 therefore includes the following activities that contribute to this strategic priority.

3.1. Carry-over work on The impact of 5G on regulation

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

In 2019, BEREC commenced a report on the impact of 5G on regulation and the role of regulation in enabling the 5G ecosystem, which included the question about 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 issues, such as:

- aspects of 5G network coverage and quality of service; and
- exploring national practices in relation to the roll-out of small cells.

The timing of the two deliverables set out below is dependent on the results of the “feasibility study” on development of coverage information for 5G deployments. The end result for this project is also to publish a report on the way forward on one or more regulatory key issues identified in the first path finder report on the impact of 5G on regulation and the role of regulation in enabling the 5G ecosystem.

Based on the preliminary surveys and early stakeholder engagements BEREC carried out in 2019, it seemed that for the large majority, the 5G vertical ecosystem models were not ready yet and plans were therefore not yet concrete.

BEREC could do more exploratory work, by organising a workshop, and, based on its outcomes provide either a high-level overview or details regarding specific verticals. The outcome could include a review mechanism in order to keep up with the development in the market.

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

Public consultation: Carried out in 2019

Adoption of final report at Plenary 1 2020 for publication

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

Call for input: Carried out in 2019

Public consultation: Yes, Plenary 2 2020

Adoption of final report at Plenary 4 2020 for publication

Deliverable: Stakeholder workshop on the impact of 5G on regulation to be held in Q1 2020

Adoption of Summary Report at Plenary 3 2020 for publication

Deliverable: Report on the way forward on one or more regulatory key issues identified in the first path finder report in the impact of 5G on regulation and the role of regulation in enabling the 5G ecosystem

Public consultation: Yes, Plenary 3 2020

Adoption of final report at Plenary 1 2021 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 will request 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 for 5G. In 2019, BEREC built upon this report to further exchange good practice in preparation for the Peer Review Forum. A Working Arrangement between BEREC and RSPG were signed in June 2019. "Liaison officers" in both BEREC and RSPG was appointed to strengthen the relationship between the two bodies as well as to facilitate the implementation of this Arrangement. BEREC

envisages informing the liaison officer in RSPG if it intends to participate in the Peer Review Forum or other meetings and to indicate its experts at the meeting.

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

Public consultation: No

Timing depends on whether and when RSPG organises a Peer Review forum when requested to do so

3.3. Workshop 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 European markets. Following the report, BEREC identified best practices on mobile infrastructure sharing arrangements and developed a draft BEREC Common Position on infrastructure sharing.

In 2019, BEREC considered the answers it received in response to the public consultation on the draft Common Position in order to make any necessary amendments before its adoption. In June 2019, BEREC adopted the Common Position on infrastructure sharing.

This project is a follow-up on the work done in 2018 and 2019 on infrastructure sharing. Following up on the 2019 Common position on infrastructure sharing, and due to the high level of stakeholder interest in this project, BEREC will organise a workshop to enable discussion with stakeholders on the BEREC work conducted so far, as well as the possible future evolutions of the Common Position with regard to 5G.

Deliverable: External workshop on whether NRAs could bring benefits to verticals, by providing information on coverage and QoS of 5G networks

Workshop to be held tentatively in Q3 2020

Adoption of Summary Report at Plenary 4 2020 for publication

3.4. Report on security issues related to 5G implementation

Taking into consideration the Commission Recommendation on the Cybersecurity of 5G networks⁸, BEREC has been mandated to assist the NIS⁹ Cooperation Group that will take into account national and Union risk assessments on 5G cybersecurity and will establish a toolbox identifying types of cybersecurity risk and possible measures to mitigate the risks in

⁸ Com (2019) 2335; especially, paragraph 24 in the preamble, as well as Chapter. V, point 6

⁹ Directive (EU) 2016/1148 of the European Parliament and of the Council of 6 July 2016 concerning measures for a high common level of security of network and information systems across the Union

areas including certification, testing and access controls. It should also identify possible specific measures appropriate to address risks identified by one or more Member States.

The main aim of the work has been to recognise how BEREC should contribute to achieving the goals of the Commission Recommendation on the Cybersecurity of 5G networks C (2019) 2335, and to act as a conduit for information and experience sharing on relevant cyber security matters amongst members and participants in BEREC and other relevant bodies.

BEREC will aim to focus its contribution on its core competencies, such as its understanding of the impact of market regulation on competition and will be drawing on the experience of its member NRAs.

Having taken the above into account, during the second half of 2019 BEREC gathered data from the member states and the operators on the state of play for 3G, 4G and 5G security requirements (NRA's competences in network/cyber security supervision, monitoring/formal supervision procedures state of play in the legislation: security by design, security in development, security in network configuration and deployment, supply chain related security measures).

Additionally, BEREC organised a workshop at the end of 2019 for BEREC members to consult with stakeholders and gather their views on measures for 5G cybersecurity

Following on from this research, in 2020, BEREC will:

- Depending on the toolbox development and following any requirements that might arise, provide any further additional information in the form of internal reports.
- Organize an external workshop in the first half of 2020 for BEREC members to consult with stakeholders and gather their views on measures for 5G cybersecurity if it is deemed necessary.
- Evaluate accordingly BEREC's involvement in 2020 depending on the toolbox implementation.

Deliverable: First Workshop on 5G Cybersecurity risk assessments and state of play held in 2019

Public consultation: No

Adoption of final report at Plenary 1 2020 for internal use

Deliverable: Second Workshop on 5G Cybersecurity toolbox progress Q2 2020

Public consultation: No

Adoption of final report at Plenary 3 2020 for internal use

4. Strategic priority 4: Fostering a consistent approach of the open internet 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 2020 BEREC will finalise the update to the Guidelines on the Implementation of the Open Internet Regulation as well as work on NRA deployment support and sharing of practical experiences of the Net Neutrality Measurement tool. The Work Programme 2020 therefore includes the following activities that contribute to this strategic priority.

4.1. Carry-over work on update to the Guidelines on the Implementation of the Open Internet Regulation

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 published a consultation report and an Opinion, in which it recommended updating or clarifying selected parts of the 2016 NN Guidelines.

In 2019, BEREC arranged a stakeholder workshop, prepared the draft Guidelines for public consultation, and after the consultation started to finalise the draft Guidelines and consultation report for publication. Based on the work done in 2018 and 2019, this work stream will finalize and publish the 2019 consultation report and the updated NN Guidelines, which will be renamed to the BEREC Guidelines on the Implementation of the Open Internet Regulation

<p>Deliverable: Update to the BEREC Guidelines on the Implementation of the Open Internet Regulation</p>

<p>Public consultation: carried out in 2019</p>

<p>Adoption of final Guidelines and consultation report at Plenary 2 2020 for publication</p>

4.2. The implementation of the Regulation (EU) 2015/2120 and BEREC Guidelines on the Implementation of the Open Internet Regulation

In 2016, BEREC published its Net Neutrality Guidelines (to be updated 2020), 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, 2018 and 2019, BEREC published reports on the implementation of the Regulation, based on the NRAs’ annual reports and NRAs’ answers to internal questionnaires.

In 2020, BEREC will monitor the implementation of the open internet provisions among NRAs concerning the period from 1 May 2019 to 30 April 2020. 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 is maintained among NRAs to (informally) discuss, national cases and questions relating to the coherent application of the Open Internet Regulation, also covering cases of zero-rating and similar offers, the impact of increased encryption e.g. new variants of DNS and gathering information about IPv6 deployment. This workstream should build on the experiences from earlier years and this information is also used to develop an annual European-level net neutrality report.

A specific topic that will be addressed in 2020 is the technical assessment of the traffic techniques in the context of zero-rating and similar offers as well as in traffic management cases that implement different categories of traffic. The predominant net neutrality case today relates to zero-rating. The assessment of how zero-rated traffic is identified would be an integral part of the investigation. It would be valuable for NRAs to have a better understanding of practices e.g. used to identify the zero-rated traffic and the traffic identification to implement different categories of traffic. The aim is to leverage information and to share knowledge about zero-rating and similar offers and how zero-rated content and/or different categories of traffic are identified.

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

Public consultation: No

Adoption of final report at Plenary 3 2020 for publication

Deliverable: Internal workshop on IPv6 deployment across Europe – tentatively Q4 2020

Adoption of final summary report tentatively Plenary 1 2021

Deliverable: Internal workshop on practices used to implement zero-rating offers in different categories of traffic – tentatively Q2 2020

4.3. NRA Deployment support and sharing of practical experiences of the Net Neutrality Measurement tool

In 2018 BEREC ran a procurement process for a Net Neutrality measurement tool.

The development of the BEREC Net Neutrality measurement tool is scheduled to be completed in 2019 and will be available for NRAs to commence deployment of a national instance thereafter.

With this workstream BEREC intends to:

- 1) Support NRAs in their national deployments and provide a forum for NRAs to share internal information and exchanges of experience
- 2) Explore how to best utilise this tool in terms of NRAs' supervisory roles, e.g. considering further developing the measurement methodology regarding measuring of the general quality of internet access services

- 3) Commence the task of supporting the BEREC Office during the 36 month maintenance period of the tool
- 4) Consider the benefits, drawbacks and challenges of maintaining a common codebase for the tool, during future enhancements delivered by individual NRAs or by BEREC, and plan BEREC's role in supporting the same
- 5) External co-operation with stakeholders to advertise and involve stakeholders with the tool's development e.g. via giving presentations and via stakeholder workshops

Deliverable: Information exchange

5. Strategic priority 5: Exploring new ways to boost consumer empowerment

The empowerment of end users is one of the three strategic pillars of BEREC. This objective was given added weight when BEREC put in place the five strategic priorities in its Medium-Term Strategy 2018-2020. BEREC always seeks to ensure that consumers have the information and tools to make informed choices and engage effectively with the market. One of the key provisions of the EECC is the imposition of consumer protection rules on the basis of full harmonisation at the 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. In addition, BEREC will work on how to handle third party payment charges on mobile phone bills and NRAs' enforcement powers when it comes to penalties. The Work Programme 2020 therefore includes the following activities that contribute to this strategic priority.

5.1. Carry-over work on 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 for numbering resources to undertakings other than providers of ECNs or ECSs is a national competence and not an obligation required by the EECC. In this respect implementation may vary from one Member States 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 Member States 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: carried out in 2019

Adoption of final Guidelines and consultation report at Plenary 1 2020 for publication

5.2. Carry-over work on 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.

<p>Deliverable: BEREC Guidelines detailing QoS parameters of IAS and publicly available ICS and the publication of information</p>

<p>Public consultation: carried out in 2019</p>

<p>Adoption of final guidelines and consultation report at Plenary 1 2020 for publication</p>

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

According to the EECC (Article 84(3)), BEREC shall, in order to contribute towards a consistent application of this Article, after consulting stakeholders and in close cooperation with the Commission, taking into account available Commission (Eurostat) data, adopt a report on Member States' best practices to support the defining of 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 Member States;
- how to determine the bandwidth necessary for supporting the minimum set of services set out in Annex V of the EECC;

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

Public consultation: carried out in 2019

Adoption of final report and consultation report at Plenary 2 2020 for publication

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

According to article 110 paragraph 2 subparagraph 2 EECC, BEREC shall publish guidelines on how to assess whether the effectiveness of public warning systems (PWS) under paragraph 2 of article 110 (110(2)-PWS) is equivalent to those under paragraph 1 (110(1)-PWS).

BEREC interprets this task as to provide a toolbox to support Member States in to fulfilling their obligations arising from article 110. The purpose of this guidelines is not to rank ECS-based PWS' according to their performance, but to provide Member States with the means to do so keeping in mind the background of their respective national needs and prerequisites.

BEREC considers that the guidelines should only cover those cases in which a Member States wants to roll-out a stand-alone 110(2)-PWS to be operated in isolation highlighting that where Member States want to roll-out a 110(1)-PWS and supplement it with aspects of a 110(2)-PWS the latter would not need to be measured against the guidelines. However, BEREC recommends using the guidelines as a reference point in such cases in order to identify improvable areas of the supplement-110(2)-PWS.

As no BEREC-Member has been responsible for the implementation of their national PWS so far, both a general and detailed questionnaire was issued to receive relevant input from the competent authorities in the Member States. The answers to this general questionnaire provide an important insight in the situation and future plans from each responding Member State and were used as a basis during the drafting of the guidelines.

In order to collect stakeholders' input on the design and capabilities of existing public warning systems on the market, an early general call for input was launched asking stakeholders to describe the capabilities of existing systems.

The guidelines should recommend which 110(1)-PWS systems, are considered to be the 'benchmark' against which 110(2)-PWS systems should be assessed. The guidelines will need to define a number of criteria against which ECS-PWS' should be assessed in terms of coverage and capacity to reach end-users. In order to assess the effectiveness of the 110(2)-PWS' the guidelines shall assess the performance of 110(1)-PWS against these criteria, as far as possible in order to create a benchmark. The criteria should be described and recommendations on aspects to be taken into account for each criterion should be given. Additionally the guidelines should provide general reasoning regarding the relevance of each criterion.

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

<p>Public consultation: carried out in 2019</p>

<p>Adoption of final Guidelines and consultation report at Plenary 2 2020 for publication</p>

5.5. Report on how to handle third party payment charges on mobile phone bills

In many European countries, mobile operators allow charges on behalf of third party providers through the mobile phone bills of their customers.

According to Article 115 of the EECC, competent authorities are able to require all providers of internet access services or publicly available number-based interpersonal communications services to make available free of charge all or part of the additional facilities listed in Part B of Annex VI of the EECC, subject to technical feasibility, as well as all or part of the additional facilities listed in Part A of Annex VI.

Among these additional facilities, Annex VI has a specific provision set out in PartA (h) "*facility to deactivate third party billing*" – namely, the facility for end-users to deactivate the ability for third party service providers to use the bill of a provider of an internet access service or a provider of a publicly available interpersonal communications service to charge for their products or services.

The purpose of this project is to collect data to understand;

- what charges on behalf of third party providers are being collected using mobile phone bills, considering both pre-paid and post-paid contracts and the related issues;
- provisions that existed in advance of the introduction of the EECC ('Code') and those that exist post implementation

This will allow BEREC to assess the *status quo* and show a benchmarking of the current practices concerning third party billing and how the EC's provisions are being implemented in Member States.

Deliverable: Report on how to handle third party payment charges on mobile phone bills

Public consultation: Yes, adoption of draft report at Plenary 1 2021 for public consultation

Adoption of final report at Plenary 3 2021

5.6. Report on Penalties

Within the limits of Member States national law, National Regulatory Authorities (NRAs) and/or other competent authorities have the power to impose penalties, including, where necessary, fines and non-criminal predetermined or periodic penalties, applicable to infringements of national provisions adopted pursuant to the telecommunications regulatory framework or of any binding decision adopted when performing its duties. NRAs also have the power to take all measures to ensure that the penalties are implemented.

This workstream involves the delivery of an internal BEREC report to analyse the national transposition of the rules on penalties, enforcement powers and NRAs' approaches to imposing penalties for non-compliance including the principles considered and issues encountered in the assessment of gradation criteria. This internal report will use output from a questionnaire to assess the current situation and could include a benchmarking of the types of infringements and penalties imposed by NRAs from both a wholesale and retail perspective.

Deliverable: Report on penalties

Public consultation: No

Adoption of final report at Plenary 3 2020 for internal use

6. BEREC obligatory work and stakeholder engagement

Beyond the work of BEREC which is explicitly set out above and which is 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 that is 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. The Work Programme 2020 therefore includes the following activities that contribute to such objectives..

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

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 of the EECC. BEREC will furthermore serve as a forum for exchanging views on national transposition formulas and will provide NRAs with the opportunity to submit questions and initiate a BEREC discussion/definition of a possible BEREC position on any specific national transposition issue that may arise including the notion of "electronic communications service" as laid down in the EECC.

BEREC is also ready to provide any inputs in the context of the new digital initiatives following the new European Commission and Parliament taking office in 2019.

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. Numbering-related BEREC tasks

Pursuant to Article 109 (8) of the EECC "BEREC shall maintain a database of E.164 numbers of Member State emergency services to ensure that they are able to contact each other, if such a database is not maintained by another organisation". BEREC has concluded that a suitable Public Safety Answering Point Directory is maintained by the CEPT/ECO already, but that the registration of national contacts in the database in view of the access to the relevant emergency services could be fostered.

According to Article 93(4) BEREC shall establish a database on the numbering resources with a right of extraterritorial use within the Union, in order for NRAs/OCAs to more easily check the undertakings' compliance with the conditions associated with using numbers.

Following up on its Opinion to the EC on the review of the Roaming Regulation, BEREC will collate and make publicly available a list of the VAS/premium number ranges in the EU in order to help address issues related to roaming-related fraud experiences where visited networks find themselves unable to identify premium rate numbers abroad in the EU.

Finally, BEREC will further cooperate on matters of fraud and misuse of numbering resources, by following up on the experience of implementing Article 28(2) USD (Article 97(2) EECC).

Deliverable: Actions fostering the further population of the existing database as in Art. 109.8 (e.g. informal contacts, letters, workshop)

Public consultation: No

Different actions to be reported at Plenary 2 2020

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

Public consultation: No

Database to be finalised and functioning by Plenary 4 2020

Deliverable: List/snapshot of premium rate numbers/VAS number ranges in each EU Member State

Public consultation: No

List to be finalised by Plenary 4 2020

Deliverable: Informal network of fraud-related experts in view of dealing with possible future cases of fraud and misuse of numbers

Public consultation: No

List for internal use to be finalised by Plenary 2 2020

6.3. Carry-over work on Database on general authorisation notifications transmitted to competent authorities

In order to approximate notification requirements, BEREC shall publish guidelines for the notification template and maintain a Union database of the notifications transmitted to the competent authorities. To that end, the competent authorities shall, by electronic means, forward each notification received to BEREC without undue delay. Notifications made to the competent authorities before 21 December 2020 shall be forwarded to BEREC by 21 December 2021.

Following-up on the 2019 activities carried out in this area, which led to the adoption of the BEREC guidelines on a general authorisation notification template, the envisaged database will be set-up and maintained by the BEREC Office. BEREC will also define the features of the database, also on the background of the adoption of the mentioned GA notification template at the end of 2019. The BEREC Office will procure the IT tool for preparing the database and will also implement it.

Deliverable: European Database of General Authorisation notifications

Public consultation: No

Input to be completed by Plenary 1 2020

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

According to the EECC (Article 75), by 31 December 2020 the Commission shall, taking utmost account of the opinion of BEREC, adopt a delegated act setting a single maximum EU-wide mobile voice termination rate (MTR) and a single maximum EU-wide fixed voice termination rate (FTR), which are 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 and in accordance with the principles provided in Annex III of the EECC.

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. In order to do this, BEREC will need to consider the latest available data. BEREC expects this to happen in Q1 2020. BEREC may also be requested to produce comments and specific analysis for 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 services.

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

Public consultation: No

Adoption of final Opinion at Plenary 3 2020 for publication

Roaming

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

According to Article 6e(2) of the Roaming Regulation as amended by Regulation 2015/2120, the European Commission has to review the Implementing Acts setting out the weighted average of maximum mobile termination rates every year, 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 2020.

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

Public consultation: No

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

6.6. International Roaming Benchmark Data Report

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

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

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

The data to be collected by BEREC shall be notified to the European Commission at least twice per 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 on the evolution of actual wholesale roaming rates for balanced and unbalanced traffic. BEREC shall assess how closely those elements relate to each other.

Deliverable: 24th BEREC International Roaming Benchmark Data Report

1 April 2019 to 30 September 2019

Public consultation: No

Adoption of final report at Plenary 1 2020 for publication

Deliverable: 25th BEREC International Roaming Benchmark Data Report

1 October 2019 until 31 March 2020

Public consultation: No

Adoption of final report at Plenary 3 2020 for publication

6.7. Transparency and comparability of international roaming tariffs

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

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

Public consultation: No

Adoption of final report at Plenary 4 2020 for publication

6.8. Ad hoc works – Inputs to any potential legislative proposals of the EC on roaming

The European Commission is working on the review of the Roaming Regulation. BEREC will continue to actively participate in this process and provide its inputs and opinions. The deliverables will be adapted depending on the process finally chosen by the European Commission.

Deliverable: As required

Quality and efficiency

6.9. Termination Rates at the European level

Data on termination rates 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 reports 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. On an annual basis, the report will also include an overview of SMS Termination Rates and revenues from fixed and mobile termination rates¹⁰.

<p>Deliverable: BEREC Report on Termination Rates at European level</p>
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<p>Public consultation: No</p>

<p>Adoption of final reports at Plenary 2 and Plenary 4 2020 for publication</p>
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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 by experts participating in 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.

Furthermore, BEREC may be requested in 2020 to provide an opinion to the European Commission in its envisaged exercise to review Commission Recommendation 2008/850/EC on notifications, time limits and consultations provided in Article 7 of Directive 2002/21/EC (*"Procedural Recommendation for Internal Market Notifications under the Code"*). The need

¹⁰ In 2018, BEREC began 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 2020.

for updated procedures arises in the context of the implementation of the EECC (Article 32-34). The Commission may update the current Procedural Recommendation (2008), and plans to address some new provisions and procedures introduced by the Code.

This initiative would be subject to a public consultation as well as a consultation with the national regulatory authorities and with BEREC, in which case the Commission would need to take 'utmost account of' BEREC's opinion.

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

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

Deliverable: BEREC opinion on the review of the EC Procedural Recommendation, likely to be needed in Q2 2020

Public consultation: No

Publication: Yes

6.11. Report on regulatory accounting in practice

The Regulatory Accounting in Practice Report 2020 will provide an up-to-date factual overview of the regulatory accounting frameworks used in Europe and an assessment of the level of consistency achieved by NRAs. The report is prepared annually and updates the previous versions published since 2005. In 2020, emphasis will continue to be placed on consistency in regulatory accounting with respect to key access products (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 will look into the impact of both on the result.

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

As in previous reports the 2020 report will contain a chapter explaining the motivations of NRAs for choosing a particular form of price control remedy (e.g. cost-orientation, ERT, others etc.) for different wholesale access products (in particular FTTP and FTTC network elements). The 2020 report will aim to analyse the choices in more depth.

Furthermore, the 2020 report will provide evidence for WACC calculation practices among NRAs. Data regarding the current calculation of the cost of capital (WACC) will be collected and analysed (methodologies and input parameters used). The report will also include data regarding if and how NRAs account for the higher risk of investing in very high capacity networks (for example through the application of a risk premium to the calculated WACC).

Deliverable: BEREC Report on Regulatory Accounting in Practice

Public consultation: No

Adoption of final reports at Plenary 4 2020 for publication

6.12. WACC parameters calculation

Following the Commission's Notice on the WACC, BEREC agreed to calculate various parameters of the WACC formula according to the methodology laid down in the EU WACC Notice:

- the Risk Free Rate - RFR and
- the Equity Risk Premium - ERP

In 2020 (and the subsequent years) BEREC will also calculate three other WACC parameters, which are company-related: beta, gearing and the cost of debt, again according to the methodology agreed with the Commission and laid down in the WACC Notice (expected to be finalised by Q3/Q4 2019). These WACC parameters as well as the RFR and ERP will in the future be calculated at the beginning of each year and will be published in a separate report to allow NRAs to base their national WACC decisions on this up-to-date information. BEREC is also planning to present a list of companies eligible for the peer group.

The fulfilment of this task in particular with regard to the calculation of the ERP, depends on the availability of specific data.

Finally, in 2019, the Commission and BEREC started informal discussions at working level on appropriate ways to remunerate investments in VHCNs (including through the WACC). The Commission would welcome BEREC's further involvement in such discussions but, at this stage, it is uncertain whether they will result in a specific policy initiative from the Commission and, if so, in what form and according to which timing. BEREC is ready to provide input on any policy initiatives the Commission may carry forward in this area.

BEREC will calculate the abovementioned WACC parameters following the methodology laid down in the Commission's WACC Guidance at the beginning of 2020 and publish them so that NRAs can take them into account when calculating the WACC for national markets.

Deliverable: BEREC Report on WACC parameters

Public consultation: No

Adoption at Plenary 2 2020 for publication

Communication and cooperation

6.13. BEREC Annual reports

According to the 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 covered 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's activities focuses on the outcomes of the work of its WGs and ad-hoc teams based on the Work Programme, the Annual Report on developments in the electronic communications sector summarises BEREC's views on the past year and provides its 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 2020 for publication

6.14. Stakeholder Forum

The 8th BEREC Stakeholder Forum in 2020 will include early engagement with stakeholders on the BEREC Work Programme for the coming year (i.e. 2021). Shifting this meeting to the spring should provide a better platform for stakeholders and BEREC to engage in strategic dialogue for the work that BEREC will commit to going forward. According to the BEREC Regulation, BEREC has to adopt an Outline of the Work Programme 2021 by 31 January 2020. This document can also be used as a basis for the early engagement. The feedback received at the Stakeholder Forum will be an important input, complementing other stakeholder engagement activities throughout 2020 and leading up to the public consultation and adoption of the BEREC Work Programme 2021. In 2020, seeing that BEREC will be revising its Strategy, the Stakeholder Forum will also provide an opportunity to discuss and listen to input on the Strategy.

Deliverable: BEREC Stakeholder Forum in April 2020

6.15. BEREC Work Programmes 2020-2022

Traditionally, BEREC has initiated the work on a new Work Programme for a given year at the end of the first quarter of the preceding year. The Work Programme is, after a public consultation, finally decided upon at the fourth Plenary meeting in December. According to the new BEREC Regulation, BEREC shall adopt the outline of its annual work programme by 31 January of the year preceding that to which the annual work programme relates. This means

that the preparation of the Work Programme needs to start earlier or in practice be a multiannual task.

The new requirement for BEREC to draft an early outline of the Work Programme by the end of January in the preceding year, combined with a reflection on BEREC's established practices, which largely resulted in a Work Programme starting and concluding in a single year, prompted a review of BEREC's practices and procedures.

In 2019, BEREC set up a process on how BEREC develops its Work Programmes and which will be followed in future years. In 2020, there is a need to revise and fine-tune the process, based on experiences from 2019.

Deliverable: Guidelines for developing BEREC Work Programmes

Public consultation: No

Adoption at Plenary 1 2020 for internal use

Deliverable: Outline of BEREC Work Programme 2021

Public consultation: No

Adoption by electronic clearance by 31 January 2020

Deliverable: BEREC Work Programme 2021

Public consultation: Yes, tentatively adoption at Plenary 3, 2020

Adoption at Plenary 4, 2020

Deliverable: Outline of BEREC Work Programme 2022

Public consultation: No

Adoption by Plenary 4 2020

or electronic clearance by 31 January 2021

6.16. Review of BEREC Strategy

BEREC adopted its first medium-term strategic outlook in 2012. This strategic outlook is subject to a regular review and an updated strategic outlook was first adopted in December 2014 (covering the period 2015-2017), which was subsequently updated to produce the current strategic outlook (covering the period 2018-2020) in October 2017. It is a core document, on which BEREC's annual Work Programmes are based and which provides strategic orientations to map out BEREC's actions.

BEREC will have to revisit its strategy in 2020 to realign its objectives and strategic priorities to the new regulatory framework and to ensure that it stays relevant in relation to the current market developments and technological trends.

The new strategy will build upon BEREC's work to date, as well as take into account major market developments, in particular their effects on the regulatory context for BEREC. It will also need to consider potential new challenges for BEREC in light of the new European Commission and Parliament taking office and the priorities that these institutions set. Finally, BEREC's approach to how it cooperates with other international- and EU organisations will also form part of the considerations for the new strategy.

The review of the strategy will be drafted based upon the objectives of BEREC as outlined in the BEREC Regulation, and in coordination with all WGs in order to ensure alignment of outputs.

Deliverable: BEREC Strategy

Call for Input: Carried out in 2019

Public consultation: Yes, adoption at Plenary 1, 2020

Adoption at Plenary 3, 2020 for publication

6.17. Cooperation with EU institutions and institutional groups

In 2020 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, BEREC will also promote thematic exchanges and the possibility of common studies with other European Union bodies, offices, agencies and advisory groups, operating both in adjacent and different economic sectors, such as the RSPG, ENISA, EDPB, EDPS and ECN, as well as institutional groups, such as the ITU and OECD. In 2020, BEREC will especially focus on a thematic exchange with ENISA and EDPB relating to privacy and security concerns. This exchange would in particular be relevant to BEREC work on digital platforms, 5G networks and the open internet.

To handle the different cooperation initiatives more efficiently BEREC will consider structuring them and including them in the updated BEREC Strategy.

6.18. International cooperation

In 2020 BEREC will continue to 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.

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 on its own initiative or as requested by the EU institutions.

BEREC will continue to develop and strengthen contacts with international regulatory authorities such as the FCC, TRAI, CRTC, and with regional regulatory networks (EMERG, EaPeReg, and Regulatel), and with global bodies such as the ITU, in accordance with the BEREC Regulation and in cooperation with the EU external action services. BEREC will continue to provide support to the European Commission with respect to the Western Balkans initiative and other relevant initiatives. BEREC will also continue to provide support to the Commission regarding the Policy and Regulatory Initiative for Digital Africa (PRIDA).

To handle the different cooperation initiatives more efficiently, BEREC will consider structuring them and having an annual plan for all initiatives.

7. Possible work for 2021 and beyond

In preparing its new Strategy, BEREC will consider the strategic value and options to adopt a longer-term strategic outlook when it comes to its Work Programmes.

Given the amount of work for BEREC coming out of the EECC for 2019-2020, a number of important proposals will not be possible to initiate in 2020. In order not to lose track of such potential workstreams, this section includes items, which BEREC may take forward in its Outline BEREC Work Programme 2021 or in subsequent Work Programmes. The list will be reviewed and updated as appropriate, however BEREC cannot commit to the exact scope of any of the proposals should they be included in future years' work.

Economic assessment of the cost of rolling-out 5G in the EU

The aim would be to assess the cost and merits of pioneer band (cm-wave and mm-wave band) rollout of 5G on a ubiquitous basis across the EU to help understand the balance of investments required between industry and the public sector, as well as the mix of technology to support Europe's aspirations to be a leader in next generation networks.

Satcom solutions for 5G

The aim of SaT5G, a project launched in 2015, is to develop a cost effective "plug and play" satcom solution for 5G to enable telcos and network vendors to accelerate 5G deployment in all geographies and at the same time create new and growing market opportunities for satcom industry stakeholders.

Emergency calling and Next Generation 112

The EECC recently defined new directions for the operation of the 112 service. Article 109 of the code states that, by December 2020, Member States will have to receive emergency communications, which includes not only voice communications services, but also SMS, messaging, video or other types of communications. To achieve this transformation, it is necessary to define a new emergency communications routing architecture.

Comparison of tools for comparing telecoms services

Article 103.2 in the EECC stipulates an independent comparison tool which enables end-users to compare and evaluate different internet access services and publicly available NB-ICS, and, where applicable, publicly available NI-ICS.

Non-discrimination on QoS

Alternative operators that rely on wholesale access do not control most of the essential elements of the quality of the service provided. Ensuring non-discrimination on QoS between wholesale access providers and access takers is therefore interesting,

Wholesale replicability test

Workshop or exchange of experiences on wholesale replicability tests in order to compare and share European practices or proposals. A wholesale replicability test in addition to the current economic replicability test could help prevent abusive behaviours of SMP operators aimed at hindering the entry of a new wholesale-only operator in the market. Among the

anticompetitive behaviours that wholesale only operators are often facing, selective price cuts and other lock in practices put in place by the SMP operator to discourage wholesale-only operators in specific geographic areas are rather serious.

Compensation in case of early termination of contracts

Compensations in case of early termination of contracts with a specific focus on the recoverable costs, and invoicing methods prescribed domestically for retail pricing (such as for instance the possibility for the customer to pay one-off fees such as activation fees, split on different monthly invoices).

Internet Value Chain

Monitoring the effects on the internet value chain of factors such as mobile Handsets, Operation Systems and Application stores.

A consistent approach to migration & copper switch off

Following up on the 2019 internal workshop and summary report on the migration from legacy infrastructures to fibre-based networks and interact with stakeholders. Issues to consider include; fit-for-purpose wholesale access, sharing solutions such as wavelength division multiplexing, and further technical, operational, commercial and regulatory challenges.

Report on key elements of the functioning of the EECC

Within BERECs responsibility of monitoring the functioning of the EECC, one element would be further efforts to monitor the impact, and effectiveness, of the newly inserted provisions, with a view to collecting sufficient quantitative and qualitative data for future Code reviews (as required under art 122-123). A key focus should be on monitoring the new end-user information provision requirements, including the contract summary template, and the symmetric access provisions.

Exchange on the impact of the Public Sector Information Directive

In light of the planned update of the Public Sector Information (PSI) Directive¹¹, BEREC will consider to what extent it can support the goals of the updated PSI Directive to support the provision of data for general business opportunities and other purposes such as algorithm training.

Workshop on NRA experiences with 5G

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

IP Peering workshop

Following-up on earlier BEREC work in the area BEREC could hold another workshop in co-operation with the OECD to look at ongoing trends in IP interconnection policies and practices of ISPs including the use of paid peering.

¹¹ Directive 2013/37/EU of the European Parliament and of the Council of 26 June 2013 amending Directive 2003/98/EC on the re-use of public sector information Text with EEA relevance

Abbreviations

BCRD	Broadband Cost Reduction Directive
BEREC	Body of European Regulators for Electronic Communications
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
EDPB	European Data Protection Board
EDPS	European Data Protection Supervisor
EECC	European Electronic Communications Code
EENA	European Emergency Number Association
EMERG	Euro-Mediterranean Regulators Group
ENISA	European Union Agency for Network and Information Security
ETSI	European Telecommunications Standards Institute
EU/EEA	The European Union and European Economic Area
ERP	Equity Risk Premium
WG	Working Group
FCC	Federal Communications Commission
FTR	Fixed Termination Rate
GIS	Geographic Information System
IAS	Internet Access Service
ICS	Interpersonal Communications Services
IoT	Internet of Things
ITU	International Telecommunications Union
MS	Member State
MTR	Mobile Termination Rate
NB-ICS	Number-based Interpersonal Communications Services
NI-ICS	Number-independent interpersonal communications service
NN	Net Neutrality
NRA	National Regulatory Authority
OCA	Other Competent Authority
OECD	Organisation for Economic Cooperation and Development
OTT	Over The Top
PRIDA	Policy and Regulatory Initiative for Digital Africa
PSAP	Public Safety Answering Point
PSAP-DIR	Public Safety Answering Point Directory
PWS	Public Warning Systems
QoS	Quality of Service
QoE	Quality of Experience
Regutel	Latin American Forum of Telecommunications Regulators
RFR	Risk Free Rate
RSPG	Radio Spectrum Policy Group
TRAI	Telecom Regulatory Authority of India

VHCN	Very High Capacity Networks
WACC	Weighted Average Capital Cost

Annex: BEREC Work Programme 2020 timeline

The tables below set out the timeline of all deliverables from January 2020 through to mid-2021, including (as requested) those deliverables currently without a definitive timing.

Q1 2020

Work Programme (WP) 2020 Reference	Deliverable Title	Deliverable Type
1.4	Stakeholder workshop on the consistent application of the criteria for assessing co-investments on very high capacity network elements	Stakeholder workshop
3.1	Stakeholder workshop on The impact of 5G on regulation, February	Stakeholder workshop
6.15	Outline of BEREC Work Programme 2021	Work Programme outline

Plenary 1 2020

WP 2020 Reference	Deliverable Title	Deliverable Type
1.2	BEREC guidelines on common approaches to the identification of the network termination point in different network topologies	Guidelines
1.6	BEREC Guidelines to assist NRAs on the consistent application of Geographical surveys of network deployments	Guidelines
2.1	Update to the BEREC Guidelines on intra-EU communications	Public consultation
3.1	BEREC Feasibility study on development of coverage information for 5G deployments	Report
3.4	Internal workshop on security issues related to 5G implementation	Report for internal use
5.1	BEREC Guidelines on common criteria for the assessment of the ability of undertakings other than ECN or ECS to manage numbering resources	Guidelines Consultation report
5.2	BEREC Guidelines detailing QoS parameters of IAS and publicly available ICS and the publication of information	Guidelines Consultation report
6.3	European Database of General Authorisation notifications	Input
6.6	24 th BEREC International Roaming Benchmark Data Report	Benchmarking report
6.16	BEREC Strategy	Public consultation
6.15	Guidelines for developing BEREC Work Programmes	Guidelines for internal use

Q2 2020

	Deliverable Title	Deliverable Type
1.6	BEREC Guidelines to assist NRAs on the consistent application of Geographical surveys of network deployments (June)	External stakeholder workshop

1.7	External expert workshop with OECD on QoS and QoE of communication networks and services, June	Expert workshop
3.4	External workshop on security issues related to 5G implementation	External workshop
4.2	Internal workshop on practices used to implement zero-rating offers different categories of traffic	Internal workshop
6.10	Internal workshop on the need for updating the Article 7/a Phase II process, April	Internal workshop
6.10	BEREC opinion on the review of the EC Procedural Recommendation	BEREC Opinion
6.14	BEREC Stakeholder Forum, April	Stakeholder Forum

Plenary 2 2020

WP 2020 Reference	Deliverable Title	Deliverable Type
1.1	BEREC Guidelines on very high capacity networks	Public consultation
1.3	BEREC Guidelines on the criteria for a consistent application of Article 61(3) (Concentration point etc.)	Public consultation
2.3	BEREC Report on Market & Economic analysis of Digital Platforms	Public consultation Heads workshop
1.4	BEREC Guidelines to foster the consistent application of the criteria for assessing co-investments in very high capacity network elements	Public consultation
3.1	BEREC Report on the impact of 5G on regulation and the role of regulation in enabling the 5G ecosystem	Report
4.1	Update to the BEREC Guidelines on the Implementation of the Open Internet Regulation	Guidelines Consultation report
5.3	BEREC report on Member States' best practices to support the defining of adequate broadband IAS	Report Consultation report
5.4	BEREC Guidelines on how to assess the effectiveness of public warning systems transmitted by different means	Guidelines Consultation report
6.2	Actions fostering the further population of the existing database as in Art. 109.8 (e.g. informal contacts, letters, workshop)	Different actions to be reported
	Informal network of fraud-related experts in view of dealing with possible future cases of fraud and misuse of numbers	List for internal use
6.9	BEREC Report on Termination Rates at European level	Report
6.12	BEREC report on WACC parameters	Report
6.13	BEREC Annual Reports (Annual Activity Report)	Report
6.16	BEREC Strategy	Public consultation

Q3 2020

WP 2020 Reference	Deliverable Title	Deliverable Type
3.3	Workshop on infrastructure sharing	External workshop

Plenary 3 2020

WP 2020 Reference	Deliverable Title	Deliverable Type
1.6	BEREC Guidelines to assist NRAs on the consistent application of Geographical surveys of network deployments, phase II	Public consultation
1.7	External expert workshop with OECD on QoS and QoE of communication networks and services	Summary report
2.1	Update to the BEREC Guidelines on intra-EU communications	Guidelines
2.2	1st Intra-EU communications benchmark report	Report
3.1	Stakeholder workshop on The impact of 5G on regulation BEREC Report on the way forward on one or more regulatory key issues identified in the first path finder report in the impact of 5G on regulation and the role of regulation in enabling the 5G ecosystem	Summary report Public consultation
2.5	BEREC Report on definitions and templates on a harmonized data collection regarding OTT services	Report
3.4	External workshop on security issues related to 5G implementation	Internal summary report
4.2	BEREC Report on the implementation of Regulation (EU) 2015/2120 and BEREC Net Neutrality Guidelines	Report
5.6	BEREC Report on penalties	Internal report
6.4	BEREC input to the EC's delegated act setting single EU-wide maximum MTR and FTR	Opinion
6.6	25 th BEREC International Roaming Benchmark Data Report	Benchmarking report
6.10	Internal workshop on Article 7//7a	Summary report
6.15	BEREC Work Programme 2021	Public consultation
6.16	BEREC Strategy	Strategy
3.1	Feasibility study on developments of coverage information for 5G deployment	Report

Q4 2020

WP 2020 Reference	Deliverable Title	Deliverable Type
2.5	Workshop on a harmonized data collection regarding OTT services, November	External workshop
4.2	Internal workshop on IPv6 deployment across Europe	Internal workshop

6.5	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
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Plenary 4 2020

WP 2020 Reference	Deliverable Title	Deliverable Type
1.1	BEREC Guidelines on very high capacity networks	Guidelines
1.3	BEREC Guidelines on the criteria for a consistent application of Article 61(3) (Concentration point etc.)	Guidelines
1.4	BEREC Guidelines to foster the consistent application of the criteria for assessing co-investments in very high capacity network elements	Guidelines Consultation report
2.3	BEREC Report on Market & Economic analysis of Digital Platforms	Report Consultation report
3.1	BEREC Report on the way forward on one or more regulatory key issues identified in the first path finder report in the impact of 5G on regulation and the role of regulation in enabling the 5G ecosystem	Report
3.3	Workshop on infrastructure sharing	Summary report
6.2	Snapshot of PRS number ranges in Europe	List
	BEREC Database of numbering resources with a right of extraterritorial use within the EU	Database
6.7	BEREC Report on transparency and comparability of international roaming tariffs	Benchmarking report
6.9	BEREC Report on Termination Rates at European level	Report
6.11	BEREC Report on Regulatory Accounting in Practice	Report
6.15	BEREC Work Programme 2021	Work Programme
	Outline of BEREC Work Programme 2022	Outline Work Programme or by electronic clearance by 31 January 2021

Plenary 1 2021

WP 2020 Reference	Deliverable Title	Deliverable Type
5.5	BEREC Report on how to handle third party payment charges on mobile phone bills	Public consultation
1.6	BEREC Guidelines to assist NRAs on the consistent application of Geographical surveys of network deployments, phase II	Guidelines
3.1	BEREC Report on the way forward on one or more regulatory key issues identified in the first path finder report in the impact of 5G on regulation and the role of regulation in enabling the 5G ecosystem	Report for publication
4.2	Internal workshop on IPv6 deployment across Europe	Summary report

Plenary 2 2021

WP 2020 Reference	Deliverable Title	Deliverable Type
1.8	BEREC Report on Access Regulation (including prices) based on EU State Aid	Report
2.4	BEREC study on consumer behaviour and attitudes towards Digital Platforms	Report Summary report

Plenary 3 2021

WP 2020 Reference	Deliverable Title	Deliverable Type
5.5	BEREC Report on how to handle third party payment charges on mobile phone bills	Report

As required

WP 2020 Reference	Deliverable Title	Deliverable Type
3.2	Peer review process	Peer review forums
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
6.8	BEREC Input to potential legislative proposals of the EC on roaming	Input to European Commission
1.5	BEREC Opinion on the review of EC Recommendation on relevant markets	Opinion