

BEREC Work Programme 2019

4 October 2018

Contents

I. INTRODUCTION	2
II. BACKGROUND.....	3
III. BEREC WORK IN 2019 & 2020.....	6
1. Strategic priority 1: Responding to connectivity challenges and to new conditions for access to high-capacity networks	6
1.1. Very high capacity networks.....	6
1.2. BEREC Study on the determinants of investment in very high capacity networks	7
1.3. Identification of the network termination point	9
1.4. Determination of the first concentration point.....	10
1.5. Evaluation of the roaming market.....	11
1.6. Application of the co-investment criteria.....	12
1.7. Recommendation on Relevant Markets	12
1.8. Migration from legacy to fibre-based networks.....	13
1.9. Geographical surveys of network deployments.....	14
1.10. Minimum criteria for a reference offer (obligation of transparency).....	16
1.11. Carry-over work on pricing for access to infrastructure & civil works.....	16
1.12. Carry-over work on access to physical infrastructure in market analyses	17
2. Strategic priority 2: Monitoring potential bottlenecks in the distribution of digital services	18
2.1. Intra-EU calls and SMS	18
2.2. Harmonised data collection: Authorised Undertakings & OTTs	19
2.3. Ex-ante margin squeeze tests	19
2.4. Carry-over work on the data economy	21
2.5. Carry-over work on Internet of Things indicators	22
3. Strategic priority 3: Enabling 5G and promoting innovation in network technologies.....	23
3.1. The impact of 5G on regulation	23
3.2. Peer review process	24
3.3. Carry-over work on infrastructure sharing	25
4. Strategic priority 4: Fostering a consistent approach of the net neutrality principles	26
4.1. Update to the Guidelines on Net Neutrality	26
4.2. Implementation of Net Neutrality regulation	26
4.3. Carry-over work on BEREC Net Neutrality measurement tool.....	27
5. Strategic priority 5: Exploring new ways to boost consumer empowerment	27
5.1. General authorisation notifications transmitted to competent authorities.....	28
5.2. Common criteria for undertakings other than ECN/ECS to manage numbering resources ...	28
5.3. Contract summary template	29
5.4. Quality of service parameters.....	29
5.5. The definition of adequate broadband internet access service	30
5.6. A vision for Europe's telecoms consumers	31
5.7. The effectiveness of public warning systems transmitted by alternative means to mobile NB-ICS.....	33
5.8. Access to numbers and services (fraud and misuse).....	34
5.9. Carry-over work on termination of contracts and switching providers.....	34
5.10. Input to European Commission methodology on pricing of bundles	35
6. BEREC obligatory work and stakeholder engagement	35
European Electronic Communications Code.....	36
6.1. Ad hoc input to the European Commission	36
6.2. Implementation of the BEREC Regulation	36
6.3. Database of E.164 numbers.....	37
6.4. Database on numbering resources with a right of extraterritorial use within the European Union	37

6.5. BEREC input to the setting of single EU-wide maximum fixed/mobile voice termination rates.....	38
Roaming	39
6.6. Weighted average of maximum mobile termination rates across the EU	39
6.7. International Roaming benchmark.....	39
6.8. Transparency and comparability of international roaming tariffs.....	40
Quality and efficiency.....	40
6.9. Termination Rates at the European level	40
6.10. Article 7/7a Phase II process	41
6.11. Regulatory accounting in practice	41
Communication and cooperation	42
6.12. BEREC Annual reports.....	42
6.13. Stakeholder Forum	42
6.14. BEREC Communications Plan 2019 (including 10 th anniversary programme of activities) .	43
6.15. BEREC Work Programme 2020	44
6.16. Cooperation with EU institutions and institutional groups	44
6.17. International cooperation	45
Abbreviations	45
Annex 1: BEREC Work Programme 2019 timeline	46

I. INTRODUCTION

The Body of European Regulators for Electronic Communications (BEREC) was established by Regulation (EC) No 1211/2009 of the European Parliament and of the Council of 25 November 2009 (the BEREC Regulation). According to Article 5(4) of the BEREC Regulation, the BEREC Board of Regulators shall, after consulting interested parties, adopt the annual work programme of BEREC before the end of each year preceding that to which the work programme relates. The Board of Regulators shall transmit the annual work programme to the European Parliament, the Council and the European Commission as soon as it is adopted. BEREC aims to ensure the independent, consistent and high-quality application of the European regulatory framework for electronic communications for the benefit of Europe and its citizens. The objectives of the draft BEREC Work Programme 2019 are certainly based on the mandatory tasks falling to BEREC in light of the new European Electronic Communications Code (EECC), but also fundamentally on the BEREC Medium-Term Strategy 2018-2020, with a keen focus on the following five strategic priorities:

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

While the work of implementing the new EECC is to the forefront of BEREC's work, BEREC would also like to note that its fundamental objectives and the objectives of the EECC – promoting competition and investment, promoting the internal market, empowering and

protecting end-users, and promote connectivity in Europe – will be the relevant pillars guiding the work of BEREC in the coming years. As 2018 saw the completion of more than two years of negotiations on the EECC, the scope and scale of the draft Work Programme 2019 illustrates the level of work before BEREC not just in the next twelve months but, indeed, over the next two years. The draft Work Programme 2019 reflects BEREC's commitment to serve as a body for thoughtful and proactive debate and advice for the European Parliament, the Council and the European Commission in the electronic communications field. Furthermore, BEREC's future aims are to play an important role in further improving the consistent application of regulatory rules, to enhance its working methodology and to engage cooperatively and effectively with stakeholders.

In line with the practice of previous years and in accordance with Article 5 of the BEREC Regulation, the BEREC Work Programme 2019 was subject to consultation. The public consultation ran from 10 October to 7 November 2018. The final BEREC Work Programme 2019 was discussed and agreed upon at the BEREC Board of Regulators meeting in Prague, Czech Republic, on 6-7 December 2018.

Mr. Johannes Gungl, RTR

Mr. Jeremy Godfrey, ComReg

II. BACKGROUND

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

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

While the new EECC and the new BEREC Regulation¹ and the mandatory tasks flowing from such documents, provide the basis for the BEREC Work Programme 2019, we are in the second of three years following on from BEREC's Medium-Term Strategy 2018-2020. Therefore, that document, its three objectives, and its five strategic priorities, remains fundamental to the work that BEREC is undertaking in 2019 and 2020. While the Work Programme 2019 seeks to address current regulatory challenges, it also most certainly has been developed to prepare for the new challenges set out in the EECC and the BEREC Regulation, as well as the challenges ahead resulting from not just political, but economic, technological, and social developments.

¹ The original draft of this Work Programme was completed ahead of the final adoption of the EECC and the BEREC Regulation. BEREC will amend the language/article numbers etc. accordingly in light of the final adoption of both documents, in order to reflect the language appropriately. Therefore any and all references to articles etc. in the EECC and the new BEREC Regulation are subject to adjustment, though it is to be expected that the essence and content will essentially remain the same in light of the final adoption. BEREC intends to adopt a final draft version of this report for public consultation in October 2018. While the version of this document to be adopted (provisionally) at BEREC's 37th Plenary meeting in December will take into account all responses to the public consultation, the final version of BEREC's Work Programme 2019 to be published can only be done when the language of the EECC and the new BEREC Regulation has been finalised.

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

However, in 2019 and beyond into 2020, the focus of BEREC's Work Programme will turn primarily to the important, mandatory projects, which cover all five of BEREC's Strategic Priorities, tasked to BEREC in light of the EECC.² As part of such mandatory tasks, BEREC will develop guidelines intended to foster the consistent application of the criteria for assessing co-investment on Very High Capacity Network (VHCN) elements. In addition, in 2019 BEREC will commission a study into the determinants of investment in VHCN. Enhancing the conditions for investment is a key activity for national telecommunications regulatory authorities, seeking to promote competition and optimise end-user welfare. The proposed project is intended, using an innovative technique (system dynamics modelling), to provide insight into the complex interplay of factors which impact investment in network infrastructure. This project will have a particular focus on regulatory measures imposed within the EU, and how they can influence the level of investment in VHCN.

The strong and focused work completed by BEREC in 2018 with regard to consumer empowerment will continue, and the welfare of end users will always be a key focus for BEREC, and most certainly in the BEREC Work Programme 2019. In line with its Medium Term Strategy 2018-2020, BEREC will continue to play a very active role in assessing and promoting consumer empowerment and consumer protection. In 2019 and 2020, BEREC intends, in light of the new EECC, to produce guidelines on quality of service parameters relevant for end users with disabilities. Furthermore, taking into account BEUC's experience and views in this matter, BEREC will work towards developing a vision for Europe's telecommunications consumers.

Typically, when developing its annual work programme, BEREC includes work streams/projects/items that have been proposed by National Regulatory Authorities (NRAs), BEREC's own Expert Working Groups, and indeed third parties/stakeholders, during the initial consultation phase in the first half of a given year. The development of the Work Programme 2019 was, in that sense, no different. However, in developing the Work Programme 2019, BEREC was sure to allow sufficient capacity for the tasks set out in the new EECC. And yet, BEREC felt that there could still be scope for, what could be termed as, "discretionary items of work". Beyond what has already been mentioned above, two other such discretionary items were proposed to BEREC, and it was felt there was a necessity to analyse such topics in 2019-2020. Those "discretionary items of work" will cover:

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

These, and other areas that BEREC will concentrate on in 2019, will be presented and discussed in more detail in the following sections. In addition to the list of deliverables identified

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

in the Work Programme, BEREC will continue to undertake its mandatory and annually repeating work. BEREC expects to be involved continuously in Article 7/7a Phase II cases, which will be addressed by delivering relevant opinions, with the highest priority within strict statutory deadlines. BEREC will also consider possible *ad hoc* requests for advice from the European Union (EU) institutions (namely the European Commission, the Council and the European Parliament) and will meet these requests appropriately and on time. As in previous years, BEREC will continue to provide insights and advice to the European Parliament, the Council and the European Commission.

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

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

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

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

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

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

III. BEREC WORK IN 2019 & 2020

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

1. Strategic priority 1: Responding to connectivity challenges and to new conditions for access to highcapacity 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 on how incentives to invest change with changing market conditions and how competition is affected. In 2019 and 2020, such work is at the forefront of BEREC's Work Programme, given the importance placed on Very High Capacity Networks (VHCN) by the EECC, particularly with respect to coinvestment (Article 76). The Work Programme 2019 therefore includes the following activities that contribute to this strategic goal.

1.1. Very high capacity networks

The European Electronic Communications Code (EECC, Article 3 (3)) has amongst others the general objective to “promote connectivity and access to, and take-up of, very high capacity networks” and several provisions refer to the term “very high capacity network”. For example, the EECC defines a specific regulatory treatment of very high capacity network elements (Article 76), and the conditions under which NRAs shall not impose certain (symmetric) obligations on wholesale-only undertakings depend on access to a very high capacity network (Article 61(3) in connection with Article 80)³.

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

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

³ 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.

Deliverable: BEREC guidelines on very high capacity networks

Call for initial stakeholder input: Yes, adoption at Plenary 1 2019

Public consultation: Yes; adoption at Plenary 2 2020

Adoption of final guidelines at Plenary 4 2020 for publication

Q1.1 *Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.*

While the FTTH Council Europe fully understands the constraints facing BEREC and the need to stagger its work product, the FTTH Council nevertheless feels that the issue of what investments are 'VHCN' is a critical issue that much be addressed early in this work programme cycle. Since NRAs must now promote investments in these network (and by implication, not promote investments in non-VHCN networks) once the EECC takes effect, it is important for investors to understand what exactly this means. These guidelines are important not only as a means to identified the network types due to received favorable treatment but also the guidelines should indicate how regulators will seek to encourage investment in one network type rather than the other.

The FTTH Council clearly believes that there needs to be a deliberate policy to pursue Fibre to the Home. While the target of VHCN proposed in the legislative text is explicitly FTTH or FTTB we also note the proposal for BEREC to define in some fashion what exactly constitutes 'an equivalent' network investment that NRAs should also seek to promote (and required under Article 82). While the issue is also addressed under the comments regarding the internal market, the FTTH Council would already note its belief that any work in this area needs to be avoid defining VHCN in a way that acts as an alternative to investment or which allows individual Member States or NRAs to set lower targets in their jurisdictions. Already the FTTH Council sees very different ambitions across EU Member States and hopes to see BEREC acting to create the internal market through the use of a single EU wide practice.

The FTTH Council believes that a clear target is a requisite first step of any public policy regime that means to stimulate investment in fibre networks. With a clear target, other policy instruments such as the wholesale-only model, the sharing of passive networks or the interpretation of the co-investment proposals can be applied correctly and in a consistent manner. While the precise definition of VHCN equivalence may be delivered later, an early and clear statement from BEREC on what is prima facie constitutes VHCN (i.e. FTTH and FTTB) would already assist investors.

On the question of equivalence, the FTTH Council members are well placed to input expert technical advice on the performance parameters of fibre networks.

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

Enhancing the conditions for investment is a key activity for national telecommunications regulatory authorities seeking to promote competition and optimise end-user welfare. This is a research project, with the objective of providing insight into the complex interplay of factors which impact investment in network infrastructure. The project will involve the development of

a system dynamics model that captures these factors and enables simulation and testing of various hypotheses about the impact of regulatory measures within the EU, as well as other factors that can influence the level of investment in very high capacity fixed networks (VHCN). The key research question for the project is – what are the factors, including regulatory factors, which influence the level, nature and timing of investment in very high capacity telecommunication networks in BEREC member states? The key objectives of this project are:

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

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

Phase 1 will be a report comprising the following:

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

Phase 2 of the project involves:

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

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

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

Public consultation: No

Adoption of Phase 1 report at Plenary 3 2019 for publication

Phase 2 deliverable and timing to be decided

Q1.2 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

The FTTH Council as often noted that in those countries that successfully promoted FTTH, regulated virtual access remedies on FTTH were either not available or were greatly curtailed. In addition, each country that achieved FTTH took care to ensure that the cost of deployment was minimised through sharing of expensive passive infrastructure and avoiding duplication of those passive network elements.

The FTTH Council recognises that Europe is in a particular phase of development and also recognises that certain forms of business structures such as wholesale-only operators have different incentive structures to vertically integrated operators. The proposed regulatory approach to such operators in the current legislative proposals makes sense in the Council's view. Similarly, the proposals in the new Code concerning co-investment can be investment friendly and encourage investment but these measures also need to sit within an overall approach which protects infrastructure-based competition by prioritising investments in VHCNs - the application of these provisions can be further clarified by BEREC.

However, the FTTH Council believes that any report is acted upon and would like to see guidance from BEREC about how it intends to advise its members to use the new tools in the Code to promote investments in VHCNs (in light of this study and NRA experience) and in particular, how the wholesale-only and any further new investment model will be applied to stimulate new and innovative business models that promote investment. The FTTH Council has many new operator members who are using precisely these business models and would be happy to share their experiences.

Even if there is to be no public consultation, the FTTH Council would like to participate in giving some stakeholder input.

1.3. Identification of the network termination point

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

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

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

Public consultation: Yes; adoption at Plenary 3 2019

Adoption of final guidelines at Plenary 1 2020 for publication

Q1.3 Does the stakeholder have any comment on this workstream? If so, please provide it in

the space provided.

As with question 1.1 above, the FTTH Council believes that an early identification of what is VHCN is important to all stakeholders. The identification of the NTP is one input to that determination and so, despite having an allowed 18 month timeframe associated with it. The FTTH Council believe that timeline can and should be brought forward. Already, BEREC has published a significant survey of member NRAs practices with respect to NTP identification and BEREC should move to a common set of guidelines using this input in a more timely manner than that indicated. The FTTH Council would be glad to share its technical expertise if and when appropriate.

1.4. Determination of the first concentration point

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

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

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

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

Public consultation: Yes; adoption at Plenary 2 2020

Adoption of final guidelines at Plenary 4 2020 for publication

Q1.4 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

The context in which Article 61(3) might be invoked is relevant to the identification of where the first concentration point might lie. While these ‘catch all’ or ‘in extremis’ measures have been a feature of the telecoms frameworks since 2002, they have been rarely if ever used as the legal basis to impose access regulations.

While competitive network deployment won’t happen everywhere and a way to ensure roll out in more expensive rural areas will have to sit beside a market driven approach.

Good access, in all its forms will be required in those high cost areas as consumers must have access to the deepest form of competition available. The location of the concentration point should reflect the long term viability of the network area either for competitive build (which may evolve over time) or to ensure sufficient scale where third party access seekers exist. However, before siting any concentration point due care must be given where and Article 80 operator may exist to alternative forms of (non-physical) access.

The FTTH Council also notes with some concern that in certain instances, investments in 'non-economic' areas can be foreclosed through strategic investments (in part of these areas) by certain operators. In practice, even non-economic areas may have certain areas which are marginally economic or non-economic – by delivering services to these households, the foreclosing investor can raise the average investment costs for the remainder to a level that cannot be sustained for market actors, even with support.

The FTTH Council would be glad to share its technical expertise if and when appropriate.

1.5. Evaluation of the roaming market

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

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

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

Deliverable: BEREC Opinion on the functioning of the roaming market, as input to the Commission's evaluation on the functioning of that market

Public consultation: No

Timing to be decided, upon request from the European Commission

Q1.5 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

1.6. Application of the co-investment criteria

According to the EECC (Article 76), undertakings which have been designated as having significant market power in one or several relevant markets in accordance with Article 67 of the EECC may offer commitments in accordance with the procedure set out in Article 79 and subject to a series of conditions to open the deployment of a new very high capacity network that consists of optical fibre elements up to the end-user premises or base station, to coinvestment. For example, co-investment can consist 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.

When NRAs assess these proposed commitments, they shall determine whether the offer to co-invest meets the specific cumulative conditions set in Article 76(1), in order to decide not to impose any additional obligations pursuant to Article 68 as regards the parts of the new very high capacity network that are subject to the commitments (if at least one potential coinvestor has entered into a co-investment agreement with the operator designated with significant market power). 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 EECC⁴.

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

Public consultation: Yes; adoption at Plenary 1 2020

Adoption of final guidelines at Plenary 4 2020 for publication

Q1.6 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

The FTTH Council would like to see this issue addressed with overall guidance from BEREC about how it sees the new Code being implemented to achieve VHCN investments. The legislative proposals see the need to stimulate investment in VHCN networks and set out series of measures to achieve that goal- those measures include the wholesale-only model, co-investment and the use of a 'graded remedies' approach and standalone measures must also work together given the interplay. Indeed co-investment in most instances is likely to result in a form of separation of wholesale only given the need for independent governance structures. Of course, it is up to the individual NRAs to implement the new Code in their Member States but BEREC could play an important role in setting out a common understanding of how NRAs would act in specific circumstances. Such guidance should be high level and could guide industry on how BEREC sees the new Code being implemented across a range of issues. Nevertheless it could already be made clear that only co-investment vehicles promoting VHCN should be interpreted as co-investment and therefore gets regulatory relief

1.7. 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 the characteristics of which

⁴ The scope of these guidelines, and 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.

may be such as to justify the imposition of regulatory obligations set out in this Directive, without prejudice to markets that may be defined in specific cases under competition law. This Recommendation will be the evolution of the Recommendation in force on Relevant Product and Service Markets reviewed in 2014. This Recommendation shall be reviewed at the latest by transposition date of the EECC and the Commission shall thereafter regularly review the Recommendation. The European Commission must take utmost account of the opinion of BEREC on this Recommendation.

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

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

Public consultation: No

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

Q1.7 *Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.*

The FTTH Council notes that BEREC have responded to the need to issue a large number of guidelines resulting from the legislative cycle in an intelligent and coherent way. As noted already BEREC will have a major role to play to ensure consistency among its members in how it applies the new code. The FTTH Council Europe hopes that BEREC will continue to engage with stakeholders in an open and transparent consultation process on these issues when they are finalised. While all parties have constraints on their resources, the use of workshops in addition to the proposed (longer) public consultations should help in that regard. While the FTTH Council understands that a consultation is not available in every instance, greater use of workshops could give stakeholders a chance to input their views and feel connected to the process.

1.8. Migration from legacy to fibre-based networks

The roll-out of NGA networks, in particular of FTTH, results increasingly in situations in which the legacy copper network infrastructure becomes redundant and incumbent operators may want to de-commission this legacy network infrastructure. In this case, wholesale customers may have to be migrated from copper unbundling to NGA wholesale access products (e.g. duct access, fibre unbundling or VULA). Rules for such a migration, which NRAs have to follow, are provided for in the European Commission's Recommendation on Next Generation Access (NGA) of 2010⁵ (Articles 39-41) and also in the BEREC Common Positions on best practices in remedies on Markets 3a, 3b and 4, which were published in 2012.⁶ Going forward, NRAs also have to comply with the provisions for such a migration in the EECC (Article 81).

⁵ European Commission's recommendation of 20 September 2010 on regulated access to Next Generation Access Networks (NGA) (2010/572/EU)

⁶ BoR (12) 127, BoR (12) 128, and BoR (12) 126

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

Deliverable: Internal workshop and summary report on the migration from legacy infrastructures to fibre-based networks

Workshop to be held in September/October 2019; summary report adoption at Plenary 4 2019 for publication

Q1.8 *Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.*

While only a small number of Member States have reached a level of deployment where a full copper network switch off could be contemplated, many Member States have already achieved a level of fibre deployment in specific regions or even exchange areas where such consideration can arise in a more local context.

The FTTH Council believes that there needs to be a consistent approach to the migration process simply at a practical level. Even just to emulate PSTN services, two options can be considered: Voice over broadband (VoBB) or voice over narrowband (VoNB). The key difference between the two is the location of the voice gateway functionality – in other words, the session initiation protocol (SIP) endpoint and analogue-to-digital conversion point. While the FTTH Council dealing with Deployment and Operations has addressed the practical trade offs faced in such a decision, we see real added value in BEREC’s work to develop these issue. BEREC could offer guidance to its members on the outcomes and all the issues that arise with copper switch-off beyond the decision of operators to invest or not (services such as video surveillance or security devices that draw power from the copper telecom network is another challenge for a migration from copper to fibre).

In order to prevent a patchy and uncoordinated approach to the process, the FTTH Council believe that it would be timely for BEREC to look to the experiences gained thus far to look at the issues involved in a full copper-network switch off. The FTTH Council has itself begun its own work on this issue and can draw on experiences from its sister organisations in the US and Asia and would be happy to share those experiences with BEREC.

1.9. Geographical surveys of network deployments

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

and/or other competent authorities shall conduct a geographical survey of the reach of electronic communications networks capable of delivering broadband ("broadband networks") within three years from deadline for transposition of the Directive and shall update it at least every three years. The survey shall include:

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

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

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

Public Consultation: Yes; adoption at Plenary 3 2019

Adoption of final guidelines at Plenary 1 2020 for publication

Q1.9 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

The FTTH Council Europe believes that geographic differences are an important characteristic of markets that needs to be reflected in the regulatory approach dealing with FTTH investments in order to ensure that an appropriate treatment is given to such investments. An appropriate regulatory treatment strikes a balance between rewarding and encouraging the allocation of capital to long term investments with correct build or buy signals while at the same time ensuring adequate competition is in place such that end-users are the ultimate beneficiary of policy (both in the short and long term). It is in this context that the appropriate treatment of geographic segmentation must be viewed.

The FTTH Council notes the traditional metrics which BEREC adjudges to be appropriate in determining the extent to which geographic segmentation might be justified. The pricing differentials, market shares, number of operators etc. are in the FTTH Council Europe's opinion not giving enough weight to the prospective force of competition. Such an approach risks institutionalising competition whereas under the Code, NRAs now have the possibility to look more to what is possible in a prospective sense rather than what has happened in the past. The identification of digital exclusion zones grants NRAs for the first time the ability to be prospective in identifying areas where economic roll-out may or may not happen.

Regulation, existing and signalled, has a profound impact on the market operations. Credible, predictable and stable policies create a framework in which capital can make strategic choices over the longer term. BEREC is correct and justified to express concern to have market boundaries which are stable, not for the administrative burden it might impose on Regulators but rather because of the uncertainty it can create in a context where returns may take 20 years to be realised. The most extensive and detailed cost modelling exercise conducted in Europe was commissioned by the FTTH Council (and in which its Members co-operated and participated) and 'the' key cost driver that was identified in that study is population density and the associated built environment characteristics. The fact is that over a 20 year period, some areas

can support entry whilst others have a much less likely capacity to do so. An appropriate differentiation of regulation in these areas will be important for investors. The cost drivers identified above will remain stable over time and thus can form the basis of a predictable regulatory delineation of geographic markets.

1.10. Minimum criteria for a reference offer (obligation of transparency)

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

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

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

Deliverable: BEREC Guidelines on the minimum criteria for a reference offer relating to obligations of transparency

Public consultation: Yes; adoption at Plenary 2 2019

Adoption of final Guidelines at Plenary 4 2019 for publication

Q1.10 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

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

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

terms with respect to the Broadband Cost Reduction Directive. In 2019, BEREC will publish a response to the public consultation and a final report on pricing for access to infrastructure and civil works.

Deliverables: BEREC Report on pricing for access to infrastructure and civil works

Public consultation: carried out in 2018

Adoption of final report at Plenary 1 2019 for publication

Q1.11 *Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.*

The FTTH Council is happy to participate in the ongoing consultation. However, the FTTH Council Europe hopes that BEREC will continue to engage with stakeholders in an open and transparent consultation process on these issues when they are finalised. While all parties have constraints on their resources, the use of workshops are a useful way to give stakeholders a chance to input their views and to continue to feel connected to the process.

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

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

Deliverable BEREC Report on access to physical infrastructure in market analyses

Public consultation: carried out in 2018

Adoption of final Report at Plenary 2 2019 for publication

Q1.12 *Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.*

The FTTH Council is happy to participate in the ongoing consultation. However, the FTTH Council Europe hopes that BEREC will continue to engage with stakeholders in an open and transparent consultation process on these issues when they are finalised. While all parties have constraints on their resources, the use of workshops are a useful way to give stakeholders a chance to input their views and to continue to feel connected to the process.

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

2.1. Intra-EU calls and SMS

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 case these rules cannot be sustained by particular providers, the Regulation empowers NRAs to grant a derogation at the request of the provider in justified and exceptional cases. Where an NRA grants a derogation, the provisions of the Regulation to be adopted requires it to determine the maximum price level that a provider could apply for regulated intra-EU communications and which would enable it to maintain a competitive price level for domestic communications. In order to have a consistent application of rules, BEREC is required to publish Guidelines on the criteria that NRAs shall take into account in their assessment to ensure the sustainability of the provider's domestic charging model. As the regulation governing intra-EU calls will enter into force on 15 May 2019, BEREC will publish guidelines ahead of this date in order to allow NRAs to make use of the guidelines for the first application and therefore ensure a consistent approach among the Member States.

Deliverable: BEREC Guidelines to assess the parameters to ensure the sustainability of the domestic pricing model

Public consultation: No

Adoption of guidelines in Q2 2019 for publication

Q2.1 Does the stakeholder have any comment on this workstream? If so, please provide it in

the space provided.

2.2. Harmonised data collection: Authorised Undertakings & OTTs

In 2015, BEREC assessed the potential to conduct a European benchmarking of OTT indicators. In that report, the majority of NRAs stated that European benchmarks of unmanaged OTT services are needed, particularly regarding services with functionalities similar to electronic communication services, such as unmanaged VoIP and instant messaging. In 2016, in its report on OTT services (BoR (16) 37) BEREC identified the need for the ECN/S Framework review to address the absence of legal competences for NRAs to seek information from providers of OTT services. In some cases there is a short term need for evidence in order to inform national regulatory decisions. Because of this, and given the limited possibilities to gather information directly from all appropriate providers, it may be necessary that the European Commission, in collaboration with BEREC, improves the tools they are currently using to gather information on penetration rates (Eurobarometer and Eurostat's Information Society Statistics). Subsequently, in 2017 BEREC conducted an exchange with the European Commission and Eurostat regarding the urgent need for evidence that helps inform European policies (telecoms regulation, e-privacy, etc.) and national regulatory decisions in the development of over-the-top (OTT) communication services area.

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

Deliverable: BEREC Report on the harmonised collection of data from both Authorised Undertakings and OTT operators

Public consultation: No

Adoption of final report at Plenary 4 2019 for publication

Q2.2 *Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.*

2.3. Ex-ante margin squeeze tests

Margin squeeze tests involve difficult judgments, particularly when regulated products are bundled with unregulated ones, and where there is a substantial difference in scale between access seekers and the incumbent. A sharing of experience among NRAs would be useful in this regard. This will be done by organising an internal workshop covering the concept of ex-ante margin squeeze tests and case studies from NRAs. The Recommendation on Consistent Non-Discrimination Obligations and Costing Methodologies (2013/466/EU) of 11

September 2013 foresees the so-called Economic Replicability Test (ERT) as a price control obligation. The ERT is an ex-ante margin squeeze test, i.e. a test applied by NRAs when imposing price control obligations. In 2014 BEREC has developed Guidance on the regulatory accounting approach to the ERT (BoR (14) 190).

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

Deliverable: Internal workshop and summary report on margin squeeze tests applied by NRAs

Workshop to be held in Q3 2019; summary report adoption at Plenary 4 2019 for publication

Q2.3 *Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.*

The FTTH Council recognises that BEREC are essentially interpreting the Economic Replicability Test (ERT) provisions in the Commission's Recommendation on Non-Discrimination and costs accounting principles and so has limited room for manoeuvre in terms of when or where ERT tests can and should apply.

However, there almost appears to be a contradiction in the very basis of that original Commission Recommendation which is a proposing a lightening of regulatory obligations in particular in the form of no price controls on retail or wholesale products but subject to an ERT. That ERP is interpreted as being the same as margin squeeze and with it comes a range of examinations and obligations which, de facto, result in a wholesale price being set.

If there is no regulated wholesale charge how is a margin squeeze to be applied? It does not make sense and so we are told that NRA must calculate a wholesale cost. Whether the price at the wholesale level is explicit or not is moot, an effective price (equal to cost effectively exists).

Therefore, while there is no price control, de facto there is a price control which not only applies at the wholesale level but also applies at the retail level by implication.

Any ERP or indeed any margin squeeze test performed by NRAs will still be subject to EU Competition Rules and these markets have in the past thrown up contradictory

conclusions⁷ which however justifiable, creates a particular context in which this guidance must be viewed.

In particular, the use of LRIC+ pricing standards whereby the SMP fibre costs are 'audited and sufficiently disaggregated' is a very heavy requirement in the broader context of new network investments.

The FTTH Council would note that often entrants can have lower costs to an SMP operator since specialised and targeted entry in areas where there is lowest cost particularly where average prices are the norm in the market. For that reason an EEO approach is most likely to be appropriate.

With respect to the relevant retail markets, the FTTH Council notes that the use of bundled products and the preponderance of non-regulated products make margin squeeze test complicated. Such test also risk constraining competition in the market since the threat of sanction and the lack of clarity about the scope of the test makes pricing even more difficult.

Adding promotions which may be geographically based (and thereby subject to a radically different cost function in a FTTH context) and the risks of pricing so as to promote new networks and services the level of complexity rises exponentially.

The FTTH Council is concerned that the whole approach in this area is creating uncertainty particularly relating to new products and services. Market operators are told that the pricing flexibility will facilitate 'penetration pricing' in order to promote new networks and services but the FTTH Council believe that it simply creates a kind of double jeopardy since both an ex-ante and ex-post pricing regimes will apply.

In the face of such uncertainty and in particular in the context of the double jeopardy that exists by virtue of two relevant supervisory authorities, the likelihood that market operators will develop innovative and radical pricing solutions to drive take up looks weakened rather than strengthened. In a context where all the relevant research point to take-up⁸ rates as the determinative metric in determining the success or otherwise of FTTH projects, this is particularly problematic.

2.4. Carry-over work on the data economy

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

In 2018 BEREC held a Heads workshop and seminars with stakeholders on the data economy.

⁷ Case C 280/08 P, Deutsche Telekom AG vs. the Commission, Judgment of the court 14.10.2010 and Case COMP/38.784, Wanadoo España vs. Telefónica, Commission decision of 04.07.2007

⁸ See for example

http://www.ftthcouncil.eu/documents/Reports/2012/NGA_Services_Study_2012.pdf

A public consultation for a BEREC report on the data economy was launched after Plenary 3 2018. In 2019, BEREC will publish a response to the public consultation and a final report on the data economy.

Deliverable: BEREC Report on the Data Economy

Public consultation: carried out in 2018

Adoption of final Report at Plenary 2 2019 for publication

Q2.4 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

2.5. Carry-over work on Internet of Things indicators

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

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

Deliverable: BEREC Report on Internet of Things Indicators

Public consultation: carried out in 2018

Adoption of final Report at Plenary 1 2019 for publication

Q2.5 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

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

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

3.1. The impact of 5G on regulation

In 2018, BEREC commissioned a study on the implications of 5G deployments on future business models and published a report on infrastructure sharing. Further, in 2018, BEREC prepared a summary report on a public consultation on a draft Common Position on monitoring mobile coverage. The set of common positions comprised of the following:

1. Technical specifications for monitoring mobile coverage in Europe,
2. The use of signal predictions for mobile coverage estimation,
3. Ensuring the accuracy of coverage information provided to the public, and
4. Availability and presentation of mobile coverage information.

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

- The monitoring of the 5G networks coverage and quality of service
- The roll-out and sharing of small cells.

The project will also consider other issues on which 5G may have an impact (market definition, impact of network slicing on net neutrality⁹, numbering, wholesale access to mobile networks to enable competition in vertical applications, roaming, switching barriers, and the extent to which similar issues might arise in the deployment of IoT solutions using pre-5G networks).

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

Public consultation: Yes; adoption at Plenary 4 2019

Adoption of final report at Plenary 2 2020 for publication

⁹ This project will consider the long-term impact of network slicing on net neutrality. In parallel, the review of Net Neutrality Guidelines (item 4.1) will consider whether any change to the current BEREC guidelines is required.

Q3.1 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

The FTTH Council Europe is currently conducting a cost study to compare the sequential investment in fibre and then 5G overlay compared to a co-ordinated investment plan. Significant cost saving appear to be available if there is a co-ordinated approach to investment.

The FTTH Council believes that the use of small cells and the deployment of fibre to support those cells will be important in the context of 5G network developments. From a telecom industry perspective two significant changes that are underway already will be greatly enhanced; the first is Software Defined Networks (SDNs) which will allow the control of network resources to be opened to third parties, with the possibility for these third parties to manage their own physical or virtual resources individually – for instance emergency or military networks which require complete autonomy could sit within an existing network rather than beside it as is the case today; the second change to be enhanced is Network Function Virtualisation (NFV) which offers the prospect of implementing specific network functions in software running on generic hardware, without the need for costly hardware-specific machines – in short the speed to deploy new services and functions in traditional telecom companies which current take perhaps 18 months or longer would approach the dynamics of the internet.

However, it is clear that 5G cannot happen without fibre driven very deep in the network (hence Very High Capacity Connectivity is defined as FTTB/FTTH or equivalent) since these wireless networks need equivalent backhaul and offloading capacity that meets those wireless standards.

The FTTH Council would welcome work to look at restrictions to small cell development in Europe such as exclusivity agreements, planning and practical constraints. Given the symbiotic nature of the relationship between Fibre and 5G, BEREC should also consider the question of economic substitutability and/or complementarity and how that is changing in view of technical developments.

The FTTH Council would be happy to share the results of its study with BEREC.

3.2. Peer review process

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

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

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

Deliverable: As required, BEREC participation in peer review forums to discuss and exchange

views on draft national measures related to internal market procedures for radio spectrum.

Public Consultation: No

Q3.2 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

3.3. Carry-over work 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. The future roll-out of 5G networks may multiply the number of base stations with the use of small cells and of higher frequency bands than those of existing networks. As a consequence, NRAs may have to look at the existing arrangement existing on infrastructure sharing in their respective countries.

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

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

Deliverable: BEREC Common Position on infrastructure sharing

Public consultation: carried out in 2018

Adoption of final Common Position at Plenary 2 2019 for publication

Q3.3 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

The FTTH Council believes that this work should be extended to include an assessment of the efficacy of fixed network sharing.

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

BEREC has a long history of working on Net Neutrality issues and with the growing trend among consumers towards internet-enabled services expected to continue, preserving open internet access will become ever more important and BEREC will continue to work actively to support national regulators in applying the Regulation in a consistent way throughout Europe. In 2019, that work will continue as BEREC examines and analysis the ways in which net neutrality is affected by changes in markets and new technologies and encourages national regulators to share experience on the practical implementation of the Regulation and the BEREC guidelines. The Work Programme 2019 therefore includes the following activities that contribute to this strategic goal.

4.1. Update to the Guidelines on Net Neutrality

In 2018 BEREC conducted a public consultation of the evaluation of the application of Regulation 2015/2120 and BEREC Net Neutrality Guidelines. Based on this, BEREC will publish an Opinion, in which it may recommend to update selected parts of the 2016 NN Guidelines. Based on the 2018 evaluation of the Net Neutrality Guidelines, as expressed in more detail in the BEREC Opinion and the consultation report, this 2019 workstream¹⁰ will:

- Propose updates to the current NN Guidelines;
- Run a public consultation of a draft version; and
- Finalize and publish updated NN Guidelines.

Deliverable: Update to the BEREC Guidelines on Net Neutrality

Public consultation: Yes; adoption at Plenary 3 2019

Adoption of final Guidelines at Plenary 1 2020 for publication

Q4.1 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

4.2. Implementation of Net Neutrality regulation

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

In 2019, BEREC will monitor the implementation of the Net Neutrality provisions among NRAs. Also, BEREC will receive the annual national Net Neutrality reports and the answers to an internal questionnaire in order to develop an annual European-level Net Neutrality report. In addition, a forum will be maintained to allow NRAs to informally discuss national cases and

¹⁰ It should be noted that the Net Neutrality Guidelines review might be postponed if the Commission decides to revise the regulation.

questions relating to the coherent application of the Net Neutrality Regulation, including cases of zero-rating.

Deliverable: BEREC Report on the implementation of the Net Neutrality Regulation

Public consultation: No

Adoption of final report at Plenary 3 2019 for publication

Q4.2 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

4.3. Carry-over work on BEREC Net Neutrality measurement tool

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

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

Deliverable: BEREC Net Neutrality measurement tool

Adoption of measurement tool at Plenary 3 2019 for launch

Q4.3 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

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 MediumTerm Strategy 2018-2020. BEREC always seeks to ensure that consumers have the information and tools to make informed choices and engage effectively with the market. One of the key provisions of the EECC is the imposition of consumer protection rules on the basis of full harmonisation at EU level, based on best practices in member states. As a result, the work of BEREC in 2019 and 2020 has a distinct focus on mandatory tasks flowing from the EECC which are intended to improve the welfare of consumers with regards to electronic communications markets. The Work Programme 2019 therefore includes the following activities that contribute to this strategic goal.

5.1. General authorisation notifications transmitted to competent authorities

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

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

Deliverable: BEREC Guidelines on the general authorisation notifications transmitted to competent authorities

Public consultation: Yes; adoption at Plenary 2 2019

Adoption of final Guidelines at Plenary 4 2019 for publication

Q5.1 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

5.2. Common criteria for undertakings other than ECN/ECS to manage numbering resources

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

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

Deliverable: BEREC Guidelines on common criteria for the assessment of the ability of

undertakings other than ECN or ECS to manage numbering resources and the risk of exhaustion of numbering resources

Public consultation: Yes; adoption at Plenary 2 2019

Adoption of final Guidelines at Plenary 1 2020 for publication

Q5.2 *Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.*

5.3. Contract summary template

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

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

Deliverable: BEREC input to Commission Implementing Act on Contract summary template

Public consultation: carried out in 2018

Adoption of final input to Commission at Plenary 2 2019 for publication

Q5.3 *Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.*

5.4. Quality of service parameters

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

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 ETSI and ITU standards set out in Annex IX of the EECC in relation to ICS and IAS, respectively
- What are parameters relevant for end-users with disabilities,
- What are the applicable measurement methods for these QoS parameters
- What QoS information should be published and in what form should it be published, including factors that may impact the QoS such as control of signal transmission or network connectivity
- Appropriate quality certification mechanisms.

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

Public consultation: Yes; adoption at Plenary 3 2019

Adoption of final guidelines at Plenary 1 2020 for publication

Q5.4 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

5.5. The definition of adequate broadband internet access service

According to the EECC (Article 83(3)), BEREC shall, in order to contribute towards a consistent application of this Article, after consulting stakeholders and in close cooperation with the Commission, taking into account available Commission (Eurostat) data, adopt a report on Member States' best practices in respect of defining the adequate broadband internet access service.

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

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

Deliverable: BEREC report on Member States' best practices in respect of defining the adequate broadband IAS, which all consumers can access at an affordable price

Public consultation: Yes; adoption at Plenary 4 2019

Adoption of final report at Plenary 1 2020 for publication

Q5.5 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

The FTTH Council Europe notes that there should be a consistency between the ambitions stated for Europe and the definition of adequate broadband IAS.

Since the European legislators have set network targets of VHCN across the EU, even though these targets are independent of the end user experience, the FTTH Council believes that BEREC should reflect in some way the capacity of VHCNs in the definition of adequate broadband IAS.

In particular, the metrics that have been identified as important (i.e. as noted in Article 2: 'capable of delivering, under usual peak-time conditions, similar network performance in terms of available downlink- and uplink bandwidth, resilience, error-related parameters, and latency and its variation;') should be reflected in any future definition of adequate broadband IAS.

5.6. A vision for Europe's telecoms consumers

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

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

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

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

Workshop to be held in Q2 2019

Q5.6 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

The FTTH Council believe that BEREC should also consider the accuracy of advertising of speeds. The FTTH Council has noted a significant discrepancy between advertised and delivered speeds a phenomenon remarked upon by BEREC and the Commission but it is not something being actively monitored.

Users are not properly informed about the services they receive, or are likely to receive when signing up for a broadband connection because the use of ‘up to’ advertising suggests that consumers will receive speeds that are often never available. In other sectors such misleading advertising is not tolerated and purchasing a litre of milk which only has 700ml in it would immediately lead to action.

The European Commission has through a series of studies and surveys noted the poor relationship between actual and advertised speeds with 75% of the advertised speed being delivered on average with xDSL being a particularly poor performer at 62% of the advertised speed delivered¹¹.

The mislabelling of product has an important distortive effect on consumer choices and in turn, these misinformed choices send inappropriate investment signals to network operators.

Furthermore, the parameters that are specified need to go beyond speed and give metrics for other QoS parameters that effect service delivery on-net, such as latency and jitter.

Studies suggest that consumers will pay for higher speed once they understand the difference that exists between high and low capacity networks. Over time, FTTH consumers on average deliver 46% higher ARPU than DSL consumers¹². Misleading advertising can undermine the transition from low to high speed since uninformed consumers don’t realise the difference and would not be prepared to pay for better service. Such misleading advertising would artificially depress the fibre premium.

If consumers do not understand what they are buying then they cannot send appropriate investment signals to market operators.

The FTTH Council acknowledges on-going efforts to increase transparency of network performance and actual vs advertised speeds though notes also the continuing delays in that timetable. In the interest of consumer protection, the Council believes that published results should make possible a comparison of network technologies and service providers¹³. The use of ‘fibre’ in advertising to create the impression that it is a wholly fibre network when it is not, is particularly problematic. The FTTH Council notes the position of the French regulator ARCEP and believes that this is a model intervention¹⁴.

The FTTH Council would emphasise that the issue of network transparency is not simply one of user rights (though these are important) but it is also an issue regarding the development and take-up of advanced networks and services which will have an impact on the general economy.

Well informed consumers with choice of suppliers will be enable a more dynamic and responsive market to the benefit of consumers and industry.

¹¹ <https://ec.europa.eu/digital-agenda/en/news/quality-broadband-services-eu-samknows-study-internet-speeds>

¹² <http://www.diffractionanalysis.com/2012/05/09/free-webinar-successful-ftth-service-strategies/>

¹³ Similar comparisons exist in other parts of the economy such as energy see for example <http://www.vreg.be/vergelijk-doe-de-v-test-en-vind-uw-ideale-leverancier>

¹⁴ https://www.arcep.fr/uploads/tx_gsavis/15-1492.pdf

5.7. The effectiveness of public warning systems transmitted by alternative means to mobile NB-ICS

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

BEREC has been tasked with publishing Guidelines on how to assess whether the effectiveness of public warnings transmitted through ECS, other than mobile NB-ICS and broadcasting services, or through a mobile app (relying on an IAS) are equivalent to those transmitted through mobile NB-ICS. The purpose of the Guidelines is to ensure that there is a common approach across Member State to the assessment of the effectiveness of the two public warning systems, namely:

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

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

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

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

Public consultation: Yes; adoption at Plenary 4 2019

Adoption of final Guidelines at Plenary 2 2020 for publication

Q5.7 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

5.8. Access to numbers and services (fraud and misuse)

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

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

Deliverable: Internal workshop and summary report on fraud and misuse cases

Workshop to be held in September/October 2019; summary report adoption at Plenary 4 2019 for publication

Q5.8 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

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

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

Deliverable: BEREC Report on termination of contract and switch of provider

Public consultation: carried out in 2018

Adoption in Plenary 1 2019 for publication

Q5.9 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

5.10. Input to European Commission methodology on pricing of bundles

In 2018, BEREC published a report on methodology guidelines for the pricing of bundles. The purpose of this report is to provide advice and input to the European Commission with respect to its Broadband Internet Access Costs (BIAC) study, which currently uses a methodology that reflects the 2008 ERG opinion on the methodology for broadband retail prices.¹⁵ In 2019, the Commission will further develop its methodology on the pricing of bundles, ahead of a data collection, using the revised methodology (based on BEREC's guidelines). As part of this process, the Commission will organise a workshop to discuss the proposal and the methodology. BEREC will provide further contribution and input at this workshop.

Deliverable: BEREC input to the European Commission's methodology on the pricing of bundles

Public consultation: No

Timing to be decided, dependent on when the European Commission will organise its workshop on the methodology for the pricing of bundles

Q5.10 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

6. BEREC obligatory work and stakeholder engagement

Beyond the work of BEREC explicitly set out above and intended to be delivered over the next

¹⁵ ERG (08) 44 Final BB Retail Prices Methodology 081017.

12-18 months, there are also a significant number of tasks that BEREC carries out on an ongoing basis under a number of different headings. Those headings can be summarised as follows:

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

This obligatory work and BEREC's engagement with its stakeholders is intended to promote effective regulation based on high-quality professional standards applied by independent national regulators. BEREC will continue to engage with stakeholders, with the goal of focusing its work on issues that are relevant to them, and BEREC will also strive to enhance its cooperation with the EU institutions and international forums. BEREC is committed to such principles. The Work Programme 2019 therefore includes the following activities that contribute to BEREC's objective with respect to these principles.

European Electronic Communications Code

6.1. Ad hoc input to the European Commission

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

Deliverable: BEREC Opinions, Reports, position and input papers, technical background analyses, depending on specific requests by the EU Institutions and on needs emerging during the implementation process.

Q6.1 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

6.2. Implementation of the BEREC Regulation

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

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

- Board of Regulators establish measures regarding personal data for Regulation No. 45/2001: 6 months after entry into force of the BEREC Regulation

Deliverable: Update to the BEREC Rules of Procedure and the Internal Guidelines for the operation of BEREC Expert Working Groups

Adoption in Plenary 1 2019

Deliverable: Rules on the application of Regulation 1049/2001 and Measures regarding personal data for Regulation 45/2001

Adoption in Plenary 2 2019

Q6.2 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

6.3. Database of E.164 numbers

According to the EECC (Article 109(8)), BEREC shall maintain a database of E.164 numbers of European emergency services to ensure that they are able to contact each other from one Member State to another, if such a database is not maintained by another organisation. The referred PSAP-DIR (Public Safety Answering Point Directory), which is a directory of contact information for PSAPs in Europe, is currently maintained by a non-governmental organisation (the European Emergency Number Association (EENA), based in Brussels). In 2015, EENA requested that CEPT/ECO would take over responsibility for the database. After a careful consideration of the request and carrying out a feasibility study (ECC Report 264), the CEPT/ECO agreed to commit resources to the project and work has now commenced on the development of a new and more secure PSAP Directory (PSAP-DIR) which will be developed by the ECO until 1st December 2018.

In 2019, BEREC will communicate with CEPT/ECO, in order to get all necessary information on this project and decide whether this activity should be carried out under BEREC's remit.

Deliverable: Database of E.164 numbers, pending communication with CEPT/ECO
Database to be finalised and functioning by Plenary 3 2020

Q6.3 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

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

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

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

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

Database to be finalised and functioning by Plenary 4 2020

Q6.4 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

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

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

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

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

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

Public consultation: No

Adoption of final Opinion at Plenary 3 2020 for publication

Q6.5 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

Roaming

6.6. Weighted average of maximum mobile termination rates across the EU

According to Article 6e(2) of the Roaming Regulation as amended by Regulation 2015/2120, the European Commission has to review the Implementing Acts setting out the weighted average of maximum mobile termination rates every year in accordance with the same procedure. BEREC needs to provide an annual input to the European Commission on this matter. The input to the Commission will be drafted based on the data that is collected as of 1 July 2019.

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

Public consultation: No

Adoption of final input at Plenary 3 2019 for submission to the European Commission

Q6.6 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

6.7. International Roaming benchmark

According to the Roaming Regulation, BEREC has to produce two benchmark reports on the evolution of prices and volumes. For 2019 it is planned to publish:

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

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

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

Deliverable: 22nd BEREC International Roaming Benchmark Data Report

Public consultation: No

Adoption of final report at Plenary 1 2019 for publication

Deliverable: 23rd BEREC International Roaming Benchmark Data Report

Public consultation: No

Adoption of final report at Plenary 3 2019 for publication

Q6.7 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

6.8. Transparency and comparability of international roaming tariffs

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

Deliverable: 7th BEREC Report on transparency and comparability of international roaming tariffs

Public consultation: No

Adoption of final report at Plenary 4 2019 for publication

Q6.8 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

Quality and efficiency

6.9. Termination Rates at the European level

Termination rates data is collected from BEREC members and observer states, and the report aims to monitor the evolution of rates and the cost model/methodology adopted for the definition of Termination Rates. These benchmarks have reached a satisfactory level of maturity and have proved extremely useful, not just for monitoring consistency but also in the regulatory process. The integrated report, including fixed and mobile termination rates, is published every six months, and it includes an overview of FTRs and MTRs, as well as the cost model/methodology adopted for the definition of TRs. Annually, the report will also include an overview of SMS TRs and revenues of F/MTRs.¹⁶

Deliverable: BEREC Report on Termination Rates at European level

¹⁶ Already in 2018, BEREC is working in close cooperation with the European Commission on the issue of cost modelling for fixed and mobile termination rates. This work will continue into 2019.

Public consultation: No

Adoption of final reports at Plenary 2 and Plenary 4 2019 for publication

Q6.9 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

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 the EC Internal Audit Service assessments.

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

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

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

Workshop to be held in April 2019; summary report adoption at Plenary 3 2019 for publication

Q6.10 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

6.11. Regulatory accounting in practice

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

input parameters used to calculate the rate of return on capital employed and look into the impact of both on the result.

The 2019 Report will continue to develop a deeper analysis that concentrates on the Wholesale Line Rental (WLR) and the following key wholesale markets: Wholesale Local Access (Market 3a/2014), Wholesale Central Access (Market 3b/2014) and Wholesale high quality access (Market 4/2014). Moreover, an analysis will be given of the cost base and allocation methodologies used for fixed (Market 1/2014) and mobile (Market 2/2014) termination markets. For those markets it will contain a comparison of the most “popular” combinations of cost base and cost allocation methodologies.

Deliverable: BEREC Report on Regulatory Accounting in Practice

Public consultation: No

Adoption of final report at Plenary 4 2019 for publication

Q6.11 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

Communication and cooperation

6.12. BEREC Annual reports

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

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

Deliverable: BEREC Annual Reports (Annual Activity Report)

Public consultation: No

Adoption of final reports at Plenary 2 2019 for publication

Q6.12 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

6.13. Stakeholder Forum

While 2019 will mark the year of BEREC’s 10th anniversary, it will also be the year of BEREC’s 7th Stakeholder Forum. The focus of the Stakeholder Forum in 2019 will continue to be the

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

Deliverable: BEREC Stakeholder Forum in October 2019

Q6.13 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

The FTTH Council appreciates the efforts that BEREC have taken to enhance stakeholder involvement in the process of defining BEREC's work outputs and believes that Stakeholder forum is an important element of that work. The FTTH Council notes that BEREC have responded to the need to issue a large number of guidelines resulting from the legislative cycle in an intelligent and coherent way. As noted already BEREC will have a major role to play to ensure consistency among its members in how it applies the new code. The FTTH Council Europe hopes that BEREC will continue to engage with stakeholders in an open and transparent consultation process on these issues when they are finalised.

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

In 2016, BEREC developed its first external Communications Strategy, which was afterwards complemented by the annual communications plans. BEREC's Communications Plan 2019 was finalised for internal use in December 2018, setting in place the communications activities that BEREC is committed to in 2019, the year of its 10th anniversary. Typically, BEREC conducts 5-6 communications projects per year to support and promote specific work streams in its Work Programme. The projects are normally linked to the regular BEREC events, such as public debriefings and Stakeholder Forum and include a number of specific communications activities, for example, organisation of the event, production of a video, press releases, information for the website, a social media campaign, press interviews etc. In 2019, one of the communications project will be the 10th anniversary itself, which will include a list of communications activities to recognise the decade of BEREC's work.

Deliverable: Multiple deliverables set out within the BEREC Communications Plan 2019 to be delivered as required in 2019

Adoption of BEREC Communications Plan 2019 at Plenary 4 2018 for internal use

Q6.14 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

6.15. BEREC Work Programme 2020

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

According to the new BEREC Regulation, BEREC's Board of Regulators shall adopt the outline of its annual work programme by 31 January of the year preceding that to which the annual work programme relates. After consulting the European Parliament, the Council and the Commission on their priorities, as well as consulting other interested parties, the Board of Regulators shall adopt the final annual work programme by 31 December of the same year. The Board of Regulators shall transmit the annual work programme to the European Parliament, the Council and the Commission as soon as it is adopted. BEREC will provide a draft/provisional Work Programme in outline as per the new Regulation by the end of January 2020, and then work through the year to finalise the Work Programme by the end of the year.

Deliverable: Outline of BEREC Work Programme 2020

Public consultation: No

Adoption of Outline of BEREC Work Programme 2020 by electronic clearance by 31 January 2019

Q6.15 Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.

The FTTH Council notes that BEREC have responded to the need to issue a large number of guidelines resulting from the legislative cycle in an intelligent and coherent way by extending their work programme to cover 2020. This is welcomed and allows stakeholders to plan ahead. While all parties have constraints on their resources, the use of workshops in addition to the proposed (longer) public consultations should help in that regard.

6.16. Cooperation with EU institutions and institutional groups

As it has since it was founded, BEREC will continue to engage with the European Commission, the Council and the European Parliament, providing advice and opinions on draft decisions, recommendations and guidelines, and taking on any questions related to electronic communications that fall within the scope of its competence. According to the new BEREC Regulation, BEREC shall issue guidelines ensuring the consistent implementation of the regulatory framework for electronic communications and consistent regulatory decisions by the NRAs on its own initiative or upon a request from an NRA, the European Parliament, the Council or the Commission, in particular for regulatory issues affecting a significant number of Member States or with a cross-border element.

In addition to carrying out its advisory duty for all EU institutions, BEREC will also promote in 2019 thematic exchanges with other European regulatory cooperation platforms and bodies, operating both in adjacent and different economic sectors, such as the ITU, OECD, RSPG, ENISA, ERGA, ERGP, ECN and BEUC.

Q6.16 Does the stakeholder have any comment on this workstream? If so, please provide it

in the space provided.

6.17. International cooperation

In 2019 BEREC will continue to engage in dialogue with NRAs based outside the EU, as well as with international regulatory networks, policy makers and institutions involved in electronic communications matters. BEREC will closely follow international trends in technology and changing business models, so that it retains the capacity to address challenges swiftly and effectively as they arise.

As regions outside the EU regulators' networks have been expressing great interest in the European regulatory approach, in 2019 BEREC will continue to provide support to the European Commission with respect to the Western Balkans initiative, as well as continuing to develop and strengthen contacts with international regulatory authorities such as the FCC, TRAI, CRTC, and with regional regulatory networks (EMERG, EaPeReg, and Regulatel), in accordance with the BEREC Regulation and in cooperation with the EU external action services.

Q6.17 *Does the stakeholder have any comment on this workstream? If so, please provide it in the space provided.*

Q6.18 *Other than the information already provided on the specific workstreams above, and noting the outline of the timing of deliverables below, does the stakeholder have any additional comments to make, which would further benefit the development of BEREC's Work Programme 2019? If so, please provide such comments in the space provided.*

Abbreviations

BCRD	Broadband Cost Reduction Directive
BEREC	Body of European Regulators for Electronic Communications
BEUC	The European Consumer Organisation
BIAC	Broadband Internet Access Cost
CEPT	European Conference of Postal and Telecommunications
CRTC	Canadian Radio-television and Telecommunications Commission
EaPeReg	Eastern Partnership Electronic Communications Regulators Network
ECN	Electronic Communication Network
ECN	European Competition Network

ECO	European Communications Office
ECS	Electronic Communication Service
EECC	European Electronic Communications Code
EMERG	Euro-Mediterranean Regulators Group
ENISA	European Union Agency for Network and Information Security
ERGA	European Regulators Group for Audiovisual Media Services
ERGP	European Regulators Group for Postal Services
ETSI	European Telecommunications Standards Institute
FCC	Federal Communications Commission
FTR	Fixed Termination Rate
IAS	Internet Access Service
IoT	Internet of Things
ITU	International Telecommunications Union
MS	Member State
MTR	Mobile Termination Rate
NB-ICS	Number-based Interpersonal Communications Services
NN	Net Neutrality
NRA	National Regulatory Authority
OECD	Organisation for Economic Cooperation and Development
PSAPDIR	Public Safety Answering Point Directory
QoS	Quality of Service
Regatel	Latin American Forum of Telecommunications Regulators
RO	Reference Offer
RSPG	Radio Spectrum Policy Group
TRAI	Telecom Regulatory Authority of India
VHCN	Very High Capacity Networks
VULA	Virtual Unbundled Local Access

Annex 1: BEREC Work Programme 2019 timeline

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

January 2019

WP 2019 Reference	Deliverable Title	Deliverable Type
6.15	Outline of BEREC Work Programme 2020	Outline Work Programme

Plenary 1 2019

WP 2019 Reference	Deliverable Title	Deliverable Type
1.11	BEREC Report on pricing for access to infrastructure and civil works (carry-over)	Report
2.5	BEREC Report on Internet of Things indicators (carry-over)	Report

5.9	BEREC Report on termination of contract and switch of provider (carry-over)	Report
6.2	Update to the BEREC Rules of Procedure	Rules of Procedure
6.2	Update to BEREC's internal Rules of Procedure for the operation of Expert Working Groups	Rules of Procedure
6.7	BEREC International Roaming Benchmark Data Report	Benchmarking report

Q2 2019

WP 2019 Reference	Deliverable Title	Deliverable Type
2.1	BEREC Guidelines to assess the sustainability of the domestic pricing model	Guidelines
5.6	BEREC-BEUC Workshop to move towards a vision for Europe's telecoms consumers	Workshop

Plenary 2 2019

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

Plenary 3 2019

WP 2019 Reference	Deliverable Title	Deliverable Type
4.3	BEREC Net Neutrality measurement tool (carryover)	Measurement tool
1.2	BEREC Study on the determinants of investment in very high capacity networks	Report
1.3	BEREC guidelines on common approaches to the identification of the network termination point in different network topologies	Public consultation

1.9	BEREC Guidelines to assist NRAs on the consistent application of Geographical surveys of network deployments	Public consultation
4.1	Update to the BEREC Guidelines on Net Neutrality	Public consultation
4.2	BEREC Report on the implementation of the Net Neutrality Regulation	Report
5.4	BEREC Guidelines detailing QoS parameters of IAS and publicly available ICS and the publication of information	Public consultation
6.6	BEREC Input to European Commission regarding the implementing acts setting out the weighted average of maximum mobile termination rates across the Union	Input to European Commission
6.7	BEREC International Roaming Benchmark Data Report	Benchmarking report
6.10	Summary report on Article 7/7A Phase II process	Summary report of internal workshop

October 2019

WP 2019 Reference	Deliverable Title	Deliverable Type
6.13	BEREC Stakeholder Forum	Stakeholder Forum

Plenary 4 2019

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

Plenary 1 2020

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

Plenary 2 2020

WP 2019 Reference	Deliverable Title	Deliverable Type
1.1	BEREC guidelines on (the criteria a network has to fulfil to be considered a) very high capacity network(s)	Public consultation
1.4	BEREC Guidelines on the criteria for a consistent application of Article 61(3) (Concentration point etc.)	Public consultation
3.1	BEREC Report on the impact of 5G on regulation and the role of regulation in enabling the 5G ecosystem	Report
5.5	BEREC report on Member States' best practices in respect of defining the adequate broadband	Report
	IAS, which all consumers can access at an affordable price	
5.7	BEREC Guidelines on how to assess the effectiveness of public warning systems transmitted by different means	Guidelines

Plenary 3 2020

WP 2019 Reference	Deliverable Title	Deliverable Type
6.3	Database of E.164 numbers	Database
6.5	BEREC input to the setting of single EU-wide maximum fixed/mobile voice termination rates	BEREC Opinion

Plenary 4 2020

WP 2019 Reference	Deliverable Title	Deliverable Type
1.1	BEREC guidelines on (the criteria a network has to fulfil to be considered a) very high capacity network(s)	Guidelines

1.4	BEREC Guidelines on the criteria for a consistent application of Article 61(3) (Concentration point etc.)	Guidelines
1.6	BEREC Guidelines (on regulatory treatment) to foster the consistent application of the criteria for assessing co-investments on very high capacity network elements	Guidelines
6.4	Database of numbering resources with a right of extraterritorial use within the European Union	Database

As required

WP 2019 Reference	Deliverable Title	Deliverable Type
1.5	BEREC Opinion on the functioning of the roaming market, as input to the Commission's evaluation on the functioning of that market	BEREC Opinion
1.7	BEREC Opinion on the review of EC Recommendation on relevant markets	BEREC Opinion
3.2	Peer review process	Peer review forums
5.10	BEREC input to the European Commission's methodology on the pricing of bundles	Input to European Commission
6.1	BEREC Opinions, Reports, position and input papers, technical background analyses, depending on specific requests by the EU Institutions and on needs emerging during the implementation process.	Ad hoc inputs
6.14	BEREC Communications Plan 2019 activities	Communications activities