

# **BEREC Annual Reports 2015**

April 2016

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## Foreword by the BEREC Chair 2015

As BEREC Chair in 2015, it is my honour to present BEREC's annual reports regarding 2015. The first report (part A) is based on the 2015 work programme and provides an overview of BEREC's achievements over the past year, whereas the second one (part B) addresses developments in the electronic communications sector in 2015.

2015 was a stimulating and ground-breaking year for the electronic communications sector. BEREC, through its delivery of timely and high-quality opinions, as well as its expertise and practical experience, managed to overcome many obstacles and successfully achieved its tasks in an independent, impartial and transparent manner.

As in previous years, we continued to provide advice to the European institutions on relevant dossiers, such as the Telecom Single Market Regulation<sup>1</sup> and the review of the Regulatory Framework for Electronic Communications. BEREC played, and will continue to play, an important role in these initiatives, which will entail additional obligations and responsibilities that we must be ready to take on.

Before describing our activities in 2015, I would like to point out some of the highlights from last year.

### Progress towards achieving BEREC's objectives

In line with the BEREC Strategy, and as envisaged in last year's BEREC Work Programme, BEREC delivered several outputs, thus achieving its strategic priorities of promoting competition and investment, promoting the internal market and empowering and protecting end users. Nonetheless, in light of the available resources, as well as the conclusion of the Connected Continent Regulation and the European Commission (EC)'s request to BEREC for an input and opinion on the review of the regulatory framework, BEREC had to reassess its priorities during the course of the year. A few examples of these outputs are the following:

- BEREC input and opinion on the review of the regulatory framework for electronic communications;
- BEREC Report on oligopoly analysis and regulation;
- BEREC Report on How Consumers Value Net Neutrality in an Evolving Internet Marketplace: a report into ecosystem dynamics and demand-side forces;
- BEREC Report on case studies on internet protocol-based interconnection for voice services in the European Union (EU);
- BEREC Report on Common Characteristics of Layer 2 Wholesale Access Products in the EU;

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<sup>1</sup> <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015R2120&from=PT>

- Updated BEREC Report on equivalent access and choice for disabled end users;
- BEREC–European Regulators Group for Postal Services (ERGP) Opinion on price transparency and regulatory oversight of cross-border parcels delivery, taking into account possible regulatory insights from the electronic communications sector.

Given their medium- and long-term importance, I would like to mention two other areas of work, namely those relating to machine to machine (M2M) systems and Over-the-Top (OTT) services, the draft reports for which (Draft BEREC Report on enabling the Internet of Things and Draft BEREC Report on OTT services) were made available for public consultation in 2015.

### **Liaison with European institutions**

Similarly to previous years, BEREC continued to engage with the EC, the Council and the European Parliament, providing advice and opinions on EC draft decisions, recommendations and guidelines, as well as taking on any questions related to electronic communications that fall within the scope of its competence.

In particular, BEREC participated in several informal meetings with the EC (so-called ‘what-if’ meetings) to discuss a number of topics within the Digital Single Market and the revision of the regulatory framework, such as connectivity/access, services/consumers’ rights and the governance of electronic communications in the EU. Furthermore, BEREC has also attended and given its expert opinion to the European Parliament and the Telecom and Information Society Working Party of the Council on the Telecom Single Market Regulation.

In 2015, BEREC also further strengthened its cooperation with EU agencies and other regulatory bodies that deal with issues that impact on or are impacted by the electronic communications sector. The several meetings that BEREC held with European bodies to discuss the review of the regulatory framework and to prepare BEREC’s input at the EC’s request, and the creation of an ad hoc joint working group with ERGP are prime examples of this closer cooperation.

### **Article 7/7A procedures**

BEREC continued its involvement in Article 7/7a Phase II cases, through the preparation and delivery of relevant opinions with strict deadlines while maintaining a high level of quality.

In addition to the two cases that carried over from the previous year, in 2015 the EC opened six Article 7/7A Phase II cases, compared with ten cases in 2014.

BEREC successfully and in a timely manner responded to five cases that required an expert opinion in 2015. Three cases were discontinued following withdrawal of the notification by the concerned national regulatory authority (NRA), one after the delivery of the BEREC opinion, and another was opened at the end of the year (and therefore should be responded to only in 2016).

Within Article 7 and 7a proceedings, BEREC, as advisor to both the EC and individual NRAs, continued to perform within the statutory timeframes and independently, to promote consistent high-quality market regulation, in the pursuit of the internal market.

### **Quality of BEREC's output and operational efficiency**

Another major concern for BEREC was to ensure that the outputs of its work were delivered in an effective and timely manner and were of the highest possible quality.

BEREC continuously monitored, benchmarked and reported on activities so as to provide NRAs and policymakers with sound factual input for their decision-making, taking the most recent developments and trends into account.

BEREC also sought to ensure the transparency and visibility of its work, notably by engaging in dialogue with stakeholders, so that they were kept up to date as regards BEREC's activities and positions, as well as to obtain their valuable feedback and information on the issues that BEREC was addressing or should address. In this context, BEREC continued to promote several public consultations on its deliverables before their final approval and held its Third Stakeholder Forum, which served as a platform for strategic dialogue and to increase transparency. The forum took place on 15 October 2015 and was attended by several key stakeholders, whose feedback was a fundamental complement to written inputs.

In 2015, BEREC also aimed to strengthen cooperation with its counterparts, that is, the Eastern Partnership Electronic Communications Regulators Network (EaPeReg), the European Mediterranean Regulators Group (EMERG), the Latin American Forum of Telecommunications Regulators (Regulatel) and the Federal Communications Commission (FCC). I should note, in particular, the joint four-sided summit between BEREC–EMERG–EaPeReg–Regulatel, on 2-3 July 2015, in Barcelona, to discuss the challenges for telecoms in the new Internet Ecosystem. As regards the FCC, it is worth mentioning the face-to-face meetings in Washington, DC, on October 2015, and the BEREC-FCC joint workshop, on 9 December 2015.

One final word of thanks is due to all NRAs for their continuing commitment and active involvement in the Board of Regulators and the BEREC Office Management Committee, as well as for contributing invaluable expert resources to BEREC's work.

I would like to thank all those experts who participated in our various working groups, as well as all members of the Contact Network for their essential contribution to the effective implementation of our work programme.

Finally, I extend my thanks to the staff of the BEREC Office in Riga for their administrative and professional support and for the invaluable assistance provided to the Chair and the Chair's team throughout the year.



Our common knowledge, along with the NRAs' expertise, ensures the high quality of BEREC's various working groups and outputs, and benefits all EU citizens and industry.

I would like to wish my successor, Dr Wilhelm Eschweiler, every success in chairing BEREC and overseeing its further development during 2016.

Fátima Barros

**PART A:**

**Annual Report on BEREC activities in 2015**

Under Article 5.5 of the Regulation (EC) No 1211/2009 of the European Parliament and of the Council of 25 November 2009 establishing the Body of European Regulators for Electronic Communications (BEREC) and the Office

**1. Introduction**

The aim of this report is to present briefly the activities of BEREC in 2015, in accordance with Article 5(5) of the BEREC Regulation.

As usual, the annual report on BEREC's activities in 2015 is based on the several workstreams and priorities that were envisaged in the 2015 BEREC Work Programme and updated throughout the year. This report considers mainly the work carried out by the expert working groups (EWGs) and ad hoc teams.

Each section of this report contains a description of the work undertaken in 2015, as well as a list of the documents produced within each workstream. Article 7/7a cases are presented in a similar manner.

## 2. Work Programme 2015

### 2.1 Promoting competition and investment

#### 2.1.1 BEREC monitoring implementation of the BEREC Common Positions on Wholesale Access Products – second phase

In 2012, following a public consultation, BEREC adopted its revised Common Positions (CPs), listing the best practice remedies to be implemented in former Markets 4 (wholesale local access), 5 (wholesale broadband access) and 6 (wholesale leased lines). Following the revised European Commission (EC) Recommendation on relevant markets implemented in 2014, these markets now correspond to:

- Market 3a: wholesale local access at a fixed location (WLA)
- Market 3b: wholesale central access for mass-market products (WCA)
- Market 4: wholesale high-quality access at a fixed location (WHQAFL).

In line with its work programme, in 2013 BEREC developed a methodology to monitor how national regulatory authorities (NRAs) have implemented the revised CPs. Through this monitoring exercise, BEREC aims to gain a detailed understanding of which regulatory approaches work best for different national circumstances, as well as to inform its own harmonisation efforts. The proposed methodology (BoR (13) 108) was approved for publication at the 16th Board of Regulators (BoR) plenary meeting in Riga in September 2013<sup>2</sup>.

During 2014, BEREC carried out the first phase of its monitoring exercise. Phase 1 focused on those NRAs that had completed their market notifications after BEREC's Revised CPs were adopted on 7 December 2012, up to and including approximately mid-2014. There were ten NRA participants for each of the WLA/WCA markets and six for WHQAFL. The Phase 1 monitoring report was adopted at the plenary meeting in Brussels in December 2014<sup>3</sup>.

During 2015, BEREC carried out the second phase of the monitoring exercise, focusing on NRAs that had completed their market notifications since the Phase 1 survey, up to approximately mid-2015. In Phase 2, there were seven notifiers for each of the WLA / WCA markets and nine notifiers for WHQAFL.

Participants in Phase 1 and Phase 2 CP monitoring exercises

	WLA market	WCA market	WHQAFL market
Phase 1 participant NRAs	Austria, Croatia, Cyprus, Estonia, Ireland, Latvia, Malta,	Austria, Croatia, Cyprus, Estonia, Ireland, Latvia, Malta,	Belgium, Greece, Ireland, Spain, Sweden, UK

<sup>2</sup>[http://berec.europa.eu/eng/document\\_register/subject\\_matter/berec/regulatory\\_best\\_practices/methodologies/1478-methodology-for-monitoring-the-application-of-the-berec-common-positions-on-wla-wba-and-wll](http://berec.europa.eu/eng/document_register/subject_matter/berec/regulatory_best_practices/methodologies/1478-methodology-for-monitoring-the-application-of-the-berec-common-positions-on-wla-wba-and-wll)

<sup>3</sup> [http://berec.europa.eu/eng/document\\_register/subject\\_matter/berec/reports/4788-monitoring-implementation-of-the-berec-common-positions-on-wla-wba-and-wll-phase-i](http://berec.europa.eu/eng/document_register/subject_matter/berec/reports/4788-monitoring-implementation-of-the-berec-common-positions-on-wla-wba-and-wll-phase-i)

	Netherlands, Norway, UK	Netherlands, Norway, UK	
Phase 2 participant NRAs	Bulgaria, France, Iceland, Luxembourg, Netherlands, Sweden, Turkey	Bulgaria, France, Iceland, Luxembourg, Poland, Sweden, Turkey	Austria, Croatia, Cyprus, France, Iceland, Italy, Latvia, Luxembourg, Turkey

The results of the second phase of the monitoring exercise were summarised in a report which was approved for publication at the 21st BoR plenary meeting in London in December 2015.

A third phase of the monitoring exercise is being planned for 2016.

**Document:**

BoR (15) 199 – Monitoring implementation of the BEREC Common Positions on Wholesale Local Access (WLA), Wholesale Central Access (WCA) and Wholesale High Quality Access at a Fixed Location (WHQAFL) Phase 2

### 2.1.2 Virtual access products

In October 2015, BEREC published the report ‘Common Characteristics of Layer 2 Wholesale Access Products’, which is the response to the increased use of (active) layer 2 (Ethernet) wholesale access products (L2 WAP) as a remedy on the wholesale local access market (Market 4/2007, Market 3a/2014) or the wholesale broadband access market (Market 5/2007, Market 3b/2014). In order to get a deeper insight into these products, to foster the exchange of experiences and to contribute to the harmonisation of regulatory instruments used in the European Union (EU), this document has the following two objectives:

- to give an overview of the L2 WAP of the following ten countries: Austria, Belgium, Denmark, France, Greece, Italy, Spain and the United Kingdom (where the imposed L2 WAP is available), and Germany and the Netherlands (where the L2 WAP is not yet available but is or will be imposed);
- to identify L2 WAP characteristics that are common across these 10 countries.

The document is descriptive and does not aim to be normative or to recommend best practice. It covers both L2 WAP with local points of handover (PoH) (also known as virtual unbundled local access (VULA)) and L2 WAP with PoH at higher levels of the network hierarchy (e.g. regional PoH (also known as enhanced bitstream)).

L2 WAP with local PoH in the countries analysed are imposed where physical unbundling (local loop unbundling (LLU)/ subloop unbundling (SLU)) is no longer considered viable owing to the next-generation access (NGA) rollout by the incumbent operator. Therefore, L2 WAP with local PoH aim to offer alternative network operators (ANOs), as far as possible, the same flexibility to provide different products and to

innovate as with physical unbundling. L2 WAP with regional PoH in the countries analysed are usually imposed on wholesale broadband access markets in order to give alternative operators more flexibility and a higher degree of freedom regarding product characteristics compared with a layer 3 product (internet protocol (IP) bitstream).

The document begins by outlining the regulatory context in which the L2 WAP are imposed (section 2) and an overview of the prices of the L2 WAP (section 3). Then, important technical characteristics of the L2 WAP are analysed, with a focus on which characteristics are common (section 4). Finally, the common characteristics of L2 WAP are identified and summarised based on the analysis in section 4 separately for L2 WAP with local PoH and L2 WAP with regional PoH (section 5). The following common characteristics have been identified for L2 WAP with local PoH:

1. (Technology): The L2 WAP is based on Ethernet.
2. (Availability): The L2 WAP is (or will be) available at least in NGA rollout areas.
3. (CPE/Modem): ANOs can use and configure their own customer premises equipment (CPE)/modems at least in the case of Fibre to the Cabinet/Building (FTTC/B).
4. (Bandwidth): ANOs have the possibility to control the speed of their services within the limit(s) of the bandwidth profile(s) of the subscriber access line.
5. (Quality of Service (QoS)): The L2 WAP provides at least ostensibly uncontended bandwidth or a bandwidth with a defined QoS.
6. (Traffic Prioritisation): The L2 WAP supports different traffic priorities.
7. (Number of VLANs): The L2 WAP provides several VLANs per end user unless additional wholesale products are available.
8. (Customer Identification): The L2 WAP enables ANOs to identify their end users.
9. (Security): The L2 WAP enables ANOs to apply security measures.

For L2 WAP with regional PoH, the same common characteristics have been identified as for L2 WAP with local PoH (see above), with the exception of common characteristics 5 and 7. Tables with detailed data are included in the annex to the report.

A draft version of this report was approved by the BoR at the second 2015 plenary meeting for public consultation. The public consultation ran from 8 June to 10 July 2015. In October, following approval at the BoR 24th plenary meeting, BEREC published the final report (see above), as well as a report on the results of the public consultation.

**Documents:**

BoR (15) 132 – BEREC Report on the Public Consultation on Document ‘Common Characteristics of Layer 2 Wholesale Access Products in the European Union’

BoR (15) 133 – BEREC Report on Common Characteristics of Layer 2 Wholesale Access Products in the European Union

### **2.1.3 Implementation of the Recommendation on relevant markets and Common Position on geographical segmentation**

In order to share NRAs' experience with the implementation of the Recommendation on relevant markets and the CP on geographical segmentation and to learn from it, BEREC organised an internal workshop on this topic, on 28 October 2015, at the premises of the Belgian Institute for Postal Services and Telecommunications (BIPT). The workshop was attended by 34 participants from 21 NRAs and the EC.

The workshop was divided into two sessions: the first focused on market segmentation, and the second was dedicated to the market review process (comprising market definition, designation of undertakings with Significant Market Power (SMP) and remedies).

Seven NRAs delivered a presentation on the market conditions in their Member State, and the speakers explained concrete measures that have been taken by their NRAs.

The outcome of the workshop has been summarised in an internal report, which was approved at the 25th BoR plenary meeting, in London, in December 2015.

#### **Document:**

BoR (15) 202 – BEREC Internal Report – Workshop on implementation of the Recommendations on relevant markets and Common Position on geographical segmentations

### **2.1.4 Challenges and drivers of next-generation access rollout and infrastructure competition (kick-off in 2015, consultation and final outcome 2016)**

Building on its previous work in this field, BEREC has instigated further study of the broad regulatory approaches towards promoting effective competition and regulatory predictability to incentivise NGA investment for the benefit of European citizens.

Aiming at a more in-depth understanding of the situation in each Member State, and the associated investment dynamic/models, the report will entail a fact-finding exercise and an assessment of the factors determining NGA investments (structural factors such as population density, etc., as well as market-related factors, the extent of public–private partnership, the role of municipality networks, demand, etc.) and their interaction. BEREC will both collect data from NRAs and rely on existing data and studies, as well as conduct a review of major trends in the economic literature. BEREC will then analyse the factors affecting the rollout of NGA and the different regulatory approaches for driving NGA deployment and infrastructure competition.

### **2.1.5 Preparing migration to all IP networks**

In December 2015, following approval at the 25th BoR plenary meeting, BEREC published the report 'Case Studies on IP-based Interconnection for Voice Services in

the European Union' as a response to the increasing number of operators (fixed and mobile) in EU Member States which are migrating their networks to next-generation networks or all-IP networks. In order to get a deeper insight into the IP-based interconnection for voice services (IPvIC) already in place and to foster the exchange of experiences, this document has the following two objectives:

- to give an overview of the status of IPvIC in Europe on a general level based on information from 32 European countries;
- to give an overview of the IPvIC currently in place based on the experiences of ten countries (Bulgaria, Croatia, Denmark, Finland, France, Germany, Italy, Slovenia, Spain and Sweden). This covers IPvIC offered by fixed network incumbents (FNI, 8 countries), other fixed network operators (OFNO, 3 countries) and mobile network operators (MNO, 2 countries) (i.e. 13 cases in total).

The document is descriptive and does not aim at being normative or recommending best practice.

The high-level analysis of the status of the IPvIC in Europe shows that the type of operator that most often offers IPvIC is the OFNO followed by the FNI and the MNO. NRAs imposed the obligation to offer IPvIC most frequently on FNI (13 countries) followed by OFNO (11 countries) and MNO (5 countries).

In the countries analysed, the IPvIC have the following general characteristics:

- Obligation to offer IPvIC: All operators considered offer IPvIC based on an obligation, except for the MNO in Finland.
- National specification(s): In order to support a common solution for several or all operators at national level, most countries analysed (7 of 10) have developed one (or more) national specification(s) defining the characteristics of the IPvIC in detail.
- Transitional period: The countries (9), which have imposed that the operators analysed have to offer IPvIC, support the migration from Time Division Multiplexing (TDM)-based interconnection for voice services (TDMvIC) to IPvIC with the obligation that both types of voice interconnection have to be offered. In most of these countries (6 of 9), a transitional period is not (yet) defined, and, therefore, the operators are free to migrate to IPvIC when it is best for them. The other three countries have already defined the transitional period.
- Period of notice of phasing out TDMvIC: This period has already been defined in three countries. This is not the case in most countries, since in most of them the operators analysed have not made formal announcements to phase out TDMvIC so far.

In addition, the following important technical characteristics of the IPvIC of the 13 cases considered were analysed:

- number of Pols of the IPvIC;
- signalling protocol;
- number ranges, codecs and supplementary services supported by IPvIC;
- QoS;
- redundancy and network security of the IPvIC.

It can be concluded that, from an overall perspective, the IPvIC are rather similar. However, in terms of detail, the characteristics may differ reflecting national circumstances. Tables with detailed data are included in the annex to the report.

**Document:**

BoR (15) 196 – Case Studies on IP-based Interconnection for Voice Services in the European Union

### **2.1.6 Oligopoly analysis and regulation**

The European electronic communications markets have witnessed several developments, such as the increased uptake of bundled services and a trend towards consolidation of the markets via mergers and acquisitions, which can lead to oligopolistic outcomes. As a consequence, there might be the risk of oligopolistic communications markets evolving in a non-competitive manner.

For this reason, in December 2015, following approval at the 25th BoR plenary meeting, BEREC published a report on oligopoly analysis and regulation assessing whether the current regulatory framework and/or its practical application are adequate to tackle competition concerns that might arise in oligopolistic markets. BEREC accompanied this with a report on the public consultation that was launched in June 2015.

The main conclusions of the report provide recommendations regarding the regulatory treatment of oligopolies within the review of the regulatory framework, namely: (i) to update Annex II of the Framework Directive and, based on the criteria used in the Airtours case, to define the applicable criteria in the assessment of joint dominance; (ii) to further develop the criteria to be used to assess joint SMP, following the guidance provided in the report and; (iii) to take into consideration potential *ex ante* intervention in relation to tight oligopolies.

BEREC stresses that, in light of the structural features that electronic communications markets exhibit and the risk that tight oligopolies may arise, the current regulatory framework, as it now stands, as well as competition law, may prove insufficient to address the challenges that tight oligopolies would eventually pose on the electronic communications markets.

BEREC also concludes that more work is needed before establishing the detailed criteria for determining tight oligopolies and thereby justifying some form of *ex ante* intervention.

To this end, BEREC is committed to engaging in a constructive dialogue with the EU institutions as well as industry stakeholders to ensure that all the different facets to this important issue are fully considered and duly taken into account, in particular, in the context of the ongoing review of the regulatory framework.



**Documents:**

BoR (15) 194 – BEREC Report on the public consultation on the draft BEREC Report on oligopoly analysis and regulation

BoR (15) 195 – BEREC Report on oligopoly analysis and regulation

**2.1.7 Facilitating access to radio spectrum**

In 2015, BEREC mainly focused its radio spectrum-related activities on the development of future-proof regulatory solutions within the scope of elaborating a comprehensive opinion on the review of the EU Electronic Communications Regulatory Framework (the Framework). This all-embracing piece of work was approved in December 2015 (for further details, see section 2.2.4). The opinion highlights that European and global spectrum harmonisation is already well on its pace and that the current regulation has performed well in this respect. BEREC also notes that any further harmonisation needs to be approached with caution, since the introduction of a top-down approach runs the risk of sterilising the spectrum and resulting in inefficient use of this scarce resource. In any case, the current Framework already provides sufficiently flexible tools and processes to harmonise the spectrum for electronic communication services.

## 2.2 Promoting the internal market

### 2.2.1 Article 7/7A – Phase II

The procedures defined in Article 7/7a of the amended Framework Directive constitute one of the principal innovative features of the 2009 package. Since its first full year of operation, in 2011, BEREC continues to respond successfully and efficiently to this important role.

In 2015, the handling of Article 7/7a Phase II procedures remained an essential part of BEREC's work, although the number of cases presented continued the downward trend of recent years. During 2015, the EC opened six Article 7/7a Phase II cases, compared with ten cases in 2014. BEREC responded in a timely manner to five cases that required an expert opinion in 2015 – two opinions concerning cases opened in December 2014 and three opinions regarding cases from 2015. Three cases opened in 2015 were discontinued following withdrawal of the relevant notification by the concerned NRA, one after the delivery of the BEREC opinion.

All the cases are outlined in the table below:

#### A. Cases DE/2014/1666-1667 – Germany

<b>Market</b>	Wholesale voice call termination on individual mobile networks in Germany (market 2 of the 2014 recommendation)
<b>Description</b>	<p>Phase II was opened under Article 7a on 24 November 2014.</p> <p>The BEREC Opinion was adopted on 14 January 2015 and published on 16 January. BEREC considered that the European Commission's serious doubts were justified in that (i) BNetzA's proposed TRs were not based on a pure BU-LRIC costing methodology which, as recommended by the Commission, generally results in a better competitive outcome, and (ii) BNetzA had not provided a valid justification for deviating from the TR Recommendation and in particular, had not provided evidence to support its view that this decision would be better suited to meet the policy objectives of promoting efficiency and sustainable competition and maximise consumer benefits than pure BU-LRIC.</p>
<b>Outcome</b>	<p>On 23 March 2015, the European Commission issued a recommendation that BNetzA should amend or withdraw the remedies relating to the price caps for termination rates in Germany in order to ensure that the evaluation of the efficient costs applied to termination markets was based on a pure BU-LRIC methodology.</p> <p>BNetzA adopted the final decision and published a Reasoned Justification for not following the recommendation.</p>
<b>Document</b>	BoR (15) 04 – BEREC Opinion on Phase II investigation pursuant to Article 7a of Directive 2002/21/EC as amended by Directive 2009/140/EC: Cases DE/2014/1666-1667 Wholesale voice call termination on individual mobile networks (market 2) in Germany

**B. Case DE/2014/1685 – Germany**

<b>Market</b>	Call termination on individual public telephone networks provided at a fixed location in Germany (market 1 of the 2014 recommendation)
<b>Description</b>	<p>Phase II was opened under Article 7a on 18 December 2014.</p> <p>The BEREC Opinion was adopted on 29 January 2015 and published on 2 February. BEREC considered that the European Commission's serious doubts were justified in that (i) BNetzA's proposed TRs were not based on a pure BU-LRIC costing methodology which, as recommended by the Commission, generally results in a better competitive outcome, and (ii) BNetzA had not provided a valid justification for deviating from the TR Recommendation and in particular, had not provided evidence to support its view that this decision would be better suited to meet the policy objectives of promoting efficiency and sustainable competition and maximise consumer benefits than pure BU-LRIC.</p>
<b>Outcome</b>	<p>On 21 April 2015, the European Commission issued a recommendation that BNetzA should amend or withdraw the remedies relating to the price caps for termination rates in Germany in order to ensure that the evaluation of the efficient costs applied to termination markets was based on a pure BU-LRIC methodology.</p> <p>BNetzA adopted the final decision and published a Reasoned Justification for not following the recommendation.</p>
<b>Document</b>	BoR (15) 21 – BEREC Opinion on Phase II investigation pursuant to Article 7a of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case DE/2014/1685 Call termination on individual public telephone networks provided at a fixed location in Germany

**C. Case DE/2015/1713 – Germany**

<b>Market</b>	Call termination on individual public telephone networks provided at a fixed location in Germany (market 1 of the 2014 recommendation)
<b>Description</b>	<p>Phase II was opened under Article 7a on 18 March 2015.</p> <p>The BEREC Opinion was adopted on 28 April 2015 and published on 4 May. BEREC considered that the European Commission's serious doubts were justified in that (i) BNetzA's proposed TRs were not based on a pure BU-LRIC costing methodology which, as recommended by the Commission, generally results in a better competitive outcome, and (ii) BNetzA had not provided a valid justification for deviating from the TR Recommendation and in particular, had not provided evidence to support its view that this decision would be better suited to meet the policy objectives of promoting efficiency and sustainable competition and maximise consumer benefits than pure BU-LRIC.</p>

<b>Outcome</b>	<p>On 20 July 2015, the European Commission issued a recommendation that BNetzA should amend or withdraw the remedies relating to the price caps for termination rates in Germany in order to ensure that the evaluation of the efficient costs applied to termination markets was based on a pure BU-LRIC methodology.</p> <p>BNetzA adopted the final decision and published a Reasoned Justification for not following the recommendation.</p>
<b>Document</b>	BoR (15) 56 – BEREC Opinion on Phase II investigation pursuant to Article 7a of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case DE/2015/1713 Wholesale voice call termination on individual public telephone networks provided at a fixed location in Germany – remedies

#### D. Case FI/2015/1718 – Finland

<b>Market</b>	Voice call termination on individual mobile networks in Finland (market 2 of the 2014 recommendation)
<b>Description</b>	<p>Phase II was opened under Article 7a on 27 March 2015.</p> <p>The BEREC Opinion was adopted on 7 May 2015 and published on 11 May. BEREC considered that the Commission's serious doubts regarding the draft measure of FICORA on the market for wholesale voice call termination on individual mobile networks in Finland were justified. FICORA's proposed MTRs were not based on a pure BU-LRIC methodology, as recommended by the Commission, and FICORA had not provided a valid economic justification as to how the chosen methodology allows the achievement of the regulatory objectives. Furthermore, economic analysis shows that a pure BU-LRIC methodology results in a better competitive outcome. BEREC was of the opinion that bringing the costing methodology in line with the Recommendation on Termination Rates simultaneously for all market participants (at the earliest opportunity) would have presented the least risk for unjustified market distortions.</p>
<b>Outcome</b>	<p>On 24 July 2015, the European Commission issued a recommendation that FICORA should amend or withdraw the draft measure setting the price caps charged by the SMP operators for mobile termination (in market 2) in Finland in order to ensure that the evaluation of the efficient costs for the rates applied on the mobile termination markets is based on a pure BU-LRIC methodology, as being the most appropriate methodology for the regulation of the rates applicable in the mobile termination markets.</p> <p>FICORA adopted the final decision lowering the rates but not to the level required by the EC.</p>
<b>Document</b>	BoR (15) 61 – BEREC Opinion on Phase II investigation pursuant to Article 7a of Directive 2002/21/EC as amended by Directive

	2009/140/EC: Case FI/2015/1718 Wholesale voice call termination on individual mobile networks in Finland - market 2
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#### E. Case NL/2015/1727 – The Netherlands

<b>Market</b>	Wholesale local access provided at a fixed location (market 3a of the 2014 recommendation)
<b>Description</b>	<p>Phase II was opened under Article 7 on 30 April 2015.</p> <p>The BEREC Opinion was adopted on 28 May 2015 and published on 29 May. BEREC was of the opinion that the Commission's doubts on the absence of a proper market definition exercise and of an incorrect SMP analysis as a result of the exclusion of cable from the relevant wholesale market were not justified. BEREC considered that ACM had considered the availability of wholesale unbundled cable products within the timeframe of the review and had factored that assessment into its analysis appropriately. In particular, BEREC noted that ACM commissioned a study from WIK-Consult to consider this question and that study concluded that wholesale unbundled cable products were unlikely to appear within the timeframe of the review.</p>
<b>Outcome</b>	The measure was withdrawn by ACM on 12 June.
<b>Document</b>	BoR (15) 85 – BEREC Opinion on Phase II investigation pursuant to Article 7 of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case NL/2015/1727 Wholesale local access provided at a fixed location in the Netherlands

#### F. Case LT/2015/1831 – Lithuania

<b>Market</b>	Call termination on individual public telephone networks provided at a fixed location in Lithuania (market 1 of the 2014 recommendation)
<b>Description</b>	Phase II was opened under Article 7a of the Framework Directive on 26 May 2015.
<b>Outcome</b>	RRT withdrew its notification on 27 May 2015; there was therefore no need to establish a BEREC EWG.
<b>Document</b>	A BEREC opinion was not issued.

**G. Case DE/2015/1816 – Germany**

<b>Market</b>	Call termination on individual public telephone networks provided at a fixed location (market 1 of the 2014 recommendation)
<b>Description</b>	Phase II was opened under Article 7a on 16 December 2015. Given that it was opened near the end of the year, it was only concluded in 2016.
<b>Outcome</b>	Process was concluded in 2016 and therefore will be featured in the 2016 BEREC Annual Report

**H. Case PT/2015/1817 – Portugal**

<b>Market</b>	Wholesale broadcasting market for the delivery of broadcast content to end users in Portugal (market 18 of the 2003 recommendation)
<b>Description</b>	Phase II was opened under Article 7a of the Framework Directive on 17 December 2015.
<b>Outcome</b>	ANACOM withdrew its notification on 23 December 2015; there was therefore no need to establish a BEREC EWG.
<b>Document</b>	A BEREC opinion was not issued.

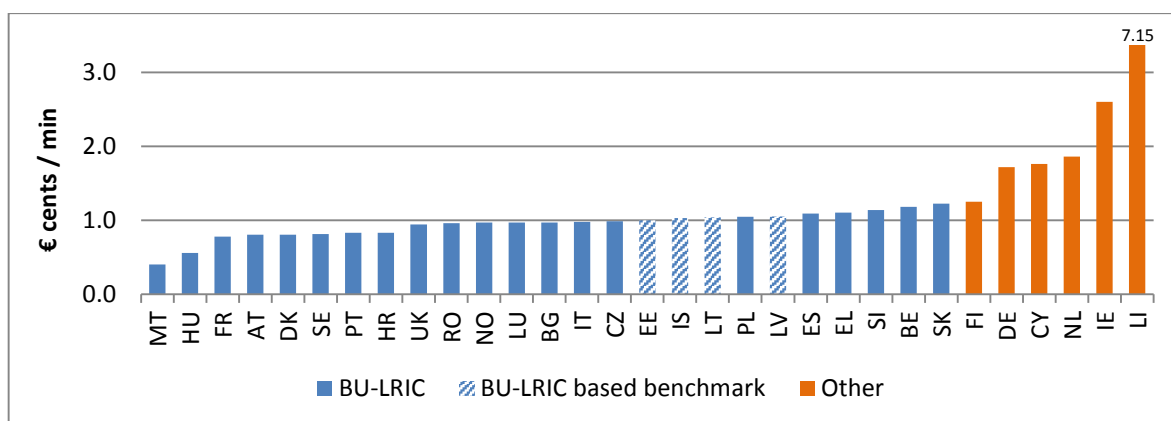
**2.2.2 Implementation of the recommendation on termination rates**

The EC's Recommendation on the regulatory treatment of termination rates in the EU, aiming at coherent regulation in termination markets, had to be applied by EU NRAs by 31 December 2012 and must be reviewed no later than by the end of 2016. In this context, in 2015, BEREC focused on the implementation of the Recommendation by NRAs, and, more generally, on the price control remedies imposed.

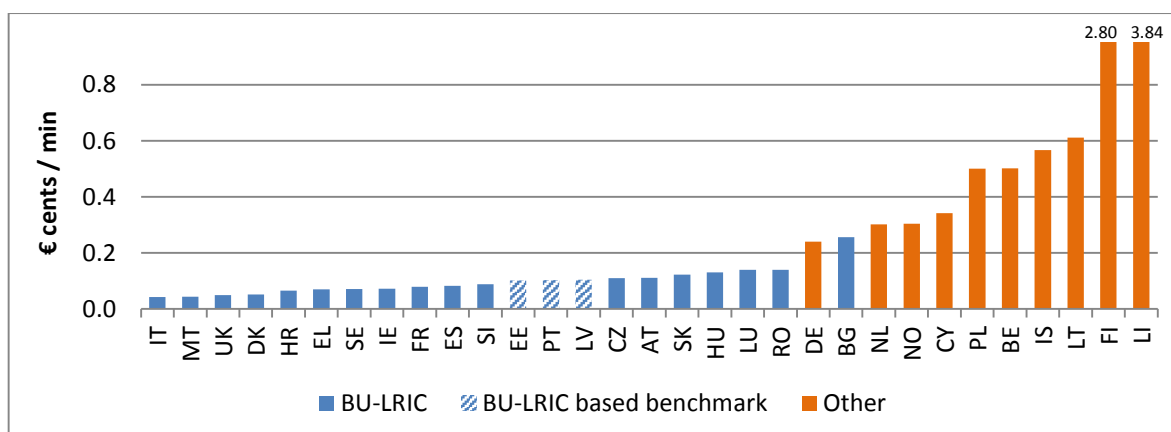
Within this exercise, BEREC approved an internal report on the implementation of the Recommendation on Termination Rates during its 25th plenary meeting.

An analysis has shown that 26 European Economic Area (EEA) Member States have implemented the recommendation for mobile termination rates (MTRs) and 23 EEA Member States for fixed termination rates (FTRs).

Despite the significant and widespread decrease of rates since the Recommendation was issued, there are still divergences between countries, and the Recommendation itself has some limitations. However, the differences between countries in which the Recommendation was implemented (divergences of 0.19 Eurocents per minute on average for MTRs and 0.05 Eurocents per minute for FTRs) remain limited compared with the differences between countries in which the Recommendation was not implemented (0.43 Eurocents per minute on average for MTRs and 0.51 Eurocents per minute FTRs), as shown in the following figures:

**Figure 1:** Mobile Termination Rate in EEA as of 2nd Semester 2015

A total of 25 EEA Member States have a pure long-run average incremental cost-(LRIC)-based MTR applicable. Cyprus has also adopted a decision implementing it, and rates will be applicable from January 2016.

**Figure 2:** Fixed Termination Rate in EEA as of 2nd Semester 2015

A total of 21 EEA Member States have a pure-LRIC-based FTR applicable. Cyprus and Iceland have also adopted a decision implementing it, and rates will be applicable from January 2016.

BEREC has identified as a topic of attention a two-tier situation, whereby most countries follow the recommendation principles but some others do not. In this context, BEREC has discussed what actions could be taken to achieve more harmonisation among EEA Member States in the implementation of the Recommendation on Termination Rates.

**Document:**

BoR (15) 209 – BEREC (internal) report on the implementation of the termination rates recommendation

### 2.2.3 Legislative evolution: Connected Continent regulation

During 2015, BEREC continued to monitor the legislative process relating to the EC's proposal for a 'Telecom Single Market' (TSM) regulation<sup>4</sup>. In particular, BEREC provided its technical views on the draft regulation tabled by the EC in 2013 as well as on the subsequent European Parliament's first reading resolution in 2014. In 2015, BEREC also continued its work relating to the legislative proposal and provided informal advice to the co-legislators concerning the solutions progressively under discussion in the fields of international roaming and net neutrality. After a compromise was reached in the Council in June 2015, the regulation was finally adopted in October and came into force on 26 November 2015<sup>5</sup>.

Consequently, BEREC – relying on its professional expertise – was entrusted by the co-legislators to further define and fine-tune several rules of the regulation, that is, with respect to the definition of the Net Neutrality Guidelines, as well as to the implementation of the 'Roam Like At Home' solution envisaged by the adopted regulation.

### 2.2.4 Legislative evolution: preparation of the next framework review

As anticipated by the Work Programme, in 2015 BEREC further developed the reflections initiated in 2013, and carried out a thorough analysis of the potential areas for review of the current framework.

After an informal discussion held with the EC in 2014 and then during the first half of 2015, including in two what-if meetings between BEREC and the EC (further to which a cluster of key areas was identified in view of the legislative reform), BEREC was then formally asked by the Commission at the end of July to deliver an opinion on the forthcoming review.

The opinion was adopted by BEREC at its 25th plenary meeting on 10 December 2015, following BEREC internal discussion at different levels, including in its plenary meetings and within the groups of NRA's Heads created to promote a high level debate in addition to the ordinary meetings. The opinion covers a number of thematic areas, ranging from the scope and founding principles of the framework, the pillars of access and interconnection regulation, the suitability of the current spectrum management, the latest technological trends and their regulatory impact, end-user protection tools in the

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<sup>4</sup> Proposal for a regulation of the European Parliament and of the Council laying down measures concerning the European single market for electronic communications and to achieve a Connected Continent, available at <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2013%3A0627%3AFIN>.

<sup>5</sup> Regulation (EU) No 2015/2120 of the European Parliament and of the Council of 25 November 2015 laying down measures concerning open internet access and amending Directive 2002/22/EC on universal service and end-users' rights relating to electronic communications networks and services and Regulation (EU) No 531/2012 on roaming on public mobile communications networks within the EU, available at <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:2015:310:FULL&from=EN>.



face of recent market and technology developments, up to the functioning of the Universal Service regime and the fitness of the current sectorial institutional set-up.

**Document:**

BoR (15) 206 – BEREC Opinion on the Review of the EU Electronic Communications Regulatory Framework

## **2.2.5 International roaming**

In 2015, BEREC's work on roaming focused on providing advice to the EC, the Council and the Parliament on the new provisions on international roaming included in the TSM Regulation.

In July 2015, the EC asked BEREC to provide input on several aspects that need to be addressed with a view to abolishing the retail roaming surcharges, such as (i) the calculation of the weighted average of maximum MTRs across Member States, (ii) the wholesale roaming market review or the (iii) the definition of a fair use policy.

In addition to the support provided to the European institutions, BEREC produced two new benchmark reports on the evolution of volumes and prices at the retail and wholesale levels. In 2015, BEREC also published its third report on transparency and comparability of tariffs, collecting information from NRAs and operators on tariffs, information and tools available to consumers to be able to compare and select different international roaming tariffs.

### **a. BEREC Report on Transparency and Comparability of International Roaming Tariffs**

Pursuant to Article 19 of the Roaming Regulation, BEREC is responsible for regularly monitoring the transparency and comparability of roaming tariffs and for presenting the findings in an annual report. The objective of this report is to monitor and increase consumer awareness in light of the variety of roaming tariffs, as well as to increase transparent market conditions and the ability for customers to make well-informed decisions. To this end, the report addresses two key questions on whether information on price and tariff conditions was made available in a clear and convenient way and whether consumers were able to compare those tariffs. Operators and regulators were asked several questions relating to these two key issues for the period July 2014 to July 2015. BEREC published its third BEREC Report on transparency and compatibility of tariffs in November 2015, following approval at the 25th BoR plenary meeting, on 10 December.

The responses received show that there is a large variety of different types of tariffs, ranging from linear tariffs (such as the Eurotariff) to daily/weekly or monthly bundles of different services and specific tariffs in which domestic prices are combined with different kinds of additional fees. More than one-quarter of responding operators have at least one 'RLAH-like' offer. These are mainly domestic offers including a certain number of minutes, Short Message Service (SMS) and/or MB, that is, a limitation in terms of volume (32% of European operators). This trend could be partly due to the

impact of political negotiations at European level to end roaming surcharges from mid-2017.

Most of the operators report that they provide extensive information on the conditions and prices for each tariff on their websites and inform customers about tariffs by sending out SMS or unstructured supplementary service data messages. However, the responses indicate that quite a number of operators who offer alternative tariffs do not actively inform their customers when they reach a time or volume limit or inform them of how services are charged when the usage has reached this limit.

The most popular way in which providers supply data on real-time consumption is via call centre agents, followed by the publication of information in customer areas on providers' websites and interaction via mobile phones using short codes.

When BEREC asked whether NRAs had received transparency-related customer complaints, half of the NRAs confirmed having received such. Nevertheless, the number of complaints per NRA is very low.

**Document:**

BoR (15) 192 – BEREC Report on Transparency and Comparability of International Roaming Tariffs

b. International Roaming benchmark reports

Pursuant to the same article, BEREC shall also regularly monitor the retail and wholesale roaming prices for voice, SMS and data services, as well as the volumes and revenues generated by the mobile operators across Member States. These benchmark data reports are widely acknowledged by the relevant stakeholders and are used by the EC to review the Regulation. In 2015, BEREC published the 14th benchmark report in February and the 15th benchmark report in October.

**Documents:**

BoR (15) 29 – International Roaming BEREC Benchmark Data Report April 2014 – September 2014

BoR (15) 134 – International Roaming BEREC Benchmark Data Report October 2014 – March 2015

c. Support for National Regulatory Authorities on the application of Roaming Regulation IV

Roaming Regulation foresees a transitional period from 30 April 2016 to 14 June 2017, in which roaming providers may apply a surcharge in addition to the domestic retail price for the provision of regulated retail roaming services. As of June 2017, provided that the wholesale market is reviewed, roaming providers shall not levy any surcharge in addition to the domestic retail price on roaming customers for a consumption within a given fair use policy.

Given the number of questions concerning the implementation of the new measures in place during the transitional period, BEREC provided advice and support to NRAs on the provisions arising from the new TSM regulation. The objective is to share

information between NRAs to contribute to a harmonised implementation of the Roaming Regulation. At the same time, the feedback received on the problems encountered served as a basis for the update of the General BEREC Guidelines on the Roaming Regulation (excluding Articles 3, 4 and 6), approved in Q1/2016.

- d. European Commission request for BEREC input on: 1) weighted average of maximum mobile termination rates across Member States, 2) wholesale roaming market, 3) fair use policy and 4) sustainability of domestic charging model

According to Article 6c paragraph 2 of the Roaming Regulation, by 31 December 2015, the EC, after consulting BEREC, shall adopt implementing acts setting out the weighted average of maximum MTRs. On the basis of the criteria, and according to the letter from the EC, BEREC collected the figures from NRAs and calculated the weighted average of the maximum MTRs. The EC asked BEREC to provide the input by 9 October 2015, with a view to presenting it to the Commission/Communications Committee (COCOM), which took place on 14 October 2015. The BEREC Chair's letter to the Commission on the weighted average of the maximum MTRs is not publicly available.

The letter from the EC dated 28 July 2015 also included a request for assistance in the collection of sufficient information from NRAs and operators to carry out an assessment of the wholesale market. By 15 June 2016, the EC shall submit a report to the European Parliament and to the Council on the findings and any appropriate legislative proposal to amend the wholesale charges or to provide another solution to address the issues identified at wholesale level.

The questionnaire is also intended to help build the detailed rules on the application of fair use policy, the implementing acts of which are to be laid down by 15 December 2016, according to Article 6d paragraph 1, and following consultation with BEREC.

Following the abovementioned letter from the EC, BEREC's input on the wholesale roaming market and the fair use of roaming services was approved by the BoR during its 25th plenary meeting, on 10 December 2015. The document is not available to the public.

**Documents:**

BoR (15) 153 – BEREC Chair letter to the European Commission on the input on weighted average of maximum MTRs

BoR (15) 205 – BEREC input on the wholesale roaming market and the fair use of roaming services

## **2.2.6 Report on OTT services**

The 2015 BEREC Work Programme highlighted the need to start looking into the changes that are taking place in the digital markets, which are linked to the growth of players operating over electronic communications infrastructures and providing different types of digital services. The analysis aims to examine the phenomenon of

OTT players and services, in order to frame it and assess its impact on the electronic communications sector and the sectorial legislative framework. A public consultation on a draft report was held in October 2015 and the final version of the report was approved in Q1/2016. The draft report submitted for public consultation in 2015 describes the internet value chain, analyses the current regulatory definition of electronic communication services (ECS) and provides a taxonomy for OTT services (the categories included in this taxonomy are not intended to be proposed legal concepts, having only been considered specifically to the use of this report). The draft report then addresses the issue of differences in regulation between ECSs and potentially competing OTT services; it also deals with ECSs and OTT services that do not potentially compete. Finally, it looks at the potential impact of the OTT services in the current market scenario and the possible regulatory implications, in light of the review of the framework. The draft report also touches briefly upon the partnerships between ECS and OTT providers.

A follow-up of this activity – following approval of the report – has been already planned for 2016, whereby BEREC intends to deal with a thorough assessment of each obligation/right relative to OTT providers.

### **2.2.7 Enabling the Internet of Things**

On October 2015, BEREC published the 'Draft report on Enabling the Internet of Things'. The draft report is based on a BEREC survey and provides an assessment of the state of play on M2M services with the perspective of fostering an environment that will result in sustainable competition, interoperability of electronic communications services and consumer benefits.

The draft report starts by presenting the most common M2M characteristics and goes on to assess whether M2M services might require special treatment with regard to current and potential future regulatory issues. Some suggestions by BEREC addressed to NRAs – where possible – are included on how to deal with them.

Current M2M services broadly share some of the following characteristics: automatic communication of data from remote devices; relatively simple devices; low volume traffic; connectivity for M2M services required (although accounting for a relatively low proportion of the overall revenue opportunity in the M2M value chain); provision via devices designed and produced for the world market and for usage based on global mobility; a lifetime of many years for a number of M2M devices; and business model B2B or B2B2C.

For a better understanding of the M2M phenomenon, typical examples of an M2M value chain are given, involving the main market players such as connectivity service providers, M2M service providers, M2M users and end users. Market players may have several roles.

The draft report also looks at the preconditions needed for M2M services to thrive. Different authorities might help in establishing these. As set out in the draft report, they include ensuring adequate resources for M2M services such as spectrum, numbers,

IP addresses and other identifiers (Section 2), an EU Electronic Communications Framework fit for M2M services (Section 3) and consumer acceptance of M2M services, which is dependent on transparency, privacy, data security, interoperability of services devices and platforms (Sections 3.4 and 4).

Whereas there appears to be no need for the special treatment of M2M services and M2M communications in certain areas of the EU telecoms regulatory framework, there are other areas in which adaptations might be required in order to address M2M-specific needs and to make the regulatory framework fit for purpose.

The draft report, which was presented and discussed at the BEREC Stakeholder Forum in October 2015, was subject to a public consultation, which ran from 5 October to 6 November 2015. In addition to the draft report, several questions were also addressed for consultation to stakeholders including a question on the creation of a European Telephony Numbering Space (ETNS) proposed by the Commission.

The final version of the report was approved in Q1/2016.

**Document:**

BoR (15) 141 – Draft BEREC report on Enabling the Internet of Things

### **2.2.8 Cross-border regulatory cooperation within the scope of Article 28(2) of the Universal Service Directive**

In 2013, BEREC approved its guidance paper on ‘Article 28(2) USD Universal Service Directive – a harmonised BEREC cooperation process’<sup>6</sup>, which outlines a process (to be used by NRAs) for cross-border cooperation between NRAs or other relevant national authorities, in cases of fraud or misuse of numbers. In 2015, there were no cases that required the use of this process.

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[http://berec.europa.eu/eng/document\\_register/subject\\_matter/berec/regulatory\\_best\\_practices/guidelines/1226-article-282-universal-service-directive-a-harmonised-berec-cooperation-process-berec-guidance-paper](http://berec.europa.eu/eng/document_register/subject_matter/berec/regulatory_best_practices/guidelines/1226-article-282-universal-service-directive-a-harmonised-berec-cooperation-process-berec-guidance-paper)

## 2.3 Empowering and protecting end users

### 2.3.1 Feasibility study of QoS Monitoring in the context of net neutrality

Following the 2014 BEREC report on monitoring the quality of internet access services (IAS) in the context of net neutrality, this workstream sets out to identify appropriate regulatory monitoring methodologies as well as to assess the feasibility of quality monitoring systems. The overall conclusion of the study, which was approved by the fourth plenary meeting in 2015, was that it is feasible to develop a regulatory assessment toolkit and corresponding quality-measurement tools, although it would be challenging. The study report is for internal use, but the conclusions of the study provide the basis for the planned work for BEREC in this area as set out in BEREC's 2016 Work Programme.

In line with the 2012 BEREC Guidelines for QoS in the scope of net neutrality, the feasibility study recommended a regulatory assessment toolkit which will encompass both IAS as a whole and individual applications using IAS. The study also emphasised the need to coordinate three vital elements – the legal requirements of the net neutrality rules underpinning the toolkit, the specification of quality monitoring software supporting the regulatory toolkit, and the partnership for collaboration between NRAs working together to further develop best practices.

A follow-up of this activity is foreseen in the 2016 Work Programme under the heading 'Regulatory assessment of QoS in the context of Net Neutrality', which will begin in the second half of 2016.

**Document:**

BoR (15) 207 – Feasibility study of quality monitoring in the context of net neutrality (internal report)

### 2.3.2 ECODEM – ecosystem dynamics and demand-side forces in net neutrality developments from an end-user perspective

In the broad net neutrality debate, the overall goal is the continued operation of the internet as an open environment, enabling innovation and competition among service providers and facilitating choice and freedom to communicate for consumers. The debate about net neutrality regulation is about the necessity for, and the form of, regulation to secure this outcome. The longer term implications of the choices made by consumers, and of the broader societal implications of restrictions to internet access, such as the possible impact on network effects of future applications, are important elements of the debate, which regulators must take into account. Another essential consideration in this regulatory debate is the extent to which consumer behaviour, and the economic incentives and behaviour of internet service providers, can be relied upon to maintain an open, innovative internet.

It was in this context that BEREC initiated this workstream on Ecosystem dynamics and demand-side forces in net neutrality. In 2014, BEREC gathered information and empirical data, mainly through the commissioning of two pieces of external research: a piece of desk research and a consumer research study.

In 2015, BEREC reflected on the information gathered and produced its report entitled 'How do consumers value net neutrality in an evolving Internet marketplace'. The report was intended to provide NRAs with an understanding of market dynamics relating to net neutrality, in particular from the end-user perspective. It was designed both to inform BEREC's general approach to net neutrality and to support the NRAs' future analyses of their national markets, as well as to contribute to the continuing public debate on the complex issue of net neutrality. The consumer research and desk research were published as annexes alongside BEREC's own report, which was approved at the 23rd BoR plenary meeting.

**Document:**

BoR (15) 65 – How do consumers value net neutrality in an evolving Internet marketplace: a report into ecosystem dynamics and demand side forces

### **2.3.3 Traffic management investigation**

Given the ongoing legislative proposals related to net neutrality in the draft TSM Regulation, it was decided not to launch a second joint BEREC–EC traffic-management investigation, but rather for BEREC to prioritise its resources to provide technical expertise to the EU institutions during the negotiations.

### **2.3.4 Review of the scope of universal service**

As the Commission decided to deal with the review of the current Universal Service regime within the overall sectorial legislative review process, the activities planned by BEREC in this area were absorbed by the review-related workstream and carried out under the relevant pillar, as described in section 2.2.4 above.

### **2.3.5 Initiative to facilitate operator switching by non-residential customers**

The 'Initiatives to facilitate operator switching by non-residential customers' internal workshop, dedicated to improving business markets' fluidity, gathered its members for four operational meetings from mid-2014 to mid-2015. This workshop aimed to:

- raise NRAs' awareness to the importance of non-residential markets (high revenues despite low volumes) and non-residential topics. Indeed, business markets consist of a series of premium options split in different areas, which means that they may be forgotten if considered separately, but which represent a considerable number of issues when combined;
- create a network of non-residential experts among BEREC members;
- inspire experts to share their day-to-day work through a relatively free forum.

The workshop also aimed to provide an overview of the main business issues at the European level. Discussions particularly focused on:

- NRAs' organisation towards non-residential topics;

- non-discrimination and replicability, particularly concerning key performance indicator, service level agreement and service level guarantee obligations, as well as replicability tests;
- transparency and contractual aspects, notably through legal and contractual frameworks;
- number portability, access portability and bundled offers issues.

It has been decided at the end of this process to:

- stop the current format and close the workshop;
- make sure that non-residential topics will be included and addressed into all the relevant workshops in the 2016 Work Programme, and contribute to those workshops in 2016;
- continue capitalising on the now existing non-residential experts contact list.

### **2.3.6 Update of the report on equivalent access and choice for disabled end users**

One of BEREC's strategic priorities set out in its 2015 Work Programme was 'Empowering and Protecting End-Users'<sup>7</sup>. Under this principle, BEREC recognises the need to take account of the interests of vulnerable consumers, including those with disabilities.

The Work Programme also provided for specific activities that aimed to share experiences about ways to achieve equivalent access to and choice of electronic communications services for end users with disabilities. These included holding a public workshop that took place in March 2015 and producing an updated report on equivalent access and choice for disabled end users (following the report on this subject that was published in February 2011<sup>8</sup>).

The workshop took place on 4 March 2015 and focused on issues such as the accessibility and usability challenges faced by disabled end users when using electronic communications services, the NRAs' role in improving accessibility for disabled citizens and the industry perspective (service providers and manufacturers) regarding equivalent access and choice<sup>9</sup>.

BEREC also consulted stakeholders on the draft report during a public consultation which ran from 2 to 30 October 2015. Responses to the public consultation were received from the European Disability Forum (EDF), DigitalEurope, the European Emergency Number Association 112 (EENA), the Mobile Manufacturer's Forum (MMF) and Omnitor. The issues raised by the stakeholders ranged from the development and adoption of international standards for accessible communications products and

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<sup>7</sup>BoR (14) 185 Work Programme 2015, 4 December 2014. [http://berec.europa.eu/eng/document\\_register/subject\\_matter/berec/annual\\_work\\_programmes/4779-work-programme-2015-berec-board-of-regulators](http://berec.europa.eu/eng/document_register/subject_matter/berec/annual_work_programmes/4779-work-programme-2015-berec-board-of-regulators).

<sup>8</sup> BoR (10) 47 Revision 1, 'Electronic communications services: Ensuring equivalence in access and choice for disabled end-users', February 2011, [http://berec.europa.eu/doc/berec/bor\\_10\\_47Rev1.pdf](http://berec.europa.eu/doc/berec/bor_10_47Rev1.pdf).

<sup>9</sup>The agenda, video recording and presentations of this workshop are available at [http://berec.europa.eu/eng/events/berec\\_event\\_2015/90-berec-accessibility-workshop](http://berec.europa.eu/eng/events/berec_event_2015/90-berec-accessibility-workshop).



services; the accessibility of means to contact emergency services; support for relay services; accessibility of information about suitable communications products and services; the involvement of disabled end users and their representative organisations in decision-making; and monitoring and reporting on issues related to the accessibility of communications services. The updated report was published on 10 December 2015.

The updated report is structured around a questionnaire that BEREC conducted among NRAs to assess how the issues of access and choice for disabled end users are dealt with across Europe.

The aim of this work is to promote the continued sharing of experiences regarding measures for end users with disabilities, while also considering recent technological and market developments in the sector. Through this process, BEREC expects to get a better understanding of the needs of disabled end users of electronic communications services, assess the current state of provision of electronic communications services with regard to this particular segment of end users and identify useful case studies in different European countries.

The report reviews the legal background to the issue of access and choice of disabled end users of electronic communications services. It then discusses the most important issues for ensuring equivalent access and the ways in which disabled end users can be given an opportunity to choose effectively between service providers. It also considers the policies that may help to promote the goals of equivalent access and choice and provides further details about these issues in case studies based on certain countries.

**Documents:**

BoR (15) 200 – BEREC Report on the outcome of the public consultation on the draft report on equivalent access and choice for disabled end users

BoR (15) 201 – Update of the report on equivalent access and choice for disabled end users

## 2.4 Horizontal and regulatory quality aspects

### 2.4.1 Termination rates Benchmarking

Following up the work started by the ERG, BEREC has been collecting and publicly reporting information on MTRs, whereas data collection about FTRs and SMS termination rates (TRs) started in 2011.

The TR benchmarking exercises have been developed in close cooperation with COCOM, and from 2013 the EC has made use of the BEREC TR data in its annual publications on the telecom industry in Europe (DAS).

In 2015, BEREC twice collected TR data from its members and observers to monitor the evolution of TRs and information on the regulatory mechanism used in their determination.

In particular, in 2015 BEREC published two TR benchmark reports. The report on fixed and mobile TRs in the EU (from January to June 2015) was approved at the 23rd plenary meetings, and the report on TRs at the European level (July–December 2015) was approved at the 25th BoR plenary meeting.

#### **Documents:**

BoR (15) 72 – Fixed and mobile termination rates in the EU – January 2015, June 2015

BoR (15) 211 – Termination rates at European level – July 2015, December 2015

### 2.4.2 Report on indicators on bundles

The Benchmarking (BMK) EWG produced an internal report proposing an improved and updated set of indicators on bundles to better reflect the more complex bundles that are appearing in EU countries, in particular quadruple-play and quintuple-play combinations, which combine both fixed- and mobile-network-based services. Current existing indicators on bundling at the European level lack the disaggregated detail (i.e. composition of services in the pack) that is needed in order to follow the reality of the final markets.

The report presents the growing importance of bundled offers on the electronic communications market, showing evidence of bundle penetration and bundle diversity across EU countries.

The document proposes to review the definition of bundles in order to have comparable data and also to enable the inclusion of other offers that may be considered bundles (and have a high importance in some countries), but which were excluded from the previous and narrower definition.

The EC bundle definition that came into force in 2015 addressed the vast majority of bundles, but not all EU countries follow the EC definition. Some NRAs have additional elements which makes their definition more or less strict than the current EC definition. The pros and cons of the proposed deviations from the current EC definition are further examined in the report.

BEREC recommends a new definition of bundle and, based on the advantages of each alternative set of indicators, proposes a new set of indicators to be collected in the context of the Digital Agenda.

**Document:**

BoR (15) 77 – BEREC document on Indicators on Bundles

### 2.4.3 Regulatory Accounting in Practice Report

The 2015 Regulatory Accounting in Practice Report is the 11th annual report in a series summarising the findings of a detailed survey of regulatory accounting frameworks across Europe. The information has been gathered from NRAs and covers the implementation of regulatory cost-accounting methodologies, which include allocation as well as annualisation methodologies, systems and processes.

These regulatory accounting frameworks provide NRAs with financial information, which is essential to facilitate some of their significant regulatory decisions such as setting price controls, monitoring compliance with *ex ante* obligations (such as cost orientation of charges and non-discrimination) and informing market reviews.

The report provides an up-to-date factual report on the regulatory accounting frameworks implemented by NRAs and an assessment of the level of consistency achieved. The report sets out an overview of the regulatory accounting frameworks updated to April 2015, while also illustrating, where possible, trends and comparisons with data collected each year, starting from 2006.

The report develops a deeper analysis that concentrates on the Wholesale Line Rental (WLR) service 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, the report also analyses the cost base and allocation methodologies used for fixed (Market 1/2014) and mobile (Market 2/2014) termination markets<sup>10</sup>. For those markets, it contains a comparison of the most 'popular' combinations of cost-base and cost-allocation methodologies.

Furthermore, as in last year's report, to emphasise factors influencing NRAs' regulatory strategies, additional structural data (e.g. population, market structure, infrastructure) have been collected from NRAs. Not surprisingly, considerable differences in the market/competitive situation as well as infrastructure in terms of place and topography, geology and geographies can be observed between (and within) the responding countries, reflecting different external and technical requirements which NRAs need to take into account. In addition, the motivations of NRAs in choosing a particular costing methodology were collected.

The report also looks at annualisation methodologies provided by respondent NRAs. As in last year's report, accounting information for some products in Market 3a/2014,

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<sup>10</sup> The report takes into account the new version of the Recommendation on relevant markets susceptible to *ex ante* regulation as adopted by the Commission on 9 October 2014 (2014/710/EU).

such as copper access (including LLU, SA, SLU), fibre access (LLU, VULA), dark fibre access and duct access, have been analysed.

As of last year, the report includes a section on actual implementation of the Termination Rates Recommendation No 2009/396 of 7 May 2009.

Moreover, this year, the report includes a further analysis of the implementation of Recommendation 2013/466/EU on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment of 11 September 2013 with regard to costing methodologies and price level.

This year's report provides some elements about the weighted average cost of capital (WACC) parameters used in different markets and the modification occurred with respect to the previous survey done in 2013.

The Regulatory Accounting in Practice Report 2015 was adopted at the third 2015 plenary meeting (1 October 2015) in Riga.

**Document:**

BoR (15) 143 – BEREC Report Regulatory Accounting in Practice 2015

#### **2.4.4 E-commerce and cross-border parcels delivery**

In 2015, BEREC and ERGP set up a joint working group in order to provide an opinion to the EC on price transparency and regulatory oversight of cross-border parcels delivery, taking into account possible regulatory insights from the electronic communications sector. To this end, the Joint BEREC–ERGP opinion, published on 3 December, addressed the potential problems facing the sector and potential measures that could be considered to enhance business and consumer benefits, particularly in view of experience from the telecoms sector.

The proper functioning of the e-commerce sector is instrumental for European economic growth, in particular considering its potential to decrease retail prices, widen consumer choices, reduce transaction costs and, hence, contribute towards the deepening of the internal market. In this respect, an affordable and reliable parcel delivery service is considered extremely important for realising the huge potential of e-commerce.

However, some empirical evidence suggests that a number of relevant barriers related to public policy aspects as well as to the commercial conduct of companies may be hindering the adequate functioning of this sector.

In this context, the joint BEREC–ERGP working group had the following tasks:

- a) to identify the powers that NRAs must have to monitor and intervene regarding price transparency and promote regulatory oversight on cross-border parcels delivery;
- b) to outline specific measures/policy options to be created by the EC to tackle the problems in this market concerning price transparency for European deliveries, including prices of small shipments.

In addition, on 30 September, a joint BEREC–ERGP workshop was held in Riga, at which a number of issues were discussed, including the main problems affecting cross-border parcels delivery, similarities/differences between the two sectors, the proportionality of monitoring the market (e.g. prices), the EC legal framework, potential measures that could be taken and the powers of NRAs to monitor and intervene. The outcomes of the workshop are one of the inputs to the opinion.

As for potential measures to improve the functioning of the sector, the Joint BEREC–ERGP opinion compares similarities and differences between international roaming and cross-border parcels delivery and takes into consideration measures related to the monitoring of cross-border parcels delivery, price transparency and other regulatory interventions, if problems are identified and evidenced.

The comparison of cross-border parcels delivery and international roaming has shown that some similarities exist; however, there are also relevant discrepancies between the two problem areas. In any case, it seems clear that should any competition issues become evident in the parcels sector, including cross-border parcels, NRAs need the appropriate regulatory powers to intervene and such powers do not seem to be present in all Member States.

Price transparency is considered particularly important and the joint BEREC–ERGP opinion discusses measures to increase consumer and supplier information and awareness, such as information platforms for (small) e-retailers on the available delivery services, price comparison websites, enhanced ‘track and trace’ systems and scoreboards on delivery performance.

With regard to regulatory oversight and monitoring, the joint BEREC–ERGP opinion discusses the potential to develop principles or guidelines to improve monitoring in the sector, the powers of NRAs to collect relevant data, the development of ‘quality of service’ indicators and reinforcing cooperation among the NRAs, the EC and other relevant stakeholders.

Finally, the joint BEREC–ERGP opinion considers that incentives could be provided to the e-sellers and other entities in order to reduce shipping costs, such as access of small e-sellers to bulk shipments by cooperating with a local postal operator or a postal operator active in another country and the application of efficient cost-orientated terminal dues for shipments collected and delivered within the EU Member States.

**Document:**

BoR (15) 214 – Joint BEREC-ERGP Opinion on price transparency and regulatory oversight of cross-border parcels delivery, taking into account possible regulatory insights from the electronic communications sector

#### **2.4.5 Information-sharing portal**

In the third plenary meeting of 2014, the BoR discussed the proposal for creating the information-sharing (IS)-Portal among NRAs and other institutions and approved it for internal use. The aim of the IS-Portal is to have a living catalogue of relevant documents and news made available by NRAs and BEREC on the internet. The

feeding of documents and decisions shall be performed by each participating institution and each shall be responsible for what it makes available in the common portal.

The BEREC Office produced a report to help to decide on the next steps in the implementation of the portal and on the approval of Phase III (implementation) by the plenary meeting and BoR.

The 'Report on Information Sharing-Portal: Implementation Scenarios' was approved by the BoR at the second plenary meeting in 2015 and it was decided to implement the IS-Portal based on Scenario 1 – an IS-Portal that uploads links to the websites of the NRAs.

Afterwards, a 'call for interest' for this project was launched and the successful tender of the procurement started working with the BEREC Office to implement the IS-Portal.

The implementation phase lasted around four months and the portal was live in the fourth quarter of 2015. This phase included the implementation of the portal and all necessary processes for the portal to go live, including the training of the end users. After that point, the BEREC Office will be able to manage the IS-Portal for the NRAs to upload their documents.

By the end of the 2015, the project entered Phase IV, with the IS-Portal live, during which time the NRAs were invited to test the application and to send comments and suggestions.

BEREC plans to start the operation of the IS-Portal in June 2016.

**Documents:**

BoR (15) 36 – Update on the Information Sharing Portal (internal document)

BoR (15) 75 Rev. 1 – Report on Information Sharing-Portal: Implementation Scenarios (internal report)

### **3. Interaction with European Union institutions/stakeholders and international cooperation**

#### **3.1 Engagement with European Union institutions**

BEREC gave particular attention to its cooperation with EU institutions. First, BEREC placed an emphasis on cooperation with the EC. Two what-if meetings were organised by BEREC and the EC to discuss several issues within the context of the review of the regulatory framework, namely connectivity/access services'/consumers' rights, including universal service, and governance of electronic communications in the EU. Cooperation was also envisaged at different levels and in different formats, including providing data to the EC on roaming (in view of implementing the new provisions stemming from the TSM Regulation; see section 2.2.5.d for more details) and on termination rates (to assess the implementation of the Termination Rates Recommendation), or providing the BEREC perspective in view of the study 'Investigation into interoperability standards for the promotion of the internal market for electronic communications', contracted by the Commission.

Second, in the first half of 2015, BEREC gave professional advice to the EU Council Presidency regarding the TSM Regulation (net neutrality and roaming) through informal meetings.

Third, there were a number of contacts with the European Parliament, including a visit by European Parliament members to the BEREC Office. The purpose of the meeting, besides introducing BEREC and the BEREC Office to the Parliament members, was to discuss the issues arising from the TSM proposal (in particular net neutrality, roaming and spectrum), as well as upcoming telecoms challenges, in light of the Framework Review next year.

Finally, BEREC took the initiative to meet with representatives of other groups and European agencies in relation to the preparation of BEREC's opinion to the EC on the review, namely with the European Securities and Markets Authority (ESMA), Radio Spectrum Policy Group (RSPG), European Union Agency for Network and Information Security (ENISA), European Banking Authority (EBA), European Regulators Group for Audiovisual Media Services (ERGA) and Article 29 WP.

A list of the meetings with EU institutions and other EU bodies is available in **Annex 1**.

#### **3.2 Interaction with stakeholders**

The BEREC Regulation requires BEREC to carry out its activities with a high level of transparency. In addition, before adopting key documents, BEREC has to consult all interested parties and give them the opportunity to comment within a reasonable period.

Therefore, to increase the transparency of its work and to take into account as far as possible the views of the stakeholders, in addition to written public consultations on key documents, BEREC organised its 3rd Stakeholder Forum on 15 October 2015 in Brussels.

The meeting was attended by high-level representatives of more than 60 stakeholder associations and companies active in BEREC's fields of competence at European level, NRAs for electronic communications networks and services established in the EU Member States, European Free Trade Association states and candidate states for accession to the EU, and the EC. Commissioner Oettinger provided the keynote address and the total number of participants was approximately 180.

The meeting focused on three main topics: the BEREC Work Programme 2016, Enabling the Internet of Things, and the future opportunities and challenges for Europe in the digital ecosystem. The meeting served as a platform for presenting BEREC's draft documents on the Work Programme 2016 and Enabling the Internet of Things as well as for exchanging views on the future of the electronic communications sector and the role of regulation for enhancing competition, investment and consumer choice.

The 3rd BEREC Stakeholder Forum was web-streamed and was watched by 506 viewers. Full details of the Forum, including the presentations, relevant documents and recorded videos are available on BEREC's website

[http://www.berec.europa.eu/eng/events/berec\\_event\\_2015/94-3rd-berec-stakeholder-forum-meeting](http://www.berec.europa.eu/eng/events/berec_event_2015/94-3rd-berec-stakeholder-forum-meeting)).

On a different scale, BEREC also organised several public workshops throughout the year (see section 4.4). Finally, after each BoR plenary meeting, BEREC holds a public debriefing in Brussels to present, mainly to stakeholders but also to the press and the public in general, the main outcomes of the meeting.

A list of last year's public events, which foster interaction with stakeholders, is available in **Annex 2**.

### **3.3 International cooperation**

Despite its main focus on the European market, it has become increasingly necessary for BEREC, within the limits of its mandate, to engage in dialogue with NRAs based outside the EU and with international regulatory networks, policymakers and institutions involved in the electronic communications sector. This was a natural development given the increasing volume of electronic communications flowing in and out of the EU and the global nature of most developments, which demand policies, legislation and regulations to be seen from a more global perspective. Furthermore, BEREC needs to follow closely the global trends in technology and changing business models, so that it retains the capacity to address challenges swiftly and effectively as they arise. Moreover, regions outside the EU and non-EU regulators networks have been expressing great interest in the European regulatory approach. This could lead to an approximation between regulatory framework policies and ultimately promote competition, investment and improved social well-being at a global scale.

Accordingly, in 2015, BEREC continued to pursue and develop contacts with international regulatory authorities (such as the FCC) and with regional regulatory networks (such as EaPeReg, EMERG and Regulatel), following the Memorandum of Understanding (MoU) signed with each of these entities. Several forms of cooperation with other international institutions involved in communications (such as the



International Telecommunication Union (ITU)) were also envisaged. BEREC maintained close contact with the EC in light of possible new cooperation projects, expressing its availability to discuss with the EC its participation in the EU delegation for international conferences, as technical experts or to engage in dialogues with third countries. Finally, BEREC also found a valued feature of this international dimension to be the initiative to establish annual international missions, in order to keep up with the last developments of specific case studies (at the country, industry or regional level), internationally recognised as so. In this context, in 2015, China was the target of a BEREC international mission, in consideration of contacts with both governmental and industry players.

a. BEREC–EaPeReg

Since the official establishment of the EaPeReg Network<sup>11</sup>, BEREC members have taken an active part in Network activities and, in 2014, both sides signed a MoU for cooperation. Its goal is to encourage a cooperative relationship that supports the efforts to address regulatory challenges in both Eastern Partnership countries and Europe, as well as to develop working relationships between experts from both parties.

In 2015, a BEREC delegation took part in the EaPeReg plenary meeting in April, where both sides discussed the possible involvement of the EaPeReg NRAs in BEREC activities and the possibility for assistance to be provided by BEREC to these NRAs. The meeting was preceded by a workshop on tariff setting and regulation, also attended by BEREC representatives. BEREC has also participated in the meeting between EU Telecom ministers and representatives of the EaPeReg countries, to discuss the cooperation in the field of electronic communications (11-12 June 2015, Luxembourg). On 18-19 November, BEREC participated in an EaPeReg event, 'Harmonisation of Digital Markets', in Brussels.

b. BEREC–EMERG

Given the successful cooperative relationship initiated in 2012, and recognising the opportunity to enhance the effectiveness of joint actions, BEREC and the Euro-Mediterranean Regulators Group (EMERG) signed a MoU in 2014. According to the MoU, cooperative activities may include, but are not limited to, annual summits, joint working groups and workshops and information/knowledge exchange.

During 2015, cooperation with EMERG was specifically developed within the joint workshop on 'NRA's decision making process, accountability and transparency', which took place in Brussels on 16-17 December.

c. BEREC–Regutel

The cooperation between BEREC and the Latin America Telecommunications Regulators Forum (Regutel) has been organised and supported since 2001. Throughout these years, several activities have been successfully developed, mainly, the annual BEREC–Regutel summit. The cooperation with Regutel was strengthened by the signing of a MoU (in November 2013) establishing a more

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<sup>11</sup> Representing Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine.

concrete and focused relationship between BEREC and Regulatel, aiming at a win-win situation for these two regulators' groups through the establishment of joint working groups, an annual summit and constant information/knowledge exchange.

Accordingly, during 2015, BEREC actively participated in three joint working groups, in April, on Economic Competition, Benchmarking and End-Users, in addition to sharing information.

d. BEREC–EMERG–EaPeReg–Regulatel summit on challenges for telecoms in the new Internet ecosystem (2-3 July 2015, Barcelona)

In recognition of the value of bringing all parties together at the same time, a joint four-sided summit between BEREC–EMERG–EaPeReg–Regulatel to discuss challenges for telecoms in the new internet ecosystem took place on 2 and 3 July 2015 in Barcelona, Spain. This was first time that all four organisations had gathered at an event. At the end of the summit, the participants adopted a joint declaration, agreeing on the added value of maintaining this cooperative regulatory dialogue between Europe and other regions of the world – namely Latin America, North Africa and the Middle East, as well as Eastern Europe – to explore ways to promote future joint working groups, as well as to have such a similar summit in the future. Representatives from the EC and from the BEREC Office were also present.

e. BEREC–FCC

The relationship with the FCC goes back to 2012, when the MoU with BEREC was signed. Its goal is to encourage a cooperative relationship that supports the efforts to address current and future regulatory challenges in both the USA and Europe, as well as to develop working relationships between experts from both parties.

During 2015, further initiatives took place, namely a meeting in the context of the GSM Association (GSMA) Mobile World Congress in Barcelona (March); a videoconference on net neutrality (June); face-to-face meetings in Washington, DC (October) to discuss the state of both European and US telecom markets as well as specific subjects (net neutrality, spectrum policy, review of the European legal framework) and the future areas for cooperation between BEREC and the FCC. Finally, on 9 December, a joint BEREC-FCC workshop on net neutrality took place in London, which was attended by the FCC Chair.

f. Mission to China

As has been the practice in recent years, BEREC organised an international mission to China in order to gain insight into the sector's developments worldwide. The BEREC delegation met representatives of the HK Telecom Regulator Office of the Communications Authority (OFCA), Internet Society of China, Baidu, China Academy of Telecommunications Research, Internet of Things Industry Alliance, Ericsson China, Swissnex China, Huawei Technologies Co. Ltd., Dajiang Innovations Technology DJI, PCCW, Hutchison Whampoa Limited (HWL) and the Bureau of Telecommunications Regulations, as well as the Macao Telecom Regulator.

A report on the mission was adopted and published on the BEREC website.

g. International Telecommunication Union (ITU)

Considering that it is increasingly necessary for BEREC to engage, within the limits of its mandate, in dialogue with other NRAs outside the EU, as well as with international regulators networks, policymakers and institutions, BEREC has developed closer cooperation with the ITU, especially in 2015.

The growing interest in roaming issues has led to cooperation at the level of the ITU-T Study Group 3 (Economic and Policy Group), and BEREC participated at this Group's meeting in March. BEREC also participated at the ITU workshops 'Let's Roam the World: The ITU Global Strategic Dialogue on International Mobile Roaming' and 'Performance, Quality of Service and Quality of Experience of Emerging Networks and Services', both in September.

On a higher level, BEREC has been an active participant at the ITU Global Symposium for Regulators, as well as at the preceding Regulators Associations Meeting. At these two events, BEREC shares its opinions on the major regulatory ongoing issues. The BEREC Chair also participated at the ITU Leadership Forum. At this level, given its unique role in spectrum coordination and management, the ITU attended a BEREC plenary meeting in 2015, to present the main spectrum discussions held at the World Radiocommunications Conference 2015, given their possible impact on the new framework for the electronic communications sector.

A list of the international events in which BEREC participated is available in **Annex 3**.

## 4. Organisational issues

### 4.1 BEREC Chair and Vice-Chairs

#### a. 2015 BEREC Chair and Vice-Chairs

The BoR appoints its Chair and Vice-Chairs from among its members. Pursuant to Article 4(4) of the BEREC Regulation, the term of office of the Chair and of the Vice-Chairs is one year. In compliance with the provision of Article 2(1) of the Rules of Procedure of the BoR, before serving her/his term as Chair for one year, the Chair firstly has to serve as a Vice-Chair for one year. To ensure the continuity of BEREC's work, the Chair also has to serve as a Vice-Chair for the year following her/his term as Chair.

In addition to the support provided to the Chair by the two Vice-Chairs (the outgoing and incoming Chairs), the BoR may decide to elect other members as additional Vice-Chairs for one year.

Therefore, in accordance with the Rules of Procedure, during its last ordinary plenary meeting for 2014, the BoR decided to elect three additional Vice-Chairs for 2015. Following the elections, in 2015, the BoR was led by the following Chair and Vice-Chairs:

#### **BEREC Chair for 2015:**

Fátima Barros, President of the Board of the Portuguese Autoridade Nacional de Comunicações (ANACOM), elected Chair 2015 at the 17th BoR meeting (5-6 December 2013, Budapest).

#### **BEREC Vice-Chairs for 2015:**

- Wilhelm Eschweiler, Vice-President of BNetzA (Germany), elected BEREC Chair for 2016, and Vice-Chair in 2015;
- Göran Marby, Director-General of PTS (Sweden), BEREC Chair in 2014 and Vice-Chair in 2015;
- Kevin O'Brien, Chairperson of ComReg (Ireland);
- Lidia Kozłowska, Vice-President of UKE (Poland).

The BEREC Chair met several times with the Vice-Chairs throughout the year, notably to prepare the plenary meetings of the BoR. The BEREC Chair had also two meetings in 2015 with all the EWG co-Chairs. A list of last year's meetings is available in **Annex 4**.

In 2015, BEREC implemented for the first time the new provision of its Rules of Procedure, pursuant to which each BEREC Vice-Chair shall provide support to and follow the work of a cluster of EWGs.

#### b. Election of BEREC Chair 2017 and Vice-Chairs 2016

Every year the BoR appoints the Chair for the subsequent year and the Vice-Chairs for the following year.

Therefore, during its 25th plenary meeting (10 December 2015, London), in compliance with the procedure described above, the BoR elected Sébastien Soriano, President of ARCEP (France), BEREC Chair for 2017 and Angelo Marcello Cardani,

President of AGCOM (Italy), and Henk Don, Member of the Board of ACM (The Netherlands), BEREC Vice-Chairs for 2016.

Pursuant to the BoR Rules of Procedure, the elected Chair 2017 (as above) and the Outgoing Chair 2015 (Fátima Barros), must serve as Vice-Chairs in 2016 to support Wilhelm Eschweiler, Vice-President of BNetzA (Germany), who was elected Chair for 2016 at the 21st plenary meeting (4-5 December 2014, Brussels).

## **4.2 BEREC working structure**

After completing a reform of its EWGs' structure in 2014, with a view to streamline their operation and enhance their effectiveness, at the beginning of 2015 BEREC finalised, adopted and implemented internal guidelines on the functioning of EWGs, namely on their establishment, the appointment of co-Chairs (standardised to two per group), the members' duties and the relevant working patterns.

After standardising the number of co-Chairs, in February 2015, BEREC proceeded to appoint the missing EWGs' co-Chairs based on a comparative evaluation of candidates, on the background of the criteria defined in the mentioned internal arrangements.

The structure used to support BEREC's work during 2015 is presented in **Annex 5** and the list of Members and Observers of the BoR is presented in **Annex 6**.

BEREC also reviewed its style guide, so as to improve time management during meetings, particularly during Contact Networks and plenaries (in which BEREC suffers from time constraints). The idea behind this improvement was to make presentations and documents shorter and more accurate, avoiding the unnecessary repetition of ideas.

Also in this context, BEREC revised its communication plan (internal document), which was approved at the 23rd plenary meeting, along with a High-Level Statement on the BEREC communication plan (publicly available).

## **4.3 BEREC main meetings**

BEREC's BoR met ordinarily four times in 2015. The plenary meetings were preceded, 3 weeks before, by a meeting of the BEREC Contact Network, the intermediate structure that gathers representatives from all Members and Observers to prepare the plenaries.

The lists of these meetings in 2015 are available in **Annexes 7 and 8**.

## **4.4 Workshops**

During 2015, BEREC hosted a total of nine workshops, six of which took place on the day preceding the plenary meetings.

On 25 February 2015, preceding the 22nd plenary meeting in Bern, BEREC held a public workshop on oligopoly and regulation.

Similarly, on 4 March 2015, BEREC organised a public workshop to discuss the accessibility of electronic communications services for end users with disabilities.

On 3 June 2015, prior to the 23rd plenary meeting, BEREC held a workshop on the future of the Electronic Communications Sector (ECS) in Europe and the review of the ECS framework. It is worth noting that, following this workshop, groups of NRA Heads were organised, notably in the second half of 2015, in order to deepen the discussion of the review.

On 22–23 June 2015, in Brussels, BEREC held an internal workshop on initiatives to facilitate operator switching for non-residential consumers.

Before its 24th plenary meeting, BEREC held two workshops on 30 September, one (organised in cooperation with ERGP) to discuss price transparency and regulatory and regulatory oversight regarding cross-border parcels delivery and the other to address migration to all-IP networks.

On 28 October 2015, in Brussels, BEREC organised a workshop on the implementation of the recommendations on relevant markets and the BEREC CP on geographical segmentation.

On 9 December 2015, on the eve of the 25th plenary meeting, which was the last meeting for 2015, BEREC held two more workshops, the first dedicated to the preparation of the BEREC opinion on the EC's request to review the regulatory framework and the second, organised in cooperation with the FCC and involving the participation of Commissioner Tom Wheeler, to discuss net neutrality.

The lists of the BEREC public and internal workshops in 2015 are available in **Annex 2**, and **Annex 9**. The joint BEREC-ERGP workshop is referred to in **Annex 1.D**. and the joint BEREC-FCC workshop is indicated in **Annex 3**.

#### **4.5 Participation in other events and meetings**

The BEREC Chair gave a number of presentations and speeches at several events and participated in various other meetings during 2015, as outlined in the table in **Annex 10** of the report.

**Annex****Annex 1 Meetings with European Institutions and other European Union bodies****A. Meeting with the European Commission**

Dates/Place	Event
22 January 2015, Brussels (Belgium)	Meeting between the BEREC Chair and the Deputy Director-General of DG CONNECT, Roberto Viola
23 February 2015, via video conference	Meeting between the BEREC Chair and the Deputy Director General of DG CONNECT, Roberto Viola
24 March 2015, Brussels (Belgium)	What-If meeting with the Commission on connectivity/access
8 May 2015, Brussels (Belgium)	What-if meeting with the Commission on services and consumer rights, including universal service (US), and on governance of electronic communications in EU
1 June 2015, via video conference	Meeting between the BEREC Chair and the Deputy Director General of DG CONNECT, Roberto Viola
15 June 2015, Brussels (Belgium)	Meeting between the BEREC Chair, the ERGP Chair and the Commission Vice-President Andrus Ansip

25 September 2015, via videoconference	Meeting between the BEREC Chair and the Director General of DG CONNECT, Roberto Viola
7 December 2015, via video conference	Meeting between the BEREC Chair and the Director General of DG CONNECT, Roberto Viola

### **B. Meetings with the European Parliament**

Dates/Place	Event
7-8 April 2015, Riga (Latvia)	Meeting between the BEREC Chair, the BEREC Office and an ITRE delegation

### **C. Meetings with the Council of the EU**

Dates/Place	Event
2 February 2015, Brussels (Belgium)	Meeting with the Latvian Presidency of the Council of the EU

### **D. Meetings and workshops with other EU bodies**

Dates/Place	Event
9 April 2015, Lisbon (Portugal)	Meeting between BEREC and the Radio Spectrum Policy Group



Dates/Place	Event
4 June 2015, Athens (Greece)	Participation in the meeting of the Permanent Stakeholder Group of the European Union Agency for Network and Information Security (ENISA)
7 September 2015, Athens (Greece)	Participation in the meeting of the ENISA Permanent Stakeholder Group
30 September 2015, Riga (Latvia)	Joint Workshop with the European Regulators Group for Postal Services ( <i>ERGP</i> ) on price transparency and regulatory oversight of cross border parcels delivery, taking into account possible regulatory insights from the electronic communications sector
8 October 2015, Dublin (Ireland)	Meeting between BEREC and the European Securities and Markets Authority
16 October 2015, Brussels (Belgium)	Meeting between BEREC and the European Banking Authority
16 October 2015, Brussels (Belgium)	Meeting between BEREC and the Radio Spectrum Policy Group
6 November 2015, Brussels (Belgium)	Meeting between BEREC and the European Regulators Group for Audio-visual Media Services
6 November 2015, Dublin (Ireland)	Meeting between BEREC and ENISA
6 November 2015, Brussels (Belgium)	Meeting between BEREC and the Article 29 [Data Protection] Working Party

Dates/Place	Event
9 November 2015, Brussels (Belgium)	Participation in the ENISA High Level Event 2015

**Annex 2      Public debriefings and BEREC engagement with stakeholders**

Dates/place	Event
25 February 2015, Berne (Switzerland)	Public BEREC Workshop on Oligopoly Analysis and Regulation
4 March 2015, Brussels (Belgium)	Public BEREC Accessibility Workshop
4 March 2015, Brussels (Belgium)	Public debriefing from the 22nd BEREC plenary meeting
19 June 2015, Brussels (Belgium)	Public debriefing from the 23rd BEREC Plenary meeting
8 October 2015, Brussels (Belgium)	Public debriefing from the 24th BEREC plenary meeting
15 October 2015, Brussels (Belgium)	3rd BEREC Stakeholder Forum Meeting
15 December 2015, Brussels (Belgium)	Stakeholder dialogue meeting on the BEREC Net Neutrality Guidelines
16 December 2015, Brussels (Belgium)	Public debriefing from the 25th BEREC plenary

**Annex 3 International events**

Dates/Place	Event
18 March 2015, Brussels (Belgium)	Meeting between the BEREC Chair and Candice Molnar, Commissioner at the Canadian Radio-television and Telecommunications Commission (CTRC)
18 March 2015, Brussels (Belgium)	Meeting between the BEREC Chair and Dr Kijoo Lee, Commissioner, Korea Communications Commission (KCC), Republic of Korea
13-15 April 2015, Cartagena de Indias, (Colombia)	Meetings of the BEREC-Regulatel Working Groups on Economic Competition, Benchmarking and End-Users
20-25 April, 2015, Beijing, Shen (China)	BEREC mission to China
24 April 2015, Minsk, (Belorussia)	Participation in the EaPeReg Plenary Meeting
11-12 June 2015, Luxembourg (Luxembourg)	Participation in the meeting between EU Telecom ministers and representatives of the EaPeReg countries on the cooperation in the field of electronic communications
2-3 July 2015, Barcelona (Spain)	BEREC-EMERG-Regulatel-EaPeReg Summit 2015
6 October 2015, Washington (USA)	Meeting between the BEREC Chair and US FCC Commissioner Ajit Pai

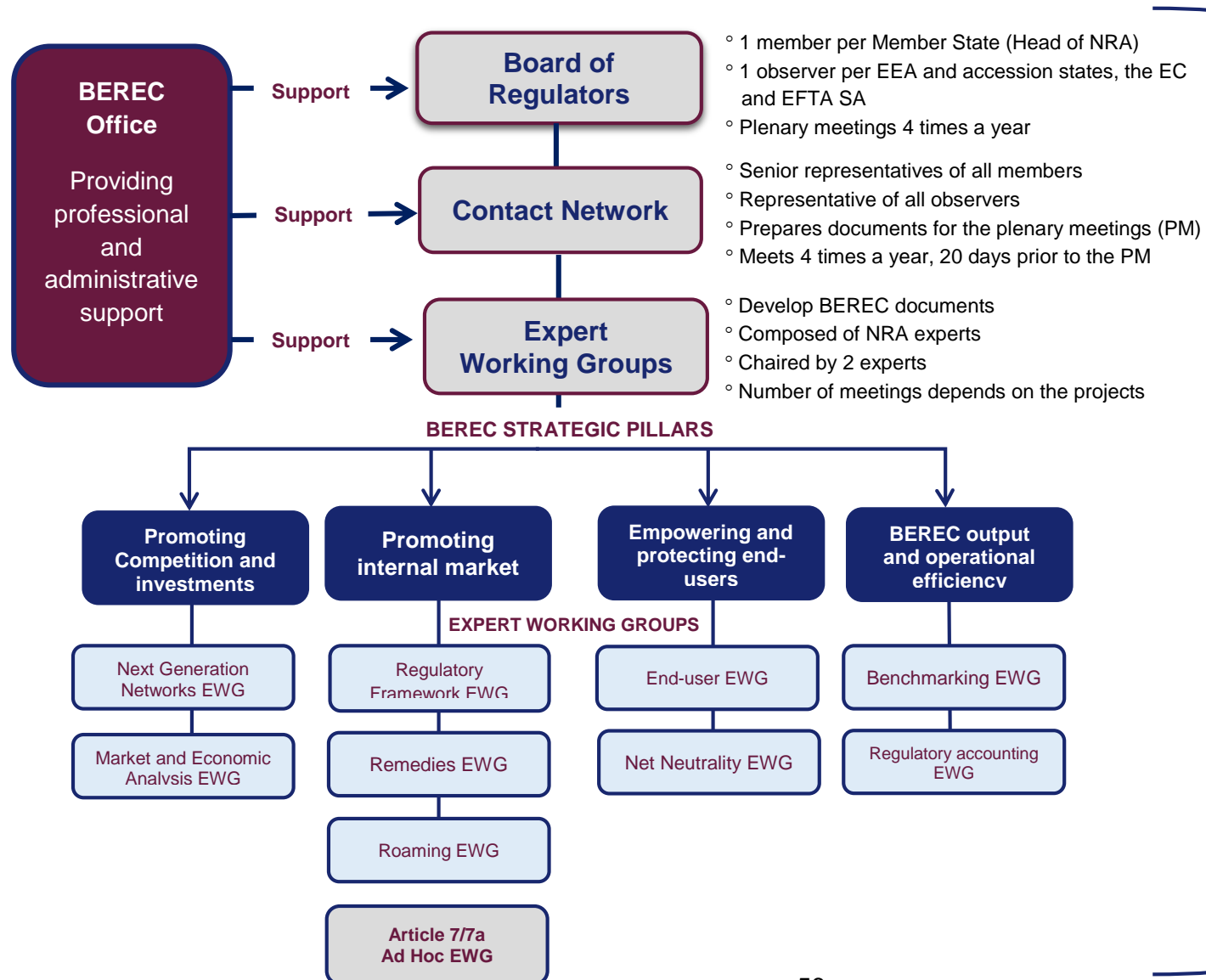
Dates/Place	Event
18-19 November 2015, Brussels (Belgium)	Participation in the 1st Eastern Partnership Panel on Harmonisation of Digital Markets (1st HDM Panel)
9 December 2015, London (UK)	Joint BEREC - US FCC Workshop on net neutrality
16-17 December 2015 Brussels (Belgium)	BEREC-EMERG joint workshop on NRAs' regulatory decisions

**Annex 4 Meetings between the BEREC Chair, Vice-Chairs and Chairs of BEREC Expert Working Groups (EWGs)**

Dates/Place	Event
20 January 2015, Lisbon (Portugal)	Meeting between the BEREC Chair and Vice-Chairs
22 January 2015, Brussels (Belgium)	Meeting between the BEREC Chair and the EWG Co-Chairs
18 February 2015, via video conference	Meeting between the BEREC Chair and Vice-Chairs
25 February 2015, Berne (Switzerland)	Meeting between the BEREC Chair and Vice-Chairs
25 March 2015, via video conference	Meeting between the BEREC Chair and Vice-Chairs
22 April 2015, China	Meeting between the BEREC Chair and Vice-Chairs
29 May 2015, via video conference	Meeting between the BEREC Chair and Vice-Chairs
3 June 2015, Bergen (Norway)	Meeting between the BEREC Chair and Vice-Chairs
10 July 2015, via video conference	Meeting between the BEREC Chair and Vice-Chairs

Dates/Place	Event
3 September 2015, Brussels (Belgium)	Meeting between the BEREC Chair and the EWG Co-Chairs
17-18 September 2015, Lisbon (Portugal)	Meeting between the BEREC Chair and Vice-Chairs
14 October 2015, Brussels (Belgium)	Meeting between the BEREC Chair and Vice-Chairs
26 October 2015, London (UK)	Meeting of the BEREC Chair and Vice-Chairs
26 November 2015, via video conference	Meeting between the BEREC Chair and Vice-Chairs
9 December 2015, London, UK	Meeting between the BEREC Chair and Vice-Chairs

## Annex 5 BEREC's organisational structure



### ADVICE TO

- European Commission
- European Parliament
- Council of the EU

### OUTCOMES

- Strategies
- Work Programmes
- Reports/Snapshots
- Opinions
- Advices
- Common positions/ approaches
- Regulatory best practices
  - Guidelines
  - Common positions/approaches
  - Methodologies
- Decisions
- Workshops

### INTERACTION WITH THE PUBLIC

- Public consultations
- Public hearings
- Stakeholder's forum
- Public debriefings



**Annex 6 BERECE Members and Observers of the Board of Regulators**

<b>Nr</b>	<b>Country (if applicable)</b>	<b>Name(s)</b>	<b>Surname(s)</b>	<b>Name of Organisation</b>	<b>Member or Observer</b>
1.	Albania	Piro	<b>Xhixho</b>	Electronic and Postal Communications Authority of Albania, AKEP	Observer
2.	Austria	Johannes	<b>Gungl</b>	Austrian Regulatory Authority for Broadcasting and Telecommunications, RTR- GmbH	Member
3.	Belgium	Jack	<b>Hamande</b>	Institut Belge des Postes et Télécommunications, IBPT / BIPT	Member
4.	Bulgaria	Veselin	<b>Bozhkov</b>	Communications Regulation Commission, CRC	Member
5.	Croatia	Dražen	<b>Lučić</b>	Croatian Regulatory Authority for Network Industries, HAKOM	Member
6.	Cyprus	George	<b>Michaelides</b>	Office of the Commissioner of Telecommunications and Postal Regulation, OCECPR	Member
7.	Czech Republic	Jaromír	<b>Novák</b>	Czech Telecommunication Office, CTU	Member
8.	Denmark	Betina	<b>Hagerup</b>	Danish Business Authority, DBA	Member
9.	Estonia	Raigo	<b>Uukkivi</b>	Estonian Technical Regulatory Authority, ETRA	Member
10.	Finland	Asta	<b>Sihvonen- Punkka</b>	Finnish Communications Regulatory Authority, FICORA	Member
11.	the former Yugoslav Republic of Macedonia	Vladimir	<b>Ristevski</b>	Agency for Electronic Communications, AEC	Observer
12.	France	Sébastien	<b>Soriano</b>	Autorité de Régulation des Communications électroniques et des Postes, ARCEP	Member

Nr	Country (if applicable)	Name(s)	Surname(s)	Name of Organisation	Member or Observer
13.	Germany	Wilhelm	<b>Eschweiler</b>	Federal Network Agency, BNetzA	Member
14.	Greece	Nikolaos	<b>Papaoulakis</b>	Hellenic Telecommunications and Post Commission, EETT	Member
15.	Hungary	Monika	<b>Karas</b>	National Media and Infocommunications Authority, NMHH	Member
16.	Iceland	Hrafnkell	<b>Gislason</b>	Post and Telecom Administration, PTA	Observer
17.	Ireland	Kevin	<b>O'Brien</b>	Commission for Communications Regulation, COMREG	Member
18.	Italy	Angelo Marcello	<b>Cardani</b>	Autorità per le Garanzie nelle Comunicazioni, AGCOM	Member
19.	Latvia	Valdis	<b>Lokenbahs</b>	Public Utilities Commission, SPRK	Member
20.	Liechtenstein	Kurt	<b>Bühler</b>	Office for Communications / Amt für Kommunikation, AK	Observer
21.	Lithuania	Feliksas	<b>Dobrovolskis</b>	Communications Regulatory Authority, RRT	Member
22.	Luxembourg	Luc	<b>Tapella</b>	Institut Luxembourgeois de Régulation, ILR	Member
23.	Malta	Edward	<b>Woods</b>	Malta Communications Authority, MCA	Member
24.	Montenegro	Zoran	<b>Sekulić</b>	Montenegro Agency for Electronic Communications and Postal Services, EKIP	Observer
25.	Norway	Torstein	<b>Olsen</b>	Norwegian Communications Authority, Nkom	Observer
26.	Poland	Lidia	<b>Kozłowska</b>	Office of Electronic Communications, UKE	Member

Nr	Country (if applicable)	Name(s)	Surname(s)	Name of Organisation	Member or Observer
27.	Portugal	Fátima	<b>Barros</b>	Autoridade Nacional de Comunicações, ANACOM	Member
28.	Romania	Marius Catalin	<b>Marinescu</b>	National Authority for Management and Regulation in Communications, ANCOM	Member
29.	Serbia	Vladica	<b>Tintor</b>	Regulatory Agency for Electronic Communications and Postal Services, RATEL	Observer
30.	Slovak Republic	Vladimír	<b>Kešjar</b>	Regulatory Authority for Electronic Communications and Postal Services, RÚ	Member
31.	Slovenia	Franc	<b>Dolenc</b>	Agency for Communication Networks and Services of the Republic of Slovenia, AKOS	Member
32.	Spain	Alejandra	<b>De Iturriaga</b>	Comisión Nacional de los Mercados y la Competencia, CNMC	Member
33.	Sweden	Göran	<b>Marby</b>	National Post & Telecommunications Agency, PTS	Member
34.	Switzerland	Marc	<b>Furrer</b>	Federal Communications Commission, COMCOM	Observer
35.	The Netherlands	Henk	<b>Don</b>	Authority for Consumers and Markets, ACM	Member
36.	Turkey	Ömer Fatih	<b>Sayan</b>	Information and Communication Technologies Authority, ICTA	Observer
37.	United Kingdom	Sharon	<b>White</b>	Office of Communications, OFCOM	Member
38.		Roberto	<b>Viola</b>	European Commission, EC	Observer
39.		Ólafur	<b>Einarsson</b>	EFTA Surveillance Authority, ESA	Observer

**Annex 7 Plenary Meetings of the Board of Regulators in 2015**

Dates/place	Event	Agenda	Conclusions
26-27 February 2015, Berne (Switzerland)	22nd meeting of the Board of Regulators	<a href="#">BoR (15) 38</a> <sup>12</sup>	<a href="#">BoR (15) 46</a> <sup>13</sup>
4-5 June 2015, Bergen (Norway)	23rd meeting of the Board of Regulators	<a href="#">BoR (15) 78 Rev1</a> <sup>14</sup>	<a href="#">BoR (15) 97</a> <sup>15</sup>
1-2 October 2015, Riga (Latvia)	24th meeting of the Board of Regulators	<a href="#">BoR (15) 131</a> <sup>16</sup>	<a href="#">BoR (15) 179</a> <sup>17</sup>
10 December 2015, London (United Kingdom)	25 <sup>th</sup> meeting of the Board of Regulators	<a href="#">BoR (15) 190</a> <sup>18</sup>	<a href="#">BoR (15) 220</a> <sup>19</sup>

<sup>12</sup> [http://bereg.europa.eu/eng/document\\_register/subject\\_matter/bereg/board\\_of\\_regulators\\_meetings/agendas/4917-draft-agenda-for-the-22nd-meeting-of-the-board-of-regulators-in-berne-switzerland](http://bereg.europa.eu/eng/document_register/subject_matter/bereg/board_of_regulators_meetings/agendas/4917-draft-agenda-for-the-22nd-meeting-of-the-board-of-regulators-in-berne-switzerland)

<sup>13</sup> [http://bereg.europa.eu/eng/document\\_register/subject\\_matter/bereg/board\\_of\\_regulators\\_meetings/meeting\\_conclusions/5115-conclusions-of-the-22nd-meeting-of-the-board-of-regulators-in-berne-switzerland](http://bereg.europa.eu/eng/document_register/subject_matter/bereg/board_of_regulators_meetings/meeting_conclusions/5115-conclusions-of-the-22nd-meeting-of-the-board-of-regulators-in-berne-switzerland)

<sup>14</sup> [http://bereg.europa.eu/eng/document\\_register/subject\\_matter/bereg/board\\_of\\_regulators\\_meetings/agendas/5050-draft-agenda-for-the-23rd-meeting-of-the-board-of-regulators-in-bergen-norway](http://bereg.europa.eu/eng/document_register/subject_matter/bereg/board_of_regulators_meetings/agendas/5050-draft-agenda-for-the-23rd-meeting-of-the-board-of-regulators-in-bergen-norway)

<sup>15</sup> [http://bereg.europa.eu/eng/document\\_register/subject\\_matter/bereg/board\\_of\\_regulators\\_meetings/meeting\\_conclusions/5075-conclusions-of-the-23rd-board-of-regulators-plenary-meeting-in-bergen-norway](http://bereg.europa.eu/eng/document_register/subject_matter/bereg/board_of_regulators_meetings/meeting_conclusions/5075-conclusions-of-the-23rd-board-of-regulators-plenary-meeting-in-bergen-norway)

<sup>16</sup> [http://bereg.europa.eu/eng/document\\_register/subject\\_matter/bereg/board\\_of\\_regulators\\_meetings/agendas/5158-draft-agenda-for-the-24th-meeting-of-the-bereg-board-of-regulators-in-riga-latvia](http://bereg.europa.eu/eng/document_register/subject_matter/bereg/board_of_regulators_meetings/agendas/5158-draft-agenda-for-the-24th-meeting-of-the-bereg-board-of-regulators-in-riga-latvia)

<sup>17</sup> [http://bereg.europa.eu/eng/document\\_register/subject\\_matter/bereg/board\\_of\\_regulators\\_meetings/meeting\\_conclusions/5481-conclusions-of-the-24th-meeting-of-the-bereg-board-of-regulators-in-riga-latvia](http://bereg.europa.eu/eng/document_register/subject_matter/bereg/board_of_regulators_meetings/meeting_conclusions/5481-conclusions-of-the-24th-meeting-of-the-bereg-board-of-regulators-in-riga-latvia)

<sup>18</sup> [http://bereg.europa.eu/eng/document\\_register/subject\\_matter/bereg/board\\_of\\_regulators\\_meetings/agendas/5510-draft-agenda-for-the-25th-meeting-of-the-bereg-board-of-regulators-in-london-uk](http://bereg.europa.eu/eng/document_register/subject_matter/bereg/board_of_regulators_meetings/agendas/5510-draft-agenda-for-the-25th-meeting-of-the-bereg-board-of-regulators-in-london-uk)

<sup>19</sup> [http://bereg.europa.eu/eng/document\\_register/subject\\_matter/bereg/board\\_of\\_regulators\\_meetings/meeting\\_conclusions/5611-conclusions-of-the-25th-meeting-of-the-bereg-board-of-regulators-in-london-uk](http://bereg.europa.eu/eng/document_register/subject_matter/bereg/board_of_regulators_meetings/meeting_conclusions/5611-conclusions-of-the-25th-meeting-of-the-bereg-board-of-regulators-in-london-uk)

**Annex 8 2015 Meetings of the Contact Network established to the Board of Regulators**

Dates/place	Event	Agenda	Conclusions
5-6 February 2015, Prague (Czech Republic)	1st Contact Network meeting for 2015	<a href="#">BEREC CN (15) 01</a> <sup>20</sup>	<a href="#">BEREC CN (15) 18</a> <sup>21</sup>
14-15 May 2015, Budva (Montenegro)	2nd Contact Network meeting for 2015	<a href="#">BEREC CN (15) 19</a> <sup>22</sup>	<a href="#">BEREC CN (15) 54</a> <sup>23</sup>
10-11 September 2015, Baden (Austria)	3rd Contact Network meeting for 2015	<a href="#">BEREC CN (15) 55</a> <sup>24</sup>	<a href="#">BEREC CN (15) 84</a> <sup>25</sup>
19-20 November 2015, Barcelona (Spain)	4th Contact Network meeting for 2015	<a href="#">BEREC CN (15) 86 Rev.1</a> <sup>26</sup>	<a href="#">BEREC CN (15) 116</a> <sup>27</sup>

<sup>20</sup> [http://berec.europa.eu/eng/document\\_register/subject\\_matter/contact\\_network\\_meetings/agendas/4892-draft-agenda-for-the-berec-2015-1st-contact-network-meeting-4-5-february-2015-prague-czech-republic](http://berec.europa.eu/eng/document_register/subject_matter/contact_network_meetings/agendas/4892-draft-agenda-for-the-berec-2015-1st-contact-network-meeting-4-5-february-2015-prague-czech-republic)

<sup>21</sup> [http://berec.europa.eu/eng/document\\_register/subject\\_matter/contact\\_network\\_meetings/meeting\\_conclusions/4903-conclusions-from-the-1st-berec-contact-network-meeting-for-2015-5-6-february-2015-prague](http://berec.europa.eu/eng/document_register/subject_matter/contact_network_meetings/meeting_conclusions/4903-conclusions-from-the-1st-berec-contact-network-meeting-for-2015-5-6-february-2015-prague)

<sup>22</sup> [http://berec.europa.eu/eng/document\\_register/subject\\_matter/contact\\_network\\_meetings/agendas/4992-draft-agenda-for-the-berec-2015-2nd-contact-network-meeting-14-15-may-2015-budva-montenegro](http://berec.europa.eu/eng/document_register/subject_matter/contact_network_meetings/agendas/4992-draft-agenda-for-the-berec-2015-2nd-contact-network-meeting-14-15-may-2015-budva-montenegro)

<sup>23</sup> [http://berec.europa.eu/eng/document\\_register/subject\\_matter/contact\\_network\\_meetings/meeting\\_conclusions/5008-conclusions-from-the-2nd-berec-contact-network-meeting-for-2015-14-15-may-2015-pr382no](http://berec.europa.eu/eng/document_register/subject_matter/contact_network_meetings/meeting_conclusions/5008-conclusions-from-the-2nd-berec-contact-network-meeting-for-2015-14-15-may-2015-pr382no)

<sup>24</sup> [http://berec.europa.eu/eng/document\\_register/subject\\_matter/contact\\_network\\_meetings/agendas/5609-draft-agenda-3rd-berec-cn-meeting-10-11-september-2015-baden-austria](http://berec.europa.eu/eng/document_register/subject_matter/contact_network_meetings/agendas/5609-draft-agenda-3rd-berec-cn-meeting-10-11-september-2015-baden-austria)

<sup>25</sup> [http://berec.europa.eu/eng/document\\_register/subject\\_matter/contact\\_network\\_meetings/meeting\\_conclusions/5146-conclusions-from-the-3rd-berec-contact-network-meeting-for-2015-10-11-september-2015-baden](http://berec.europa.eu/eng/document_register/subject_matter/contact_network_meetings/meeting_conclusions/5146-conclusions-from-the-3rd-berec-contact-network-meeting-for-2015-10-11-september-2015-baden)

<sup>26</sup> [http://berec.europa.eu/eng/document\\_register/subject\\_matter/contact\\_network\\_meetings/agendas/5501-draft-agenda-for-the-2015-4th-berec-cn-meeting-in-19-20-november-2015-barcelona-spain](http://berec.europa.eu/eng/document_register/subject_matter/contact_network_meetings/agendas/5501-draft-agenda-for-the-2015-4th-berec-cn-meeting-in-19-20-november-2015-barcelona-spain)

<sup>27</sup> [http://berec.europa.eu/eng/document\\_register/subject\\_matter/contact\\_network\\_meetings/meeting\\_conclusions/5506-conclusions-from-the-4th-berec-contact-network-meeting-for-2015-19-20-november-2015-barcelona](http://berec.europa.eu/eng/document_register/subject_matter/contact_network_meetings/meeting_conclusions/5506-conclusions-from-the-4th-berec-contact-network-meeting-for-2015-19-20-november-2015-barcelona)

**Annex 9 Internal BEREC workshops**

Dates/Place	Event
22-23 June 2016, Brussels (Belgium)	BEREC Workshop on initiatives to facilitate operator switching for non-residential consumers
3 June 2015, Bergen (Norway)	BEREC Workshop on the future of electronic communications sector in Europe and the review of the EU Regulatory Framework for electronic communications
30 September 2015, Riga (Latvia)	BEREC Workshop on migration to all-IP networks
28 October 2015, Brussels (Belgium)	BEREC Workshop on the implementation of the Recommendations on relevant markets and the BEREC Common Position on geographical segmentation
9 December 2015, London (UK)	BEREC Workshop for NRAs to exchange views on challenges of the current and future regulation in the context of the Commission request for BEREC opinion on the forthcoming review

**Annex 10 Events attended by the BEREC Chair and/or Vice-Chairs on behalf of BEREC**

Dates/Place	Event
11 February 2015, Warsaw (Poland)	Speech by the BEREC Chair at the opening of the FTTH Conference 2015 (10-12 February 2015, Warsaw)
1 March 2015, Barcelona (Spain)	Participation of the BEREC Chair in the European Internet Forum (EIF) round table chaired by MEP Pilar del Castillo
2 March 2015, Barcelona (Spain)	Keynote speech by the BEREC Chair at the GSMA Mobile World Congress
4 March 2015, Brussels (Belgium)	Keynote speech by the BEREC Chair at the BEREC Accessibility Workshop
4 March 2015, Brussels (Belgium)	BEREC Chair interview with ANSA
9 March 2015, Lisbon (Portugal)	Meeting between the BEREC Chair and VON Europe
12 March 2015, Brussels (Belgium)	Interview with the BEREC Chair at the 2015 Cable Congress
12 March 2015, Brussels (Belgium)	Meeting between the BEREC Chair and the ECTA Regulatory Forum on the Digital Single Market
17-18 March 2015, Brussels (Belgium)	Keynote speech by the BEREC Chair on Digital Single Market Wish-list at the IIC Telecoms and Media Forum

Dates/Place	Event
27 March 2015, London (UK)	Keynote speech by the BEREC Chair in the HSBC Telecoms Regulation Forum
28-29 April 2015, London (UK)	Opening keynote speech in the 9 <sup>th</sup> Digital Regulation Forum: The Juncker Digital Revolution
11-13 May 2015, London (UK)	Keynote presentation of the BEREC Chair at the 6 <sup>th</sup> annual Internet of Things European Summit on the regulatory perspective
15 May 2015, Lisbon (Portugal)	Meeting between the BEREC Chair and CEO Tele2
28 May 2015, Lisbon (Portugal)	Presentation on the DSM by the BEREC Chair to the Swedish Ambassador in Lisbon
15 June, 2015, Brussels (Belgium)	Speech by the BEREC Vice-Chair (UKE) at the 10 <sup>th</sup> Annual European Spectrum Management Conference
17-18 June 2015 Riga, (Latvia)	Participation of the BEREC Chair in the Digital Assembly
23 June 2015, Brussels (Belgium)	Closing Keynote by the BEREC Chair in the ETNO-MLex Summit
23 June 2015, Brussels (Belgium)	Meeting between the BEREC Chair and Verizon



Dates/Place	Event
30 June 2015, Brussels (Belgium)	Keynote speech by the BEREC Chair in the ECTA Conference 'Writing digital history: game changer policies for a connected Digital Single Market'
7 July, 2015, Lisbon (Portugal)	Keynote speech on the Digital Single Market by the BEREC Chair in the APDC, Digital Business Summit
13-15 July, 2015, Graz (Austria)	Keynote speech by the BEREC Chair at the 13th International Conference on Telecommunications
10-13 August 2015, Riga (Latvia)	Participation by the BEREC Vice-Chair (BNetzA) in the Telco Trends 2015 Conference
2 September 2015, London (UK)	Participation by the BEREC Chair in the Barclays European Media and Telecom Forum
28-29 September 2015, Krakow (Poland)	Speech by BEREC Chair's representative (ANACOM) at the 1st Annual Public Policy Conference dedicated to strategic aspects of cybersecurity, CYBERSEC
29 September 2015, Brussels (Belgium)	Meeting between the BEREC Chair and Orange
5-6 October 2015, Washington, USA	BEREC Chair as panellist at the International Regulators Forum
8 October 2015, Brussels (Belgium)	Meeting between the BEREC Chair and ECTA

Dates/Place	Event
8 October 2015, Brussels (Belgium)	Meeting between the BEREC Chair and MVNO Europe
12 October 2015, Budapest, Hungary	Participation of the BEREC Chair as panellist at the ITU Telecom World
13 October 2015, Budapest, Hungary	Speech by the BEREC Chair at the Huawei Broader Way Forum
13 October 2015, Brussels (Belgium)	Speech by the BEREC Vice-Chair (BNetzA) at the FT-ETNO Summit 2015
14 October 2015, Brussels (Belgium)	Participation by the BEREC Vice-Chair (UKE) in the New Direction Digital Summit
15 October 2015, Brussels (Belgium)	Opening and closing remarks by the BEREC Chair at the 3 <sup>rd</sup> BEREC Stakeholders Forum
16 October 2015, Brussels (Belgium)	Participation by BEREC Chair's representative (AGCOM) in an event on Connected Cars
23 October 2015, Paris (France)	Participation by the BEREC Vice-Chair (BNetzA) at a conference on the different methods of regulation at a European level organised by the University of Paris Dauphine
25 October 2015, Milan, (Italy)	Speech by the BEREC Chair on the Digital Single Market in Europe World First Licensed Shared Access pilot, co-organised by European Commission's Joint Research Centre and the Italian Ministry of Economic Development at Expo Milano

Dates/Place	Event
27 October 2015, Bonn (Germany)	Participation of the BEREC Chair as panellist in the Conference 'Classic telecommunications network operators and the role of OTT providers'
5-6 November, 2015 Cartagena (Colombia)	Speech by BEREC Chair at the Cullen LATAM-EU TMR Symposium, Cartagena
11 November 2015, Brussels (Belgium)	Opening notes by the BEREC Chair at the Public Hearing on Evaluation and Review of the Regulatory Framework for Electronic Communications Networks and Services
18 November 2015, Brussels (Belgium)	Keynote speech and speech by the BEREC Chair at the ECTA Annual Regulatory Conference
18-19 November 2015, Brussels (Belgium)	Participation by the BEREC Vice-Chair (COMREG) in the IBC Legal Competition Law and Regulation in the Telecoms, Media and Technology
19 November 2015, Montpellier (France)	Participation by HAKOM, on behalf of the BEREC Chair, in the DigiWorld Summit
02 December 2015 Brussels (Belgium)	Participation by AGCOM, on behalf of the BEREC Chair, in the GSMA Workshop on IoT

## Annex 11 Publicly available documents approved by the BoR in 2015

### A. BEREC Opinions

Document number	Description	Date
BoR (15) 04	BEREC Opinion on Phase II investigation pursuant to Article 7a of Directive 2002/21/EC as amended by Directive 2009/140/EC: Cases DE/2014/1666-1667 Wholesale voice call termination on individual mobile networks (market 2) in Germany	16 January 2015
BoR (15) 21	BEREC Opinion on Phase II investigation pursuant to Article 7a of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case DE/2014/1685 Call termination on individual public telephone networks provided at a fixed location in Germany	29 January 2015
BoR (15) 56	BEREC Opinion on Phase II investigation pursuant to Article 7a of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case DE/2015/1713 Wholesale voice call termination on individual public telephone networks provided at a fixed location in Germany - remedies	28 April 2015
BoR (15) 61	BEREC Opinion on Phase II investigation pursuant to Article 7a of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case FI/2015/1718 Wholesale voice call termination on individual mobile networks in Finland - market 2	7 May 2015
BoR (15) 85	BEREC Opinion on Phase II investigation pursuant to Article 7 of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case NL/2015/1727 Wholesale local access provided at a fixed location in the Netherlands	28 May 2015
BoR (15) 206	BEREC Opinion on the Review of the EU Electronic Communications Regulatory Framework	10 December 2015
BoR (15) 214	Joint BEREC-ERGP Opinion on price transparency and regulatory oversight of cross-border parcels delivery, taking into account possible regulatory insights from the electronic communications sector	10 December 2015

**B. BEREC Reports**

Document number	Description	Date
BoR (15) 29	International Roaming BEREC Benchmark Data Report April – September 2014	16 February 2015
BoR (15) 65	BEREC Report on How Consumers Value Net Neutrality in an Evolving Internet Marketplace: a report into ecosystem dynamics and demand side forces	21 May 2015
BoR (15) 72	Fixed and mobile termination rates in the EU January 2015	25 May 2015
BoR (15) 132	BEREC Report on the Public Consultation on Document 'Common Characteristics of Layer 2 Wholesale Access Products in the European Union'	1 October 2015
BoR (15) 133	BEREC Report on Common Characteristics of Layer 2 Wholesale Access Products in the European Union	1 October 2015
BoR (15) 134	International Roaming BEREC Benchmark Data Report October 2014 – March 2015	1 October 2015
BoR (15) 143	BEREC Report Regulatory Accounting in Practice 2015	2 October 2015
BoR (15) 192	BEREC Report on Transparency and Comparability of International Roaming Tariffs	27 November 2015
BoR (15) 194	BEREC Report on the public consultation of the Report on Oligopoly analysis and regulation	27 November 2015
BoR (15) 195	BEREC Report on oligopoly analysis and regulation	27 November 2015
BoR (15) 196	Case Studies on IP-based Interconnection for Voice Services in the European Union	27 November 2015
BoR (15) 199	Monitoring implementation of the BEREC Common Positions on Wholesale Local Access (WLA), Wholesale Central Access (WCA) and Wholesale High Quality Access at a Fixed Location (WHQAFL) Phase 2	7 December 2015

Document number	Description	Date
BoR (15) 200	BEREC Report on the outcome of the public consultation on the draft report on equivalent access and choice for disabled end-users	30 November 2015
BoR (15) 201	Update of the report on equivalent access and choice for disabled end-users	30 November 2015
BoR (15) 211	Termination rates at European level July 2015	7 December 2015
BoR (15) 212	BEREC Report on the outcome of the public consultation on the draft Work Programme for 2016	2 December 2015

### C. BoR Decisions

Document number	Description	Date
BoR/2015/1	Decision of the Board of Regulators on the Co-Chairs of the BEREC Expert Working Groups	26 February 2015
BoR/2015/2	Decision of the Board of Regulators on the co-Chair of the Benchmarking Expert Working Group	30 July 2015
BoR/2015/3	Decision of the Board of Regulators on BEREC Expert Working Groups 2016	10 December 2015

### D. Documents approved for public consultations

Document number	Description	Date
BoR (15) 64	Draft BEREC Report on Common Characteristics of Layer 2 Wholesale Access Products in the European Union	5 June 2015

Document number	Description	Date
BoR (15) 74	Draft BEREC Report on oligopoly analysis and regulation	5 June 2015
BoR (15) 135	Updated draft Report on equivalent access and choice for disabled end-users	1 October 2015
BoR (15) 140	Draft BEREC Work Programme 2016	1 October 2015
BoR (15) 141	Draft BEREC Report on Enabling the Internet of Things	1 October 2015
BoR (15) 142	Draft BEREC Report on OTT services	1 October 2015

#### E. Annual work programme and annual reports

Document number	Description	Date
BoR (15) 71	BEREC Annual Reports 2014	25 May 2015
BoR (15) 213	BEREC Work Programme 2016	10 December 2015

#### F. Other documents

Document number	Description	Date
BoR (15) 69	BEREC High-level statement on the BEREC Communication plan	25 May 2015
BoR (15) 193	Summary of the outcomes of the 3rd BEREC Stakeholder Forum, 15 October 2015, Brussels	27 November 2015

**Annex 12 Board of Regulators' electronic voting procedures**

Nr	Document subject to electronic voting	Comments Round		Voting Round		Comments
		Start	End	Start	End	
1.	BEREC Opinion on Article 7 Phase II case (DE 2014 1666-1667): Wholesale voice call termination on individual mobile networks (market 2) in Germany	05.01.2015	09.01.2015	13.01.2015	15.01.2015	The BEREC opinion approved by the BoR was published on the BEREC website under ref. <a href="#">No BoR (15) 04.</a>
2.	Internal guidelines on the operation of BEREC Expert Working Groups	15.01.2015	22.01.2015	28.01.2015	04.02.2015	The document was approved for internal use and is not available to the public.
3.	BEREC document on mergers and acquisitions	19.01.2015	26.01.2015	29.01.2014	05.02.2015	The document was approved for internal use and is not available to the public.
4.	BEREC Opinion on Article 7a Phase II case DE 2014 1685: Call termination on individual public telephone networks provided at a fixed location in Germany	21.01.2015	26.01.2015	28.01.2015	29.01.2015	The BEREC opinion approved by the BoR was published on the BEREC website under ref. <a href="#">No BoR (15) 21.</a>
5.	BEREC Opinion on Article 7a Phase II Case DE/2015/1713: Wholesale voice call termination on individual public telephone networks provided at a fixed location in Germany - remedies	17.04.2015	23.04.2015	27.04.2015	28.04.2015	The BEREC opinion approved by the BoR was published on the BEREC website under ref. No <a href="#">BoR (15) 56.</a>
6.	BEREC Opinion on Phase II investigation pursuant to Article 7a of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case	29.04.2015	04.05.2015	06.05.2015	07.05.2015	The BEREC opinion approved by the BoR was published on the BEREC website under ref. No <a href="#">BoR (15) 61.</a>



Nr	Document subject to electronic voting	Comments Round		Voting Round		Comments
		Start	End	Start	End	
	FI/2015/1718 Wholesale voice call termination on individual mobile networks (market 2) in Finland					
7.	BEREC Opinion on Phase II investigation pursuant to Article 7 of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case NL/2015/1727 Wholesale local access provided at a fixed location in the Netherlands	21.05.2015	25.05.2015	27.05.2015	28.05.2015	The BEREC opinion approved by the BoR was published on the BEREC website under ref. No <a href="#">BoR (15) 85</a> .
8.	BEREC Decision on co-Chair of the Benchmarking BEREC Expert Working Group	15.07.2015	22.07.2015	23.07.2015	30.07.2015	The BEREC decision approved by the BoR was published on the BEREC website under ref. No <a href="#">BEREC/2016/2</a> .
9.	Report on Indicators on Bundles	17.07.2015	24.07.2015	29.07.2015	05.08.2015	The document was approved for internal use and is not available to the public.
10.	Project Requirements Document (PRD) on BEREC's input to the European Commission on the calculation of weighted average maximum MTRs in Europe for the purposes of international roaming according to Article 6c paragraph 2 of the proposed Roaming IV Regulation	03.08.2015	10.08.2015	12.08.2015	20.08.2015	The document was approved for internal use and is not available to the public.
11.	PRD on Guidelines for the implementation of net neutrality provisions of the TSM Regulation	03.08.2015	10.08.2015	12.08.2015	20.08.2015	The document was approved for internal use and is not available to the public.

Nr	Document subject to electronic voting	Comments Round		Voting Round		Comments
		Start	End	Start	End	
12.	BEREC input on weighted average of maximum mobile termination rates	22.09.2015	29.09.2015	30.09.2015	07.10.2015	The document is intended for use only by its addressee and is not available to the public.

**PART B:****Annual report on developments in electronic communications sector in 2015**

Under Article 3.1(n) of the Regulation (EC) No 1211/2009 of the European Parliament and of the Council of 25 November 2009 establishing the Body of European Regulators for Electronic Communications (BEREC) and the Office

**1. Executive Summary**

This BEREC report on sector developments presents the major trends in the electronic communications sector, addressing both market dynamics as well as the development of EU public policies and regulatory practices. Although the report is based on the main findings of the BEREC EWGs in 2015, it also aims to adopt a forward-looking approach.

Europe continues to see innovation in all areas of electronic communications and has witnessed relevant developments in the industry.

Distribution of market shares is one of the key indicators for analysing the levels of competition in electronic communications markets. Innovative and advanced services, bundled offers and progressive solutions are constantly affecting the coexistence of competitors in fixed and mobile networks, tilting the balance in favour of one or another.

Meanwhile, investment by all market players as a percentage of communications revenues increased from 11.7% (2009) to 14% (2013) in the EU-27. The highest levels correspond to the Netherlands (32.1%) and Hungary (26.1%).

Demand for fixed broadband continued its rising trend. Total fixed broadband subscriptions had reached 31.6 lines per 100 inhabitants in the EU by June 2015, which implied an annual growth rate of 4% over the past 5 years. The deployment of NGA networks have been helping to push demand for broadband connections.

Over the past few years, mobile broadband recorded the highest growth rates of any retail electronic communications service, both in penetration and usage, as well as in traffic. Mobile broadband reached a penetration level of 75.4 subscriptions per 100 inhabitants in the EU-28, with a growth rate of 13% in the period from June 2014 to June 2015.

As a result of competition and/or wholesale regulation, all operators should now be able to provide both fixed and mobile services by using different forms of access to an SMP operator's network, so that they have the option of entering the market and providing the various types of bundled services.

The importance of bundled offers is evident if we observe the number of converged operators (operators providing both fixed and mobile services) in each country. According to BEREC data, at the end of 2014, in Europe there were 100 converged operators overall, with the majority of countries (21) having 2–4 converged operators.

Important regulatory developments are also expected as a result of the EC's review of the Regulatory Framework for electronic communications. In 2015 BEREC provided its opinions and input to the review and the EC plans to elaborate its legislative proposals in 2016.

Technological developments have facilitated the emergence of new services and business models operating over the internet. The provision of internet-based services commonly known as 'Over The Top' is of increasing importance in the rapidly evolving information and communication technology industry and is of great value to end users. It is estimated that the annual worldwide revenue of digital services – which in large part consist of services provided over the internet and thus include OTT services – was about EUR 700 billion in 2015, about 1% of world gross domestic product (GDP). Hence, this is an area of interest to BEREC and its stakeholders. BEREC's work in this area, in particular on the interaction between electronic communications services and OTT services, will continue in 2016.

Also important to market dynamics are the significant mergers of MNOs that have been reported in European countries. Key players in these transactions were Orange, T-Mobile, Hutchison, Vodafone and Telefónica. Most of these mergers have been subject to a number of commitments in order to maintain an effective level of competition, and some of them have also been reviewed by the EC.

The consolidation through mergers and acquisitions in the European electronic communications markets has continued in 2015. This trend, coupled with other features such as the increased importance of NGA deployment and technological convergence may lead to a reduction in the number of operators active in the affected electronic communications markets. Its impact in sectorial regulation, and the sufficiency (or not) of the current regulatory model to cope with new market structures, and in particular with oligopolies, is one of the topics that the revision of the existing legislative framework will need to address. This has led to on-going work by BEREC in the field.

With regard to the issue of net neutrality, the TSM Regulation that entered into force on 29 November 2015 requires internet service providers to treat all traffic equally and prohibits them from blocking or slowing down internet traffic, except where necessary to apply reasonable traffic-management measures. The rules will apply from 30 April 2016 and the consistent application of the rules will be supported by guidelines to be issued by BEREC by 30 August 2016.

The NGA rollout of SMP operators resulted in the increased use of (active) layer 2 (Ethernet) wholesale access products as a remedy on the wholesale access markets. The migration to all-IP networks has an impact on both the interconnection for voice services and the access network.

The international roaming benchmark reports published in 2015 show a good level of compliance in all EEA countries with the provisions set out in the Roaming Regulation. Prices at the retail and wholesale level are below the price caps and are declining over time.

For calls made, average Eurotariff prices remained below the regulated caps in most EEA Member States. The EEA average Eurotariff price was EUR 0.131 per minute in quarter 1 2015 compared with a cap of EUR 0.19. For calls received, the EEA average Eurotariff rate was nearer the cap in quarter 1 2015, at EUR 0.034 per minute compared with EUR 0.050. At the wholesale level, the regulation has also led to a constant reduction in the average EEA wholesale charges for intra-EEA roaming voice calls, ending up at an EEA average wholesale charge of EUR 0.037 in quarter 1 2015 compared with a cap of EUR 0.05 per minute.

Following NRA interventions and the application of the Commission Recommendation on termination rates, the wholesale rates for both mobile and fixed interconnection have fallen significantly and keep decreasing. However, in most EU Member States, SMS services are not subject to a wholesale termination price regulation. Nevertheless, a substantial decrease of SMS termination rates has been observed in the EU markets over the years.

Wholesale interconnection rates for mobile telephony services (MTR) in Europe fell markedly between January 2004 and July 2015; the simple average fell from 14.08 to 1.52 Eurocents per minute, while the weighted average fell from 14.47 to 1.22 Eurocents per minute.

Compared with MTRs, the fall in FTRs is smaller, as the level of tariffs has been significantly lower and the state of implementation of the appropriate cost standard is less advanced. The simple average of wholesale interconnection rates for a fixed telephony service terminated on the networks of European incumbent operators declined between January 2011 and July 2015 from 0.59 to 0.31 Eurocents per minute (layer 1); from 0.68 to 0.49 Eurocents per minute (layer 2); and from 0.82 to 0.45 Eurocents per minute (layer 3).

The overall picture concerning regulatory accounting development is relatively stable in comparison with last year. There are clear preferences for price control methods (cost orientation alone or in combination with price caps) and for cost base (current cost accounting) and allocation methodologies (mainly long run incremental costs with fully distributed costs preferred in only a few markets).

## **2. Introduction**

The electronic communications sector is crucial to boosting productivity and bringing growth back to the EU. Completing the creation of a single market in electronic communications is an important part of the EU's overriding objective for stimulating economic recovery in Europe. BEREC is committed to this goal as well as to the Article 8 Framework Directive objectives and recognises its central role in ensuring regulatory consistency across Europe. BEREC therefore closely monitors and reports on the developments in the electronic communications sector and publishes its annual report on sector developments under Article 3(1)(n) of the BEREC Regulation (EC/1211/2009).

The following analysis looks at the developments in the sector mostly in 2015, paying particular attention to market and regulatory trends, OTT services, net neutrality and next-generation network regulatory challenges, as well as to international roaming, termination prices and regulatory accounting.

This report presents BEREC's view, which is based on its members' expertise and knowledge, and at the same time aims to describe BEREC's own contribution to the development of the sector. The analysis includes qualitative reasoning, based on key thinking from BEREC EWG activity, together with quantitative data, based on the two main periodic BEREC data collection exercises and on other public reporting documents.

### 3. Market trends

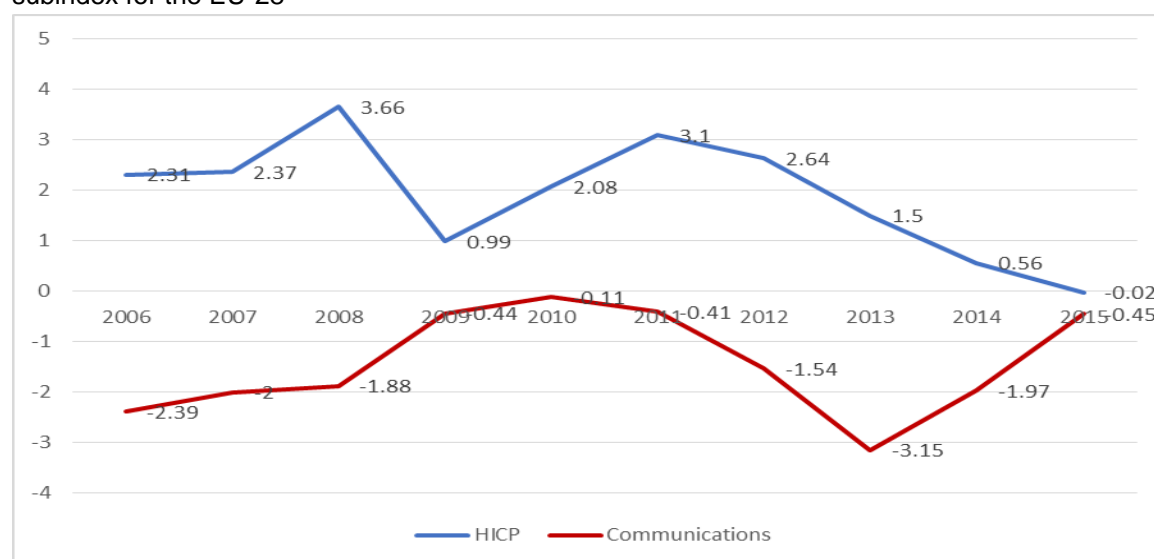
#### 3.1 Economic context

Europe continues to see innovation in all areas of electronic communications and witnessed relevant developments in the industry during 2015. NGA take-up as well as the take-up of very-high-speed connections *registered* positive growth over the year across the EU. Europe's mobile operators have invested heavily in 4G/long-term evolution (LTE) deployments, capacity and spectrum over the past few years, and in 2014 a significant leap forward was observed in the deployment of fibre to the home (FTTH) after operators upgraded their networks. Penetration of fixed and especially mobile broadband continues to increase. A migration process from incumbents' copper-based xDSL connections to fibre-based NGA connections was observed, bringing about higher connection speeds and increased consumption of data and services in general. A general trend of declining prices, a higher variety of offers and more bundling offers took place. All these brought about benefits for consumers.

The growing importance of bundling is evident in almost all European countries. In the past few years, bundles have become an increasingly popular way of buying electronic communication services by consumers. On the supply side, many operators have been increasing the number of services included in the bundles. Competition is shifting towards quadruple-play and quintuple-play bundles (including mobile services), and almost all countries have converged operators with both fixed and mobile operations. Some mergers and acquisitions that occurred during 2015 also followed this trend.

The communications price subindex, which includes electronic communications as well as postal services, decreased in the EU by 0.45% over the year, with a majority of countries also showing significant decreases in 2015, although these were smaller in magnitude than those registered in 2014. The decreases in the communications services price basket were very significant in Bulgaria, Denmark, Finland and Sweden where the price index for these services decreased by 3% or more. Portugal and Poland registered increases in their subindex of 2% or more.

**Figure 1:** Annual rate of change in the harmonised retail price index and in the communications subindex for the EU-28



Source: Eurostat

Despite the convergence between the electronic communications subindex and Harmonised Index of Consumer Prices (HICP), the decrease in the electronic communications subindex may be attributable to factors such as technical progress being passed on to consumers in a competitive environment. In addition, the entry of new agents (content and application providers) offering OTT services was also notable throughout the year.

New providers of content made headway in a number of EU Member States and, in parallel, traditional telecom operators are increasingly bundling OTT services such as video and audio streaming apps such as Spotify Premium or Netflix with their tariff offers. The increased use of messaging via OTT providers in the EU has been very successful. In a recent survey conducted by GSMA, 35% of the respondents in Europe used online messaging more than SMS.

The success of these agents brings benefits for end users as the variety of business models, services and functionalities and choice are expanded. The consumption of traditional and new services also increases with the penetration of terminals, such as smartphones, tablets or computers. The increase demand for these services requires significant investments to future-proof infrastructure that supports a new era of digital players, innovative services and business models, underpinned by advanced mobile broadband connectivity and NGA networks.

### 3.2 Market players

The distribution of market shares is one of the key indicators for analysing the competition level in the electronic communications market. Innovative and advanced services, bundle offers and progressive solutions are constantly affecting the coexistence of fixed and mobile networks, tilting the balance in favour of one or the other. Technological convergence of fixed and mobile networks is becoming a significant factor in the electronic communications landscape, which is leading to increased consolidation in certain parts of the electronic communications industry. OTT providers continue to gain subscribers at a very high rate. These new entrants are engaging in cooperation with traditional electronic communications

operators. Such cooperation and consolidation may bring forth different results, such as a concentration of market power or competitive advantage but also infrastructure sharing, cost reduction or wider ranges of services. For traditional electronic communications operators, OTT providers represent both a competitive challenge and a stimulator for competition, which can create new opportunities.

Over the past few years significant mergers of MNOs have been reported in European countries (Austria, United Kingdom, Switzerland, Greece, Germany and Ireland). Key players in these transactions were Orange, T-Mobile, Hutchison, Vodafone and Telefónica. Most of these mergers have been subject to a number of commitments in order to maintain an effective competition level, and some have also been reviewed by the EC.

Recently there has been several significant mergers under investigation of the European Commission (e.g. Hutchison 3G UK taking over O2 Ireland, VimpelCom Italy, Telefónica UK). It is a major competition threat when biggest competitors merge with each other to form a significant market power. This could result in higher prices, less choice and reduced innovation for customers. Such mergers would also affect wholesale market reducing the number of operators effectively willing to deliver wholesale services.

It has been proven that new entrants, even smaller players, have the potential to significantly change competition dynamics in mobile markets. Over the past few years there have been some reports about new mobile network operators' emergence amongst the European countries (Spain, Poland, Netherlands, Luxembourg, France, Slovenia, Slovak Republic and Hungary). Most of the cases number of mobile network operators has increased from 3 to 4. In 2014 an auction for spectrum has been concluded in Hungary. The spectrum has been acquired by the new entrant operator Digi Telecommunications. The new Hungarian operator has launched its operations in 2015 providing 4G LTE services in the country with ambitions to provide coverage in the rural areas.

Fixed network operators have been struggling to compete with MNOs providing voice services. Increased competition results in a strong advantage for the FNOs over the MNOs in the field of broadband services. FNOs and MNOs are now competing alongside rather than against each other.

Recently, a noticeable trend for mobile, fixed and cable operators to merge with each other has been observed. An example of such an occurrence is the acquisition of ONO and Kabel Deutschland by Vodafone in 2013-2014 in Germany and Spain. Another example relates to France, where Numericable took over the broadband operator SFR. Later in 2015, Altice comes in to play to take over from Vivendi its shares of Numericable-SFR and gain control over Numericable-SFR. Altice is considered the most acquisitive group in Europe in the last two years and also during 2015 finished the acquisition of PT Portugal. The European Commission imposed as a condition the divestment of Altice in ONI and Cabovisão and were both sold to the investment fund APAX. In 2015/16, the incumbent broadband operator BT Group PLC has successfully purchased EE, the biggest UK mobile operator.

Mergers and acquisitions reviewed by the European Commission has been subjected to number of restrictions in order to maintain good condition of competition. Relevant adoption of the remedies would help to eliminate competition threats arising from mergers and



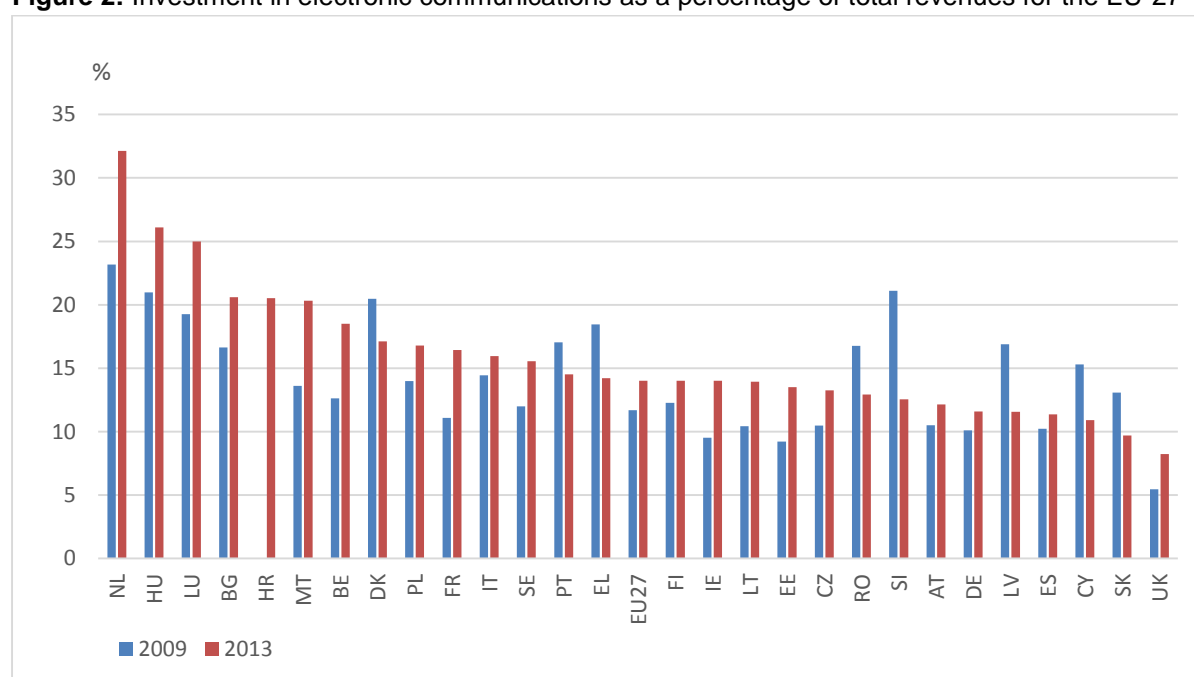
acquisitions and benefit from the synergy of infrastructure sharing, cost reduction or wider range of services.

### 3.3 Investment

In the context of revenue drops, and despite challenging macroeconomic conditions, electronic communications investment has increased steadily over the past few years in the EU countries, growing from EUR 39 billion in 2009 to EUR 43 billion in 2013.

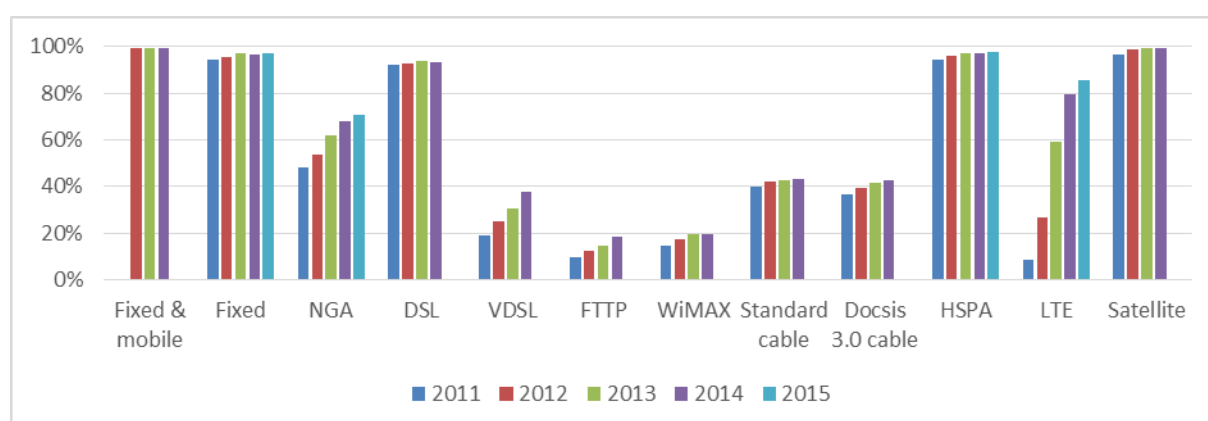
Investment as a percentage of communication revenues has also increased, from 11.7% (2009) to 14% (2013) in the EU-27. The highest levels correspond to the Netherlands (32.1%) and Hungary (26.1%) where nationwide NGA networks (fibre in Netherlands and VDSL and DOCSIS3.0 in Hungary) are currently being deployed.

**Figure 2:** Investment in electronic communications as a percentage of total revenues for the EU-27



Source: EC, Digital Agenda Scoreboard 2015

Breaking down investment levels by technology remains a challenge as a result of the fixed mobile converged offers increase in EU countries. The boundaries between fixed and mobile networks are becoming increasingly blurred. Fixed networks are used to feed new 4G mobile networks, with fibre networks for backhaul and backbone segments being used for fixed and mobile communications.

**Figure 3:** Total coverage by technology at EU level

Source: European Commission

In the past four years, operators have been investing mainly in NGA technologies. According to the EC, the coverage of NGA in the EU rose to 71% of households by the end of 2015, an increase of 23 percentage points compared with 2011 coverage. Regarding the fixed technologies, beyond VDSL, FTTP experienced one of the highest increases, reaching a coverage of 19% households (in 2014).

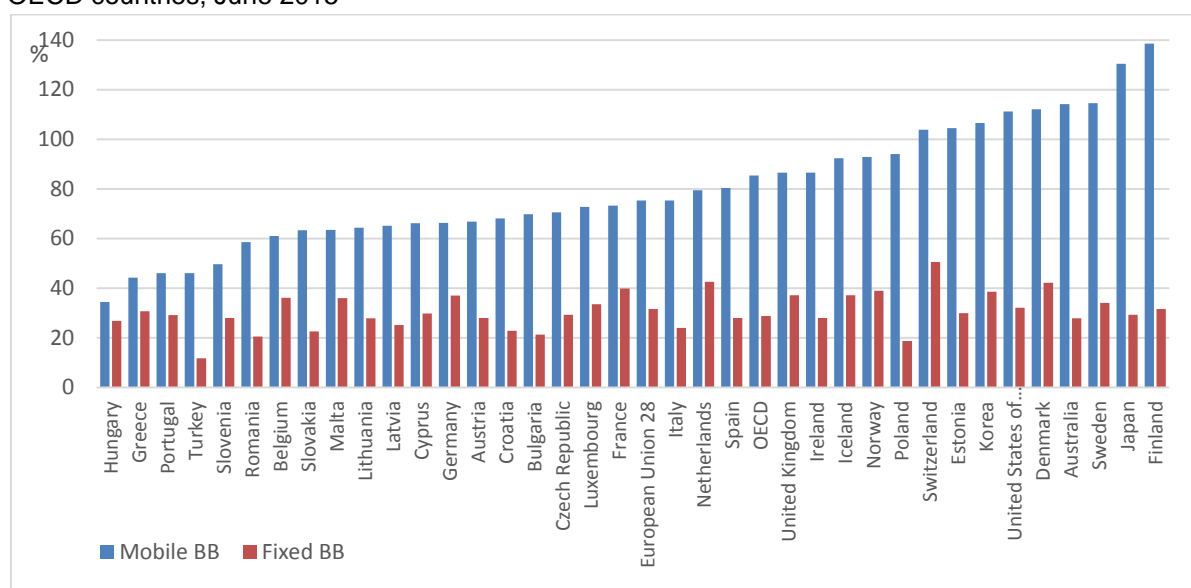
Europe's mobile operators have invested heavily in 4G/LTE deployments, capacity and spectrum over the past few years. The coverage of LTE technologies in the EU grew from 59% households at the end of 2013 to 85.9% households in 2015.

### 3.4 Broadband and next-generation network take-up

Demand for fixed broadband continued to rise. Total fixed broadband subscriptions reached 31.6 lines per 100 inhabitants in the EU by June 2015, which implied an annual average growth rate of 4% over the past 5 years. Given the evolution of penetration curves across the EU, the growth rates in the take-up of broadband connections in most of the EU countries is notable for the 15 years since the emergence of broadband in the marketplace. The deployment of NGA networks have been helping to push demand for broadband connections.

Wireless broadband penetration grew 8.6 percentage points since June 2014 to 75.3%, thereby maintaining a healthy average growth rate of 22% per year.

**Figure 4:** Fixed and mobile broadband penetration (lines per 100 inhabitants) in the EU and some OECD countries, June 2015

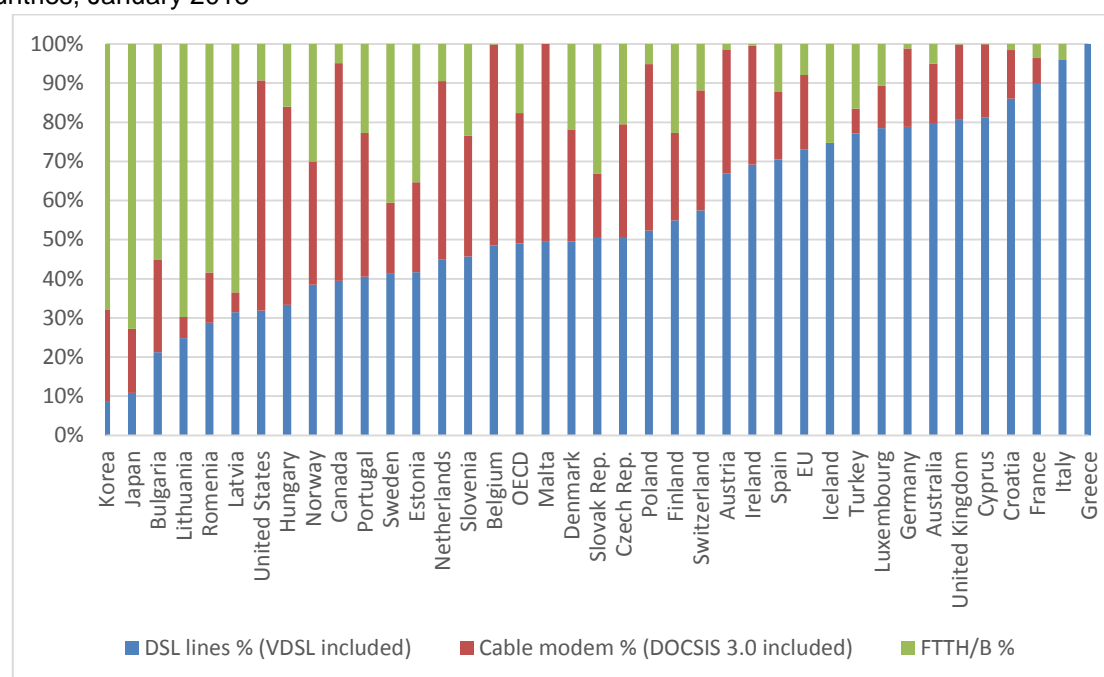


Source: European Commission and OECD

The growing rate of fixed broadband penetration, broken down by technology, provides an interesting overview of developments during 2015. Fixed broadband subscriptions grew 3.6% in 2015 but experienced very different growth rates depending on the underlying technology. In 2014, fibre subscriptions (FTTH/B) had grown 31.7%, which indicates that FTTH technology is gradually replacing DSL and cable technologies, although to only a smaller extent in the case of the latter.

Cable operators have a significant presence in the EU, providing broadband to 18% of all subscriptions to fixed networks. Not surprisingly, DSL subscriptions experienced a decrease (-3.01%); however, in January 2015 xDSL remained the main technology being used for broadband provision (70%). FTTH/B supported 8% of all active broadband connections by January 2015 and registered the highest growth of all the available terrestrial technologies. However, at the end of 2014, only 16 out of the 28 EU countries had more than 10% of broadband subscriptions with FTTH/B technology.

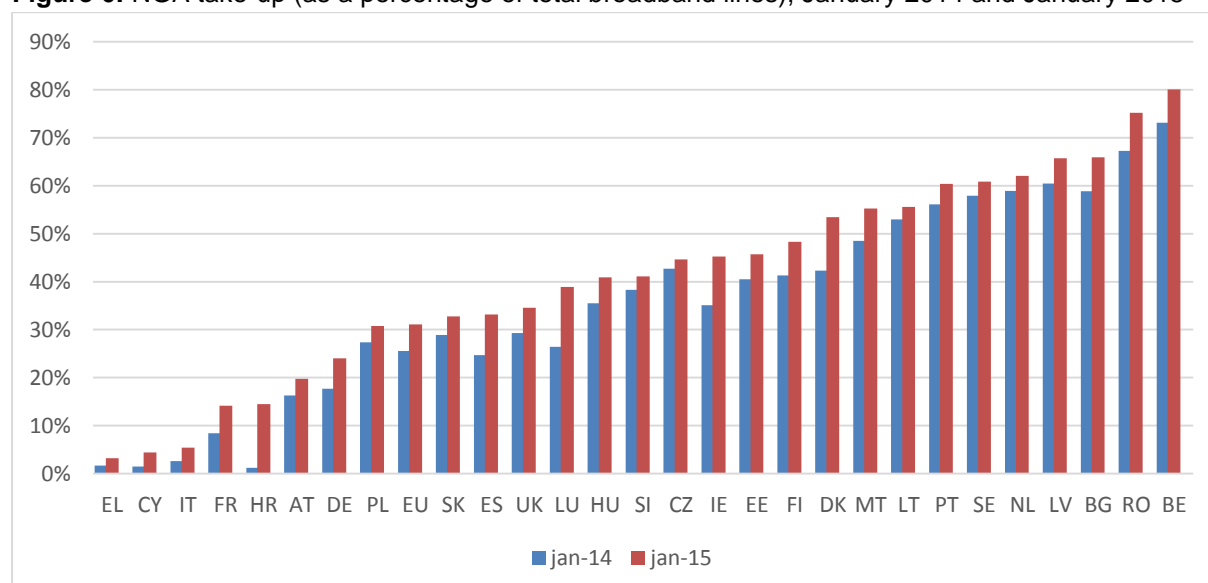
**Figure 5:** Distribution of broadband lines by underlying technology in the EU and some OECD countries, January 2015



Source: European Commission and OECD

NGA take-up, that is, demand for subscriptions provided with fibre (either to the home (FTTH) or very close to the end user premises (FTTC/B)), with mixed fibre-coaxial networks upgraded to the standard Docsis 3.0 or using the VDSL standard in the subloop, also registered positive growth across the EU. Although the stock of fixed broadband lines supported by any technology in the EU-28 grew at an annual rate of 5.9% and reached a total of 157.7 million lines, the demand for NGA subscriptions grew by 26.8%, with a total of 10.4 million new NGA lines contracted in the period January 2014 to January 2015. Most notably, countries that had low relative take-up rates, such as Greece, Italy, Croatia and Cyprus, grew at the highest rates with increases of 100% or more in their NGA stocks over the year.

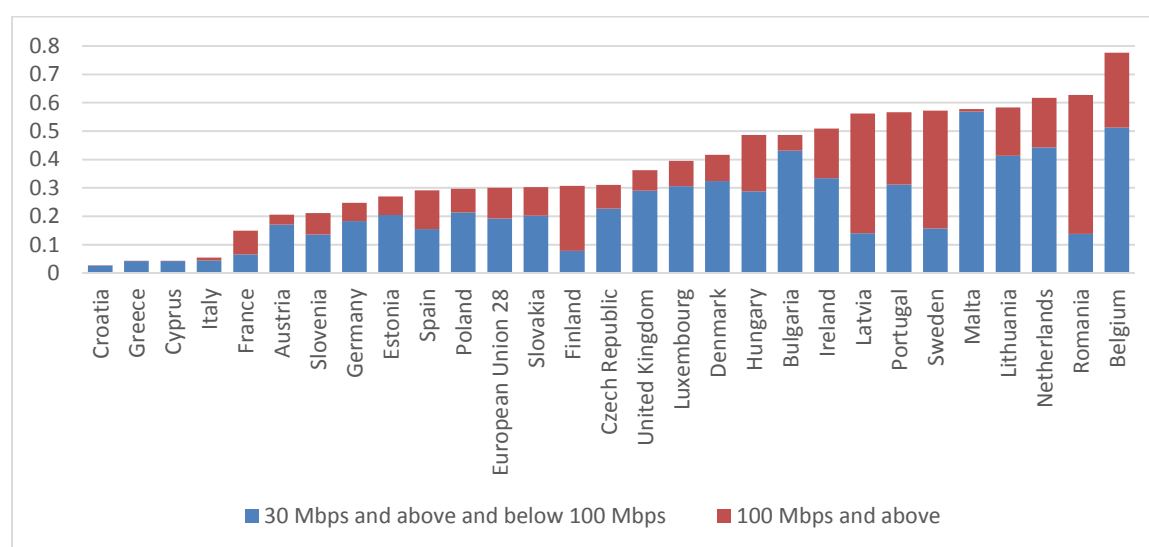
**Figure 6:** NGA take-up (as a percentage of total broadband lines), January 2014 and January 2015



Source: European Commission

The total number of NGA lines in the EU-28 was 49 million by January 2015, specifically subscriptions supported with an NGA technology or standards capable of providing very high connection speeds. Of those connections, many, but not all, had also been contracted as very-high-speed connections, that is, at a downloading speed of at least 30 Mbps. By June 2015, 30% of all fixed broadband lines active in the EU were in fact enjoying speeds of 30-100 Mbps or higher.

**Figure 7:** Very-high-speed broadband subscriptions in the EU (speed of 30 Mbps or higher) as a proportion of total broadband, June 2015



Source: European Commission

### 3.5 Mobile broadband

Over the past few years, mobile broadband recorded the highest growth rates of any retail service, both in penetration and usage, as well as in traffic. Mobile broadband subscriptions are mostly demanded for smartphone or handheld terminals. According to the Special Eurobarometer Survey, over half of internet users (61%) access the internet through a smartphone and 30% use a touchscreen tablet. Compared with 2013, the proportion of users who accesses the internet through a smartphone has increased by 26 percentage points (from 35% to 61%), while there has been an increase of 16 points in the use of touchscreen tablets (from 14% to 30%).

In addition to the thriving market for smartphones and tablets, the more intense bundling of mobile voice, messaging and data services has contributed to the widespread use of mobile broadband.

Mobile broadband reached a penetration level of 75.4 subscriptions per 100 inhabitants in the EU-28, with a growth in penetration of 13% in the period from June 2014 to June 2015. Four countries (Finland, Sweden, Estonia and Denmark) showed penetration figures higher than 100 subscriptions per 100 inhabitants.

Migration to 4G networks is being driven by the increasing LTE coverage and also by the increasing use of smartphones. In Europe, the commercial launch of 4G/LTE advanced during

2014 as well. In practically all the EU-28 countries, citizens already had commercial offers available on LTE. Sixteen countries in the EU reached an LTE coverage of at least 75% of the population and a total of 26 countries had half the population – or more – covered by at least one LTE-based service provider. These figures contrast with those provided 1 year ago, when only eight countries had a coverage of at least 50% of the population. In Sweden, the Netherlands, Denmark and Slovenia, LTE availability covered practically the whole population, similar to the levels found in Korea, Japan or the USA.

A key factor in this increasing coverage of 4G/LTE is spectrum allocation. The advances in the past two years were made possible by the spectrum auction of the 800 MHz, 1 600 MHz and 2 600 MHz bands, which took place in the majority of EU countries. Over the past year, most European countries have auctioned the 800 MHz 'digital dividend' spectrum, which had been freed up by the switchover from analogue to digital broadcasting. GSMA estimates that 4G/LTE coverage will exceed 90% in early 2016 and that by 2020 83% of the European population will be covered by LTE networks.

LTE take-up also registered a positive growth across the EU. By the beginning of 2013 only 3% of all mobile connections in Europe were LTE; in the third quarter of 2015 this figure increased to 20% and, according to GSMA estimates, the proportion of LTE connections is set to almost triple to close to 60% by 2020. This growth in 4G coverage and the subscriber base using LTE is estimated to bring about very big increases in data traffic as well. Operators are increasingly bundling video and audio streaming apps such as Spotify Premium or Netflix with their tariff offers, which encourages consumers to increase data consumption. According to Cisco<sup>1</sup> 4G traffic exceeded 3G traffic for the first time in 2015 and mobile video traffic accounted for 55% of total mobile data traffic in 2015.

Cisco estimates that mobile networks will absorb data traffic increases of 53% at a compound annual growth rate for the period 2015-2020, most notably derived from the consumption of video content using handheld devices. In 2015, 89% of global mobile data traffic was 'smart' traffic, with advanced computing/multi-media capabilities, but Cisco estimates that this will rise to 98% by 2020. 75 % of world's data traffic will be video by 2020.

According to Cisco, in 2020, the average smartphone will generate 4.4 GB of traffic per month, 8.8 times greater than it is today (929 MB). Not only is smartphone-based consumption growing, but the stock of M2M connections too, which is expected to increase at double-digit annual rates over the coming years. GSMA estimates that the number of cellular M2M connections in Europe will grow from 68 million in 2015 to 182 million by 2020.

### **3.6 Bundles**

Owing to competition and/or wholesale regulation, all operators should now be able to provide both fixed and mobile services by using different forms of access to their competitors' networks (e.g. LLU, Bitstream, Mobile Virtual Network Operators (MVNO)), so that they have the option of entering the market and providing the various types of bundles.

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<sup>1</sup> The CISCO VNI Forecast, 2016.

Converged operators are competing with mobile operators only, which may lead to uncompetitive behaviour. Operators with both fixed and mobile operations may have a competitive advantage over those operators who operate in the mobile market only.

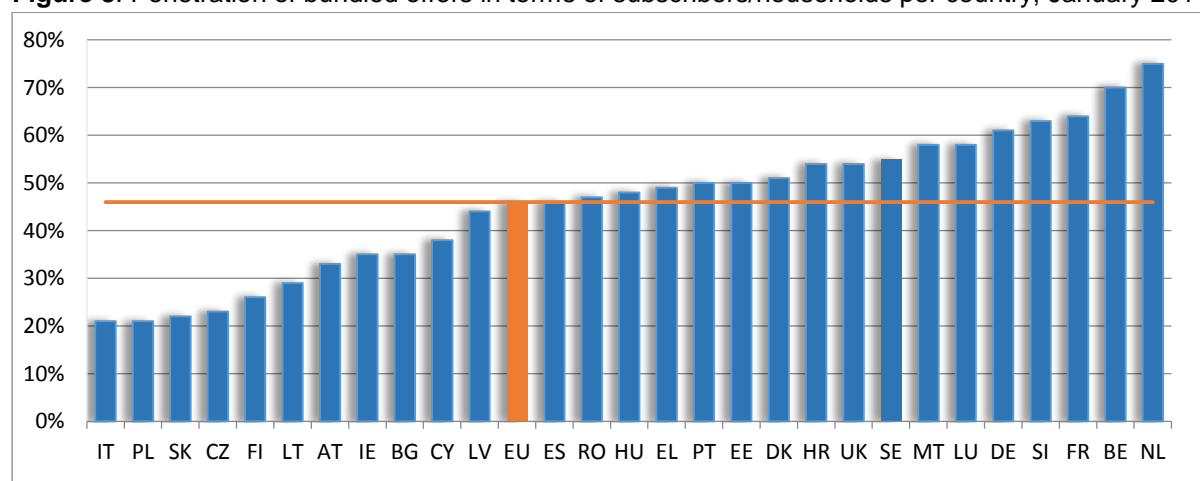
The importance of bundled offers is evident if we take into account the number of converged operators (operators providing both fixed and mobile services) in each country. According to BEREC data<sup>2</sup>, at the end of 2014, in Europe, there were 100 converged operators overall, with the majority of countries (21) having 2–4 converged operators. Only four NRAs replied that there are no converged operators in their countries.

During 2014 the growing number of subscribers to bundled commercial offers by providers led to them being considered the most competitive model in the European market. Bundled services are increasingly used by consumers, and operators have continuously launched new offers on the market, combining voice services, internet access and television. In the second quarter of 2014 there were 204 million subscribers to bundled offers in the EU, which implies a penetration of 40.6%, with a total of 25 million new bundle subscriptions in the period July 2013 to July 2014.

Bundled offers are gaining popularity across the EU, although this is happening to different degrees among different Member States. A significant change in the landscape of telecom products and services took place between July 2013 and July 2014 across all Member States, with an increase in bundle penetration: the median increased from 25.7% to 27.1%. Slovenia represents a clear example of this, as the penetration of bundled offers reached 72% in 2014; in Germany the bundle penetration increased by 12 p.p. to 71%.

This trend can also be seen in the 2014 E-Communications Survey results. On average, almost half of all EU household respondents had bundled communications services (see Figure 8). In 11 countries bundled offers are in the majority (in the Netherlands 3 out of 4 households are subscribed to bundled services), while in 7 countries communication bundles form less than one-third of all offers (in Italy only 1 out of 5 household is registered for bundled offers).

**Figure 8:** Penetration of bundled offers in terms of subscribers/households per country, January 2014

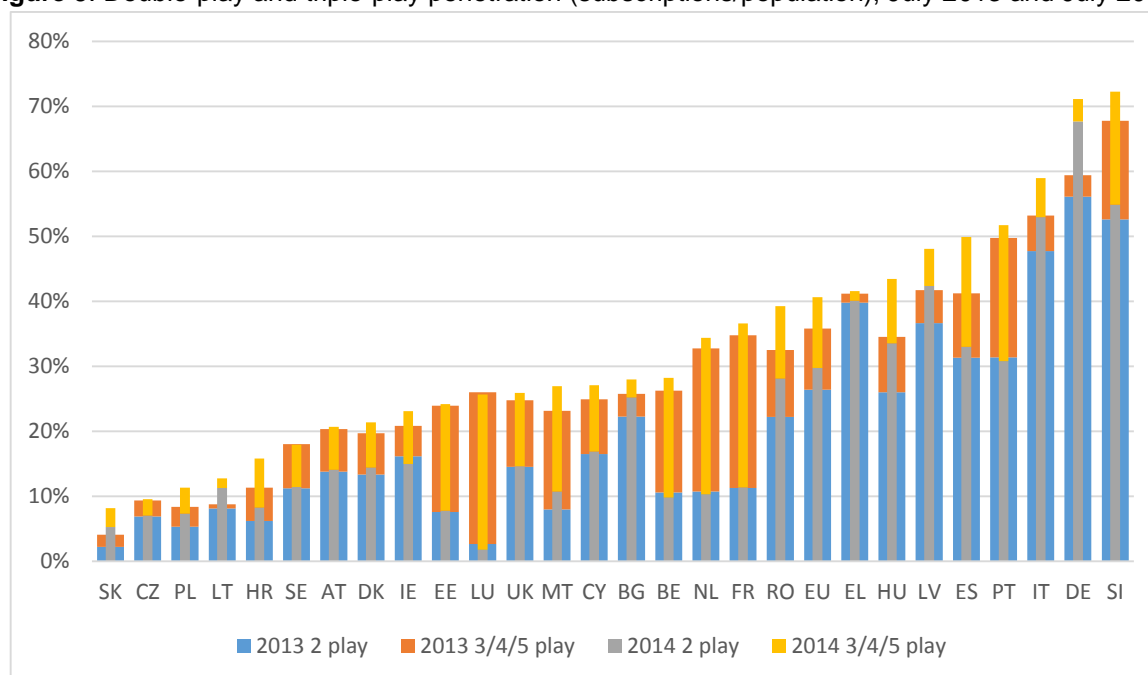


Source: Eurobarometer

<sup>2</sup> Data collection by BMK-EWG in January 2015.

Different types of bundles are popular across different EU countries. In some countries there is a predominance of double-play offers, whereas, in other countries the most popular bundle packages include three or more services, fixed and mobile services<sup>3</sup>. The proportion of double-play bundles among European countries varies significantly. In Luxembourg, the Netherlands and France, most bundled offers have at least three services included, whereas in Greece almost all bundles are double-play (96%).

**Figure 9:** Double-play and triple-play penetration (subscriptions/population), July 2013 and July 2014



Source: European Commission

Double-play continued to be the most popular bundle (73%), although there have been large increases in triple-, quadruple- and quintuple-play bundles over the past year (to 27% of total bundles).

The most common bundle combination was fixed voice with broadband services, although in some countries a significant number of end users tended to bundle more services together, including mobile and/or internet protocol TV (IPTV).

An analysis of each service provided in a bundle with other services<sup>4</sup> identified that Fixed Broadband Internet and Fixed Voice were the principal services offered.

In the recent survey conducted by BEREC, out of the 26 countries for which data were available, on average 70% of all fixed broadband connections were sold as part of a bundle and more than 54% of all fixed telephony subscriptions were also sold in bundled contracts.

<sup>3</sup> It should be noted that the methodology is not unified in all Member States, as some do not collect quintuple-play bundles, as they do not consider mobile broadband a standalone service. In addition, some Member States are including only pure bundles, whereas others are including other forms of bundling as well, such as tied bundling.

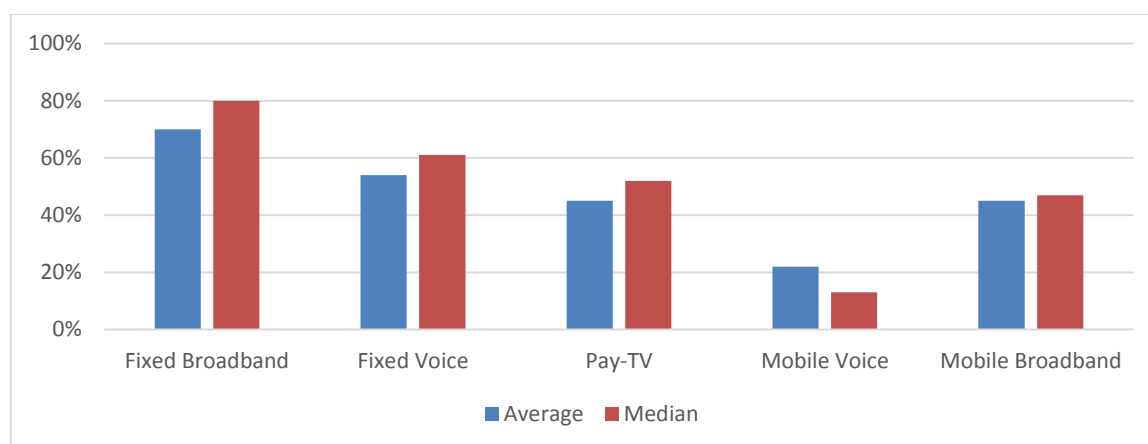
<sup>4</sup> Calculated as the number of service subscriptions that are bundled together with any other service, divided by the total number of total subscriptions of the service (bundled and standalone).



For pay-TV, bundling was also significant: 45% of subscribers had contracted this service together with an additional service in a single commercial offer.

Mobile voice subscriptions bundled with other services were, on average, 22%, but for mobile services more than 45% were subscribed bundled with other services.

**Figure 10:** Proportion of service subscriptions that are bundled in the EU, 2014



Source: Benchmarking EWG/BEREC

Despite a stabilisation in price between 2013 and 2014, broadband prices in the EU-28 fell significantly between 2012 and 2015. Based on a comparative study available on broadband tariffs<sup>5</sup> in the EU, in the last four year prices fell by 2.4% for stand-alone offers for medium-speed ranges (12-30 Mbps) and by 22.8% for triple-play offers that included voice, fixed broadband and pay TV for the speed range 30-100 Mbps.

In the lower speed range (12-30 Mbps), bundled offer prices have decreased most. Offers with speeds higher than 100 Mbps are also characterised by a price drop, which has largely taken place in the last year, but here the decrease comes after a large increase between 2012 and 2013. For all speed ranges except the 100+ Mbps range, prices for triple-play offers have fallen most sharply over the period 2012-2015.

A comparison of price levels between EU Member States reveals that they remain largely dispersed, but some convergence is taking place. During the last year, comparing tariffs in February 2014 with the same period in 2015, downward evolution has taken place in the EU-28. In most baskets only a small decrease has taken place, but in the 30-100 Mbps range in particular, prices in a few countries have fallen by 20-30% (in Croatia and Cyprus for triple-play offers and in Croatia and Malta for standalone offers, all of which are countries with relatively high prices). However, this overall downward price evolution in these countries was not sufficient to diminish the price gap with countries with the lowest prices.

There are a few exceptions to the downward price evolution, for example in the Netherlands, where the relatively low prices have gone up by 15-20%, in Germany and Hungary for offers

<sup>5</sup> Broadband internet access cost (BIAC) 2015, Van Dijk. The tariffs compared correspond to active offers in Europe as of February 2015.

in the 12-30 Mbps range (i.e. on average +10 and +26%, respectively), and by 17% in Luxembourg for 30-100 Mbps triple-play offers.

The increase in price could be justified by improvements in terms of quality, specifically the same tariffs for the same set of services but with higher speeds or, in some countries, by additional services that were included in the bundle as buckets of minutes for mobile voice and data services.

One interesting feature of the change in prices for broadband and bundles in the EU is that a positive correlation between higher speeds and higher prices does not appear as straightforward as expected, except for the ultra-high-speed offers (100 Mbps or higher download speeds).

Including an additional service in the bundle, for example adding voice to a broadband offer, increases the standalone price on average by 32% (for offers with speeds between 30 and 100 Mbps). Making it a triple-play offer by bundling the package further with television adds only around 19% to the double-play price.

In 80% of cases, the lowest priced tariffs or best entry offers across the EU are offered by entrants, leaving incumbents with relatively higher prices in most cases.

#### **4. Next framework review**

Last year also saw the formal launch of activities aimed at reviewing the current legislative framework for electronic communications. The first reflections on the areas of the 2009 package of directives to be possibly updated began in 2013, in parallel to the 'TSM' legislative process, which in the EC's original design significantly affected several areas of the current regulatory framework. In addition, the first assessments by the European Parliament on the framework implementation had marked the beginning of a reflection on the forthcoming review by all institutional actors involved, including BEREC.

As outlined in Part A, the ideal launch of the review process arose from a formal request by the Commission for a BEREC opinion on a wide set of questions relating to the current framework and the relevant areas for its possible adjustment.

BEREC formalised its views in a document in which it condensed the reflections begun in previous years and concluded in 2015.

As envisaged by the Commission's Work Programme, the legislative proposals are expected to be published in 2016. The proposals will take into account BEREC's technical considerations and the conclusions of the public consultation ended on 7 December 2015.

#### **5. Oligopoly analysis and regulation**

Consolidation through mergers and acquisitions (M&A) in the European electronic communications markets, observed in the previous years and especially in 2014, has continued.

As regards the mobile markets, on 11 September 2015, Hutchison Whampoa notified the EC of its plans to acquire sole control of O2, the mobile brand of Telefónica in the UK. This merger is still subject to clearance by the Commission, which has engaged in a Phase II review<sup>6</sup>. Post-merger, the British mobile market could be structured around three main MNOs instead of the current four operators. This is already the case in Germany, Ireland and Austria, where four-to-three mobile transactions were approved by the EC subject to conditions.

Also with regard to mobile markets, Teliasonera AB and Telenor ASA announced in 2015 their decision to abandon the proposed merger of their respective business units in Denmark after the EC spelled out its preliminary concerns on the transaction and opened a Phase II in-depth investigation<sup>7</sup>.

This proposed transaction merged the second and the third largest operator in the mobile retail market, and would have reduced the number of mobile operators in Denmark from four to three. The Commission opened an in-depth investigation because it had concerns that the transaction could reduce the merged entity's and its competitors' incentives to compete. According to the Commission, the transaction would also lead to a reduction in the number of MNOs able to offer wholesale services. Finally, the Commission had concerns that the resulting highly concentrated market structure with two large and symmetric operators (at both the retail and wholesale levels) could lead to increased coordination.

Fixed network operators have also launched M&A operations throughout 2015. Following an in-depth investigation, in February 2015 the Commission cleared Liberty Global's acquisition of a stake in the Belgian media company De Vijver Media NV, subject to a number of commitments regarding the licensing to third parties of two TV channels (Vier and Vijf) as well as any new basic pay TV channel that the merged entity may launch in the future<sup>8</sup>. In previous years, Liberty Global had already acquired the second largest cable operator in Germany (Kabel BW), as well as the largest cable operators in the UK (Virgin Media) and the Netherlands (Ziggo).

In May 2015 the Commission approved the acquisition of Jazztel by rival Orange in Spain<sup>9</sup>. The approval was conditional upon the full implementation of a number of commitments by Orange.

The Commission argued that the merged entity would have had fewer incentives to compete aggressively and the remaining major competitors (i.e. Telefónica and Vodafone) would benefit from reduced price pressure and thus would not replace the competitive pressure that Orange and Jazztel exerted up to that moment. The Commission further stressed that new players faced significant difficulties in entering the market owing to the high investments that are required and that end consumers lacked sufficient countervailing negotiation power.

The EC thus made authorisation of the acquisition conditional upon Orange making divestments of its FTTH network in located geographic areas of Spain, as well as granting to the purchaser of the divested FTTH network wholesale access to its national ADSL network.

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<sup>6</sup> [http://europa.eu/rapid/press-release\\_IP-15-5956\\_en.htm](http://europa.eu/rapid/press-release_IP-15-5956_en.htm)

<sup>7</sup> [http://europa.eu/rapid/press-release\\_IP-15-4749\\_en.htm](http://europa.eu/rapid/press-release_IP-15-4749_en.htm)

<sup>8</sup> [http://europa.eu/rapid/press-release\\_IP-15-4481\\_en.htm](http://europa.eu/rapid/press-release_IP-15-4481_en.htm)

<sup>9</sup> [http://europa.eu/rapid/press-release\\_IP-15-4997\\_en.htm](http://europa.eu/rapid/press-release_IP-15-4997_en.htm)

Orange further committed to grant to the purchaser of the FTTH network wholesale access to its mobile network, including 4G services, in case the purchaser had no such access.

In the case of *Altice/PT Portugal*<sup>10</sup>, the EC reviewed the proposed acquisition of the Portuguese electronic communications operator PT Portugal by the multinational cable and electronic communications company Altice. The Commission had concerns that the merged entity would face insufficient competitive constraints from the remaining players on the market for fixed electronic communications. According to the Commission, the merger would remove a strong competitor in said markets, leading to higher prices and less competition in Portugal. To address these concerns, Altice offered to sell its Portuguese subsidiaries Cabovisão and ONI.

As already observed in previous years, the configuration of integrated operators owning both fixed and mobile infrastructure is also driving M&A operations. In this regard, in October 2015 the EC opened an in-depth investigation to assess the proposed acquisition of BASE by Liberty Global in Belgium<sup>11</sup>. The Commission's concerns are twofold and relate to: (i) the reduction of competition in the retail mobile telephony market in Belgium, where Telenet (Liberty) and BASE currently compete against each other; and (ii) the lower incentives for BASE to offer virtual operators access to its mobile network.

Other mergers in the electronic communications field were also subject to review at national level, with remedies being imposed in cases such as *Telefónica/DTS* (merger between the largest electronic communications provider and the main pay-TV operator in Spain) or *Telia Sonera/Tele 2* (merger between two of the main mobile operators in Norway). In the UK, the competition authority is reviewing the acquisition of EE (the largest mobile operator in the UK) by BT.

The above examples confirm the importance of the wave of consolidation in the past few years. This trend, coupled with other features, such as the increased importance of NGA deployment, technological convergence or the move towards supplying electronic communications services in a bundle (thus requiring ownership of both fixed and mobile network infrastructures), may lead to a reduction in the number of operators active in the affected electronic communications markets<sup>12</sup>.

The impact of this trend in sectoral regulation, and the sufficiency (or not) of the current regulatory model to cope with new market structures, and in particular with oligopolies, is one of the topics that the revision of the existing legislative framework will need to address. This has already been noted by the EC in its public consultation on the evaluation and review of the regulatory framework for electronic communications networks and services<sup>13</sup> and has led to on-going work by BEREC in the field (see section 2.1.6). At national level, the impact of

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<sup>10</sup> [http://europa.eu/rapid/press-release\\_IP-15-4805\\_en.htm](http://europa.eu/rapid/press-release_IP-15-4805_en.htm)

<sup>11</sup> [http://europa.eu/rapid/press-release\\_IP-15-5774\\_en.htm](http://europa.eu/rapid/press-release_IP-15-5774_en.htm)

<sup>12</sup> In this regard, see BEREC Report on Oligopoly analysis and regulation, BoR (15) 195, available at [http://berec.europa.eu/eng/document\\_register/subject\\_matter/berec/reports/5581-berec-report-on-oligopoly-analysis-and-regulation](http://berec.europa.eu/eng/document_register/subject_matter/berec/reports/5581-berec-report-on-oligopoly-analysis-and-regulation).

<sup>13</sup> Consultation of September 2015, available at <https://ec.europa.eu/eusurvey/runner/TelecomFrameworkReview2015>. See in particular Questions 42 and 43.

increasingly oligopolistic market structures will also have to be factored in by NRAs when undertaking their *ex ante* market analyses<sup>14</sup>.

## 6. Over-the-top services

Technological developments, especially the transition to the IP technology, which enable a growing range of services to be consumed online and include the emergence of new services and business models operating over the internet. The provision of internet-based services commonly known as ‘Over The Top’ is of increasing importance in the rapidly evolving information and communication technology industry and of great value to end users. It is estimated that the annual worldwide revenue of digital services – which for a large part consist of services provided over the internet, that is, OTT services – is about EUR 700 billion in 2015, about 1% of world GDP<sup>15</sup>. The value (willingness to pay) for users and contribution to the overall economy is even greater than that. The importance of the internet to consumers was appraised in a study by the Boston Consultancy Group that sought to measure the value consumers receive from the digital economy. This study estimated the value of the internet and OTT services in Europe at EUR 2 600–3 700 annually per connected consumer. According to the same study, in Europe the internet economy will contribute EUR 880 billion, or nearly 6%, to the GDP of the EU in 2016<sup>16</sup>.

Owing to the current and expected evolution of new services taking place online, the boundary between electronic communication services (ECS) and the content services provided over electronic communication networks becomes increasingly blurred.

In 2015 BEREC started its work on the Report on OTT services, which was sent to public consultation in October 2015. The final version of the report was approved in Q1/2016.

In addition, BEREC developed an internal report that looks into the possibility of establishing a set of indicators for OTT services which could be benchmarked across Europe. The main conclusion is that it is too early for NRAs to address the benchmarking of indicators about these OTT services, first, because most NRAs do not gather statistical information on OTT services or gather information mainly from end-user surveys; and, second, because the majority of NRAs have no legal basis or very limited legal capacity from which to request information from providers of such OTT services. However, because there is also a short-term need for evidence in order to inform European policies and national regulatory decisions, in the report it is proposed that the EC, in collaboration with BEREC, may improve the tools it is currently using to gather information on penetration rates (Eurobarometer and Eurostat’s Information Society Statistics) but also find new ways to enable authorities to obtain robust information on the consumption of OTT services at country level.

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<sup>14</sup> In this regard, see for example Case NL/2015/1794, *Wholesale local access provided at a fixed location in the Netherlands*. The Commission’s comments letter is available at [https://circabc.europa.eu/sd/a/cba931ad-bbf3-4ddf-b0e5-d2714e589a3b/NL-2015-1794%20ADOPTED\\_EN.pdf](https://circabc.europa.eu/sd/a/cba931ad-bbf3-4ddf-b0e5-d2714e589a3b/NL-2015-1794%20ADOPTED_EN.pdf)

<sup>15</sup> BCG, *Reforming Europe’s Telecoms Regulation to enable the Digital Single Market*, 2014.

<sup>16</sup> BCG, *The Internet Economy in the G-20*, 2012. This study estimated consumer value of the Internet and OTT services at EUR 3 700 annually per connected consumer in France, EUR 3 000 in Germany, and EUR 2 600 in the UK.

The BEREC Opinion on the Review of the EU Electronic Communications Regulatory Framework was another important piece of work approved by the 4th plenary meeting in 2015. In its opinion, BEREC examined the scope of the regulation (the correlation between ECS and OTTs), and whether sector-specific obligations should apply to OTT services. The work will continue in 2016.

## **7. Developments related to European net neutrality regulations**

The EC presented its draft TSM Regulation in September 2013, which led to activities in 2015 in both arms of the EU legislature to conclude negotiations and adopt a final text. The Regulation was adopted by Council and Parliament in October 2015, and entered into force on 29 November 2015.

Although the 2009 EU regulatory framework empowers (but does not require) NRAs to act to prevent the degradation of services, the newly adopted TSM Regulation includes new, directly applicable, rules on net neutrality. These rules enshrine in EU law users' right to be 'free to access and distribute information and content, run applications and use services of their choice.' They also require internet service providers (both fixed and mobile) to treat all traffic equally and prohibit them from blocking or slowing down internet traffic, except where necessary to apply reasonable traffic-management measures.

The rules will apply from 30 April 2016 and the consistent application of the rules will be supported by guidelines to be issued by BEREC by 30 August 2016. As stipulated by the Regulation, BEREC must provide guidance on the implementation of the obligations of NRAs related to the supervision, enforcement and transparency measures for ensuring open internet access.

## **8. Emerging challenges in next-generation networks and IP- interconnection**

### **8.1 Virtual access products**

The NGA rollout of the incumbent operator resulted in the increased use of L2 WAP as a remedy on the wholesale local access market (Market 4/2007, Market 3a/2014) or the wholesale broadband access market (Market 5/2007, Market 3b/2014). In order to support this process, BEREC published a report (see section 2.1.2 of Part A) which analyses L2 WAP already used in practice and identifies common characteristics of these L2 WAP. In 2016, BEREC will go one step further and will define a CP on L2 WAP (see BEREC Work Programme 2016, section III A 1.1). The CP will focus on L2 WAP imposed on the wholesale local access market (M3a) and L2 WAP imposed on the wholesale central access market (M3b).

### **8.2 Effective regulation for competitive next-generation access rollout and migration to 'all-IP networks'**

In light of the digital agenda targets and national NGA rollout plans, the effective regulation of markets related to NGA networks and services remains one of the key challenges for regulators. The picture continues to be diverse within and between Member States. This

applies with regard to both demand-side factors such as take-up rate, willingness to pay, etc., as well as supply-side factors such as the number of competitors (depending on whether cable and/or municipalities/utilities play a part) and the technology mix (FTTB/H and/or VDSL with or without vectoring). In view of the perceived coverage versus competition trade-off, how to maintain the level of competition and choice for consumers in the context of the migration to NGA networks remains a vital issue. Platform competition between cable and incumbent infrastructure is seen as the outcome of consolidation processes in some Member States, whereas experience has generally taught us that '2 is not enough for competition'. This implies that, in many cases, fixed infrastructure will continue to require regulation. While SMP regulation will remain the primary means of regulatory intervention (e.g. given the potential for re-monopolisation in the context of new NGA networks), nonetheless we expect that symmetric access obligations will also have an important part to play going forwards (e.g. in the context of co-investments).

The migration to all-IP networks has an impact on both the interconnection for voice services and the access network. In 2015, BEREC published a report (see section 2.1.5 of Part A) which analyses the migration to IP-based interconnection for voice services. The appropriate regulatory intervention, which is needed in order to support the migration to all-IP in the access network, will be analysed in a project in 2016 (see BEREC Work Programme 2016 section III A 1.4).

### **8.3 Internet of Things/Machine to machine**

The development of the IoT will be a major part of the envisaged digital economy. It is of utmost importance to foster an environment that will result in sustainable competition, interoperability of electronic communications services and consumer benefits.

BEREC has investigated the preconditions needed for M2M services to thrive. Different authorities might help in establishing these. As set out in the report they include assuring adequate resources for M2M services (spectrum, numbers, IP addresses), an EU Electronic Communications Framework fit for M2M services and consumer acceptance of M2M services depending on transparency, privacy, data security, interoperability of services, devices and platforms.

Depending on the nature of the application different aspect will be of importance.

While technical management of IP addresses comes under the responsibilities of ICANN (in cooperation with RIPE NCC), the allocation of spectrum and telephone numbers lies within the remit of national authorities of the electronic communications sector. With regard to areas such as privacy, cybersecurity and standardisation, NRAs competences vary. Some have only limited or no competences at all. In many instances, national and/or international authorities other than NRAs are responsible for these areas.

Cooperation between NRAs and other respective competent authorities in order to create awareness and foster an innovation-friendly as well as consumer-friendly environment might be useful. Therefore, it may be important for BEREC to build on its report by entering into a dialogue with these entities.

## 9. International roaming developments - BEREC benchmark data reports

Pursuant to Article 19 of the Roaming Regulation, BEREC regularly collects data from NRAs on the development of retail and wholesale charges for voice, SMS and data roaming services and publishes its findings twice a year in its benchmark data reports.

The two benchmark reports published in 2015 cover the last three quarters of 2014 and first quarter of 2015. They show a good level of compliance in all EEA countries with the provisions set out in the Roaming Regulation. Prices at the retail and wholesale levels are below the price caps and decline over time.

For calls made, average Eurotariff prices remained below the regulated caps in most EEA Member States. The EEA average Eurotariff price was EUR 0.131 per minute in quarter 1 2015 compared with a cap of EUR 0.19. For calls received, the EEA average Eurotariff rate was nearer the cap in quarter 1 2015, at EUR 0.034 per minute compared with EUR 0.050. At the wholesale level, the regulation has also led to a constant reduction in the average EEA wholesale charges for intra-EEA roaming voice calls, ending up at an EEA average wholesale charge of EUR 0.037 in quarter 1 2015 compared with a cap of EUR 0.05 per minute.

Despite the drop in retail voice prices, there are no indications that operators have in general tended to raise the prices of unregulated 'Rest of World' roaming calls to make up for the loss of revenue attributable to lower regulated price caps.

The EEA average retail price for Euro-SMS sent follows a trend slightly below the cap. In 2015, the average retail price was EUR 0.054, in comparison with the regulated cap of EUR 0.06. At the wholesale level, the difference is a bit higher, with average wholesale charges of EUR 0.013 and a cap of EUR 0.02.

Positive outcomes of competition dynamics for data roaming are signalled by the much bigger differential (compared with voice calls and SMS) between the regulated caps and the average prices per MB, both at retail and wholesale levels. In quarter 1 2015, the average retail data Eurotariff was EUR 0.052 per MB, four times lower than the cap fixed at EUR 0.20. At the wholesale level, the EEA average price for non-group data fell to EUR 0.019 per MB in quarter 1 2015 compared with a cap of EUR 0.050.

When it comes to alternative tariffs, as observed in previous Benchmark Reports, the European average prices for calls made, calls received and SMS remain significantly above the Eurotariff average prices. Nevertheless, Eurotariffs account for the majority of voice and SMS traffic. In quarter 1 2015, 63.3% of calls made and 73.9% of calls received were based on Eurotariffs. For text messages sent while roaming within EEA countries, unregulated non-Euro SMS tariffs only accounted for 13.3% of the total volume.

There is a significantly different trend in the case of data roaming services. In quarter 1 2015, around 42.6% of data traffic was based on the non-Euro data tariff while roaming. In this regard, the BEREC Reports on Transparency and Comparability of International Roaming Tariffs also showed that a large number of operators offered a variety of packages of roaming data services.

Regarding the wholesale agreements based on Article 3 of Roaming Regulation III, only some operators submitted this data. BEREC's International Roaming Compliance Report showed

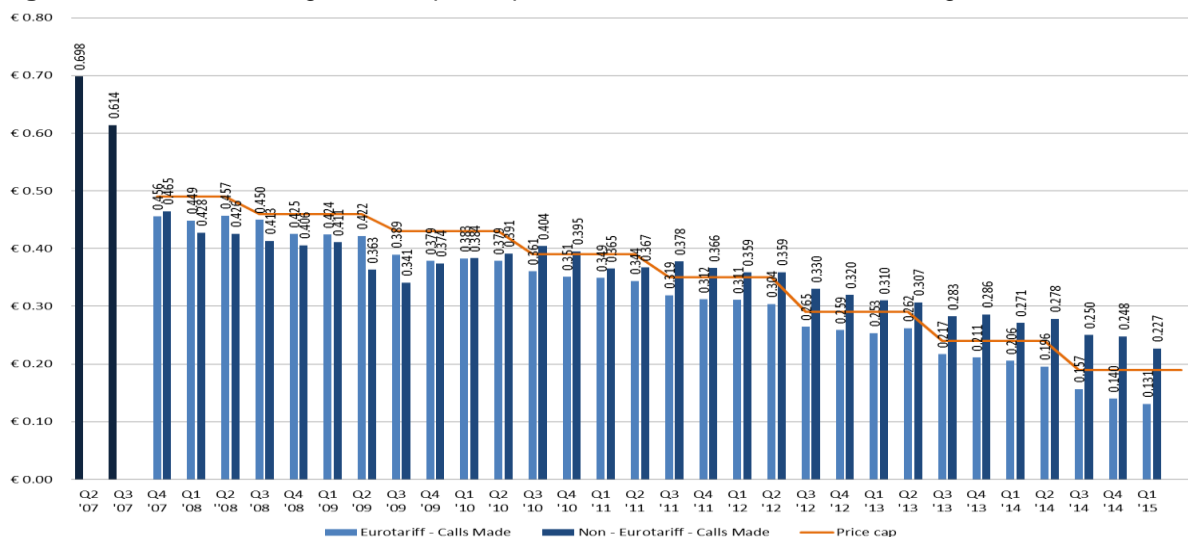


that operators negotiated roaming services at the wholesale level individually and that the provision of these services was based on commercial agreements. Some light MVNOs as well as resellers stated that these services continued to be provided on the basis of the existing contracts with host MNOs.

The figures below are extracted from the International Roaming BEREC Benchmark Data Report October 2014–March 2015:

### i. Voice retail prices:

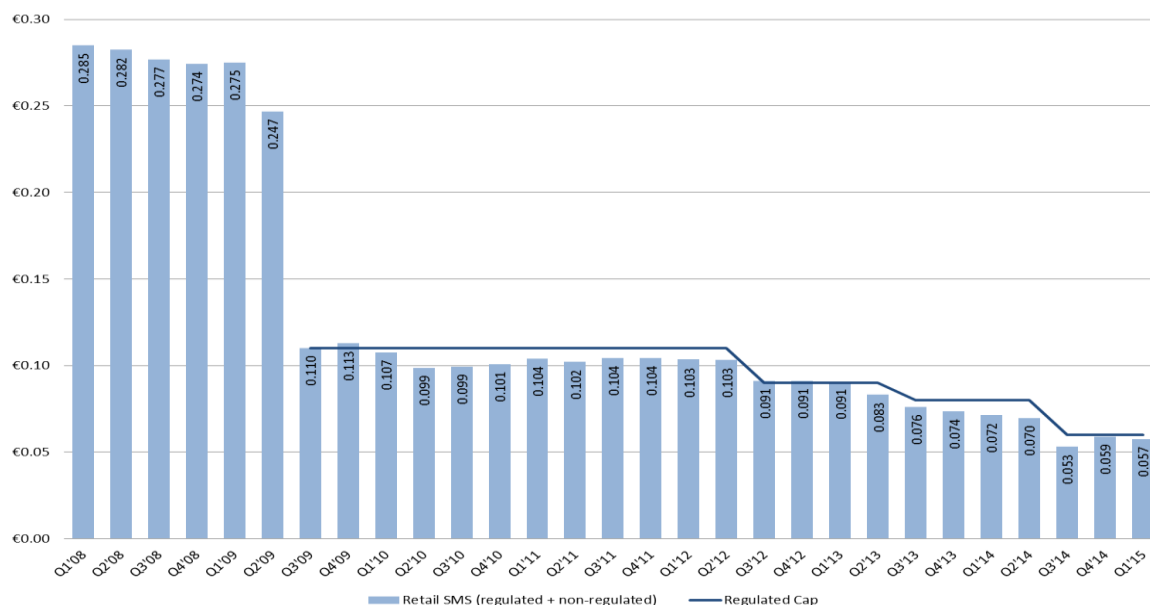
**Figure 11:** EEA average retail price per minute for intra-EEA roaming voice calls made



Source: BEREC IR Benchmark Report

### ii. SMS retail prices:

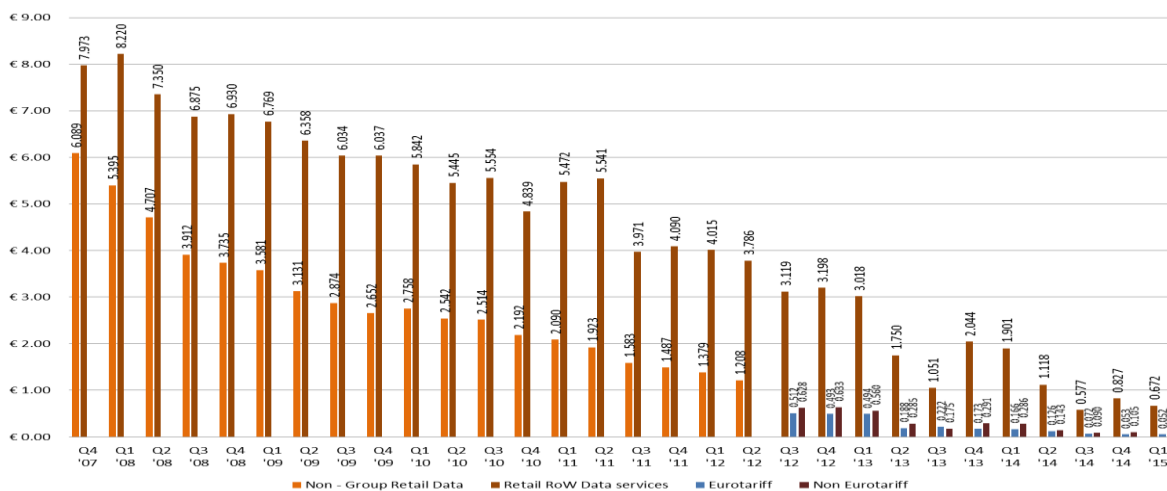
**Figure 12:** Average EEA price per retail SMS (Euro + Non Euro SMS tariffs)



Source: BEREC IR Benchmark Report

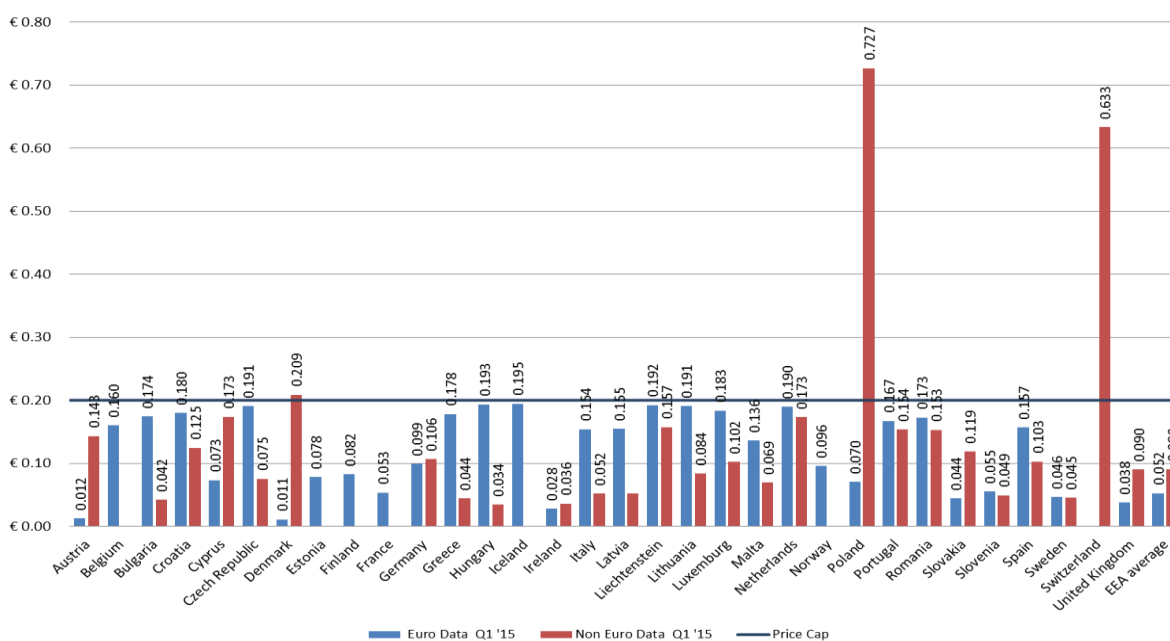
### iii. Data retail prices:

**Figure 13:** EEA average price per Mb for retail EU/EEA and RoW data (Eurotariff and Non Eurotariff: prepaid + postpaid)



Source: BEREC IR Benchmark Report

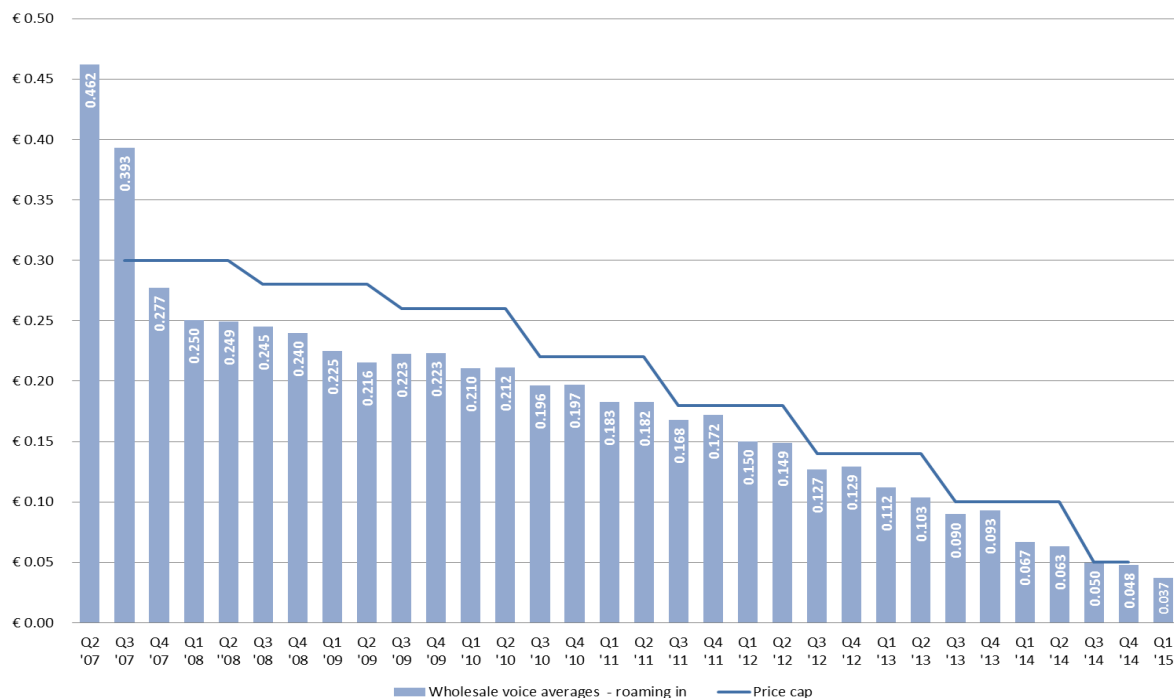
**Figure 14:** Average retail data price per Mb in Q1 2015 (prepaid+postpaid)



Source: BEREC IR Benchmark Report

#### iv. Voice wholesale charges:

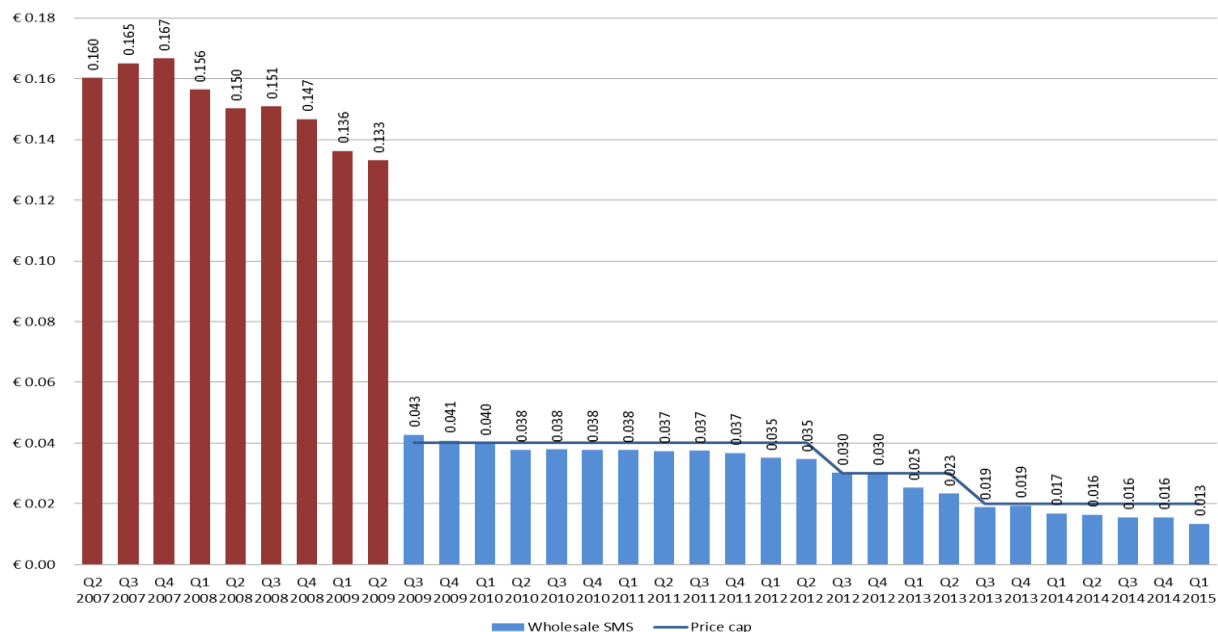
**Figure 15:** EEA average price per minute for wholesale non-group roaming voice calls. Source: BEREC IR Benchmark Report



Source: BEREC IR Benchmark Report

#### v. SMS wholesale charges:

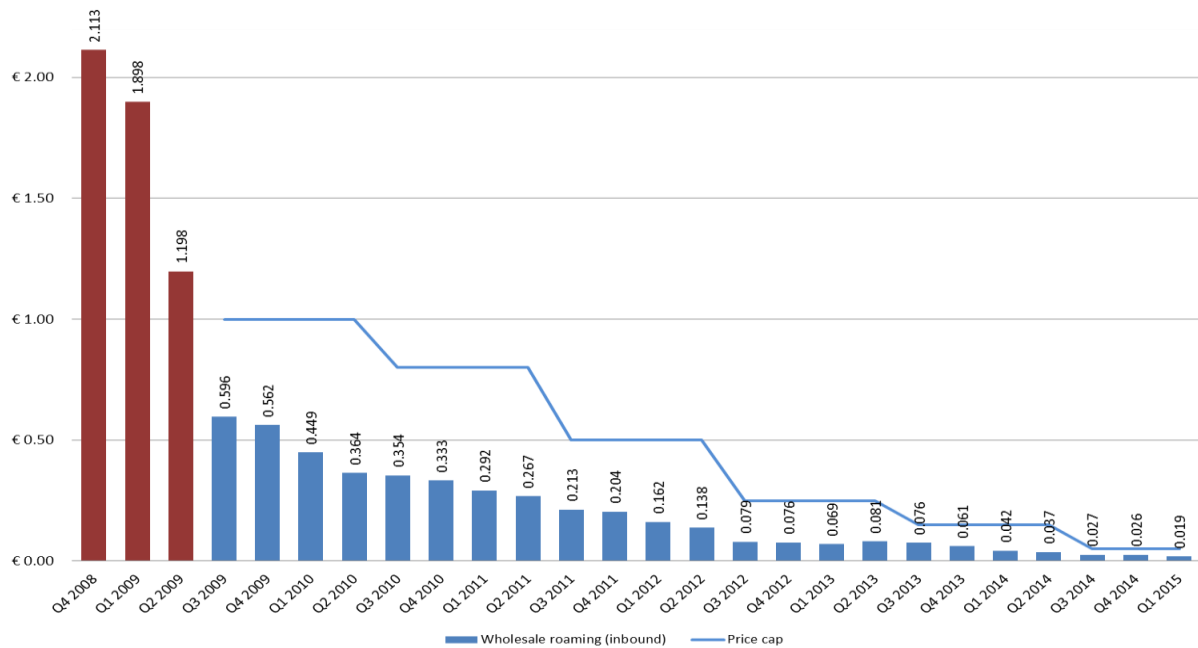
**Figure 16:** Average wholesale price per intra-EEA roaming SMS: charges to non-group companies



Source: BEREC IR Benchmark Report

## vi. Data wholesale charges:

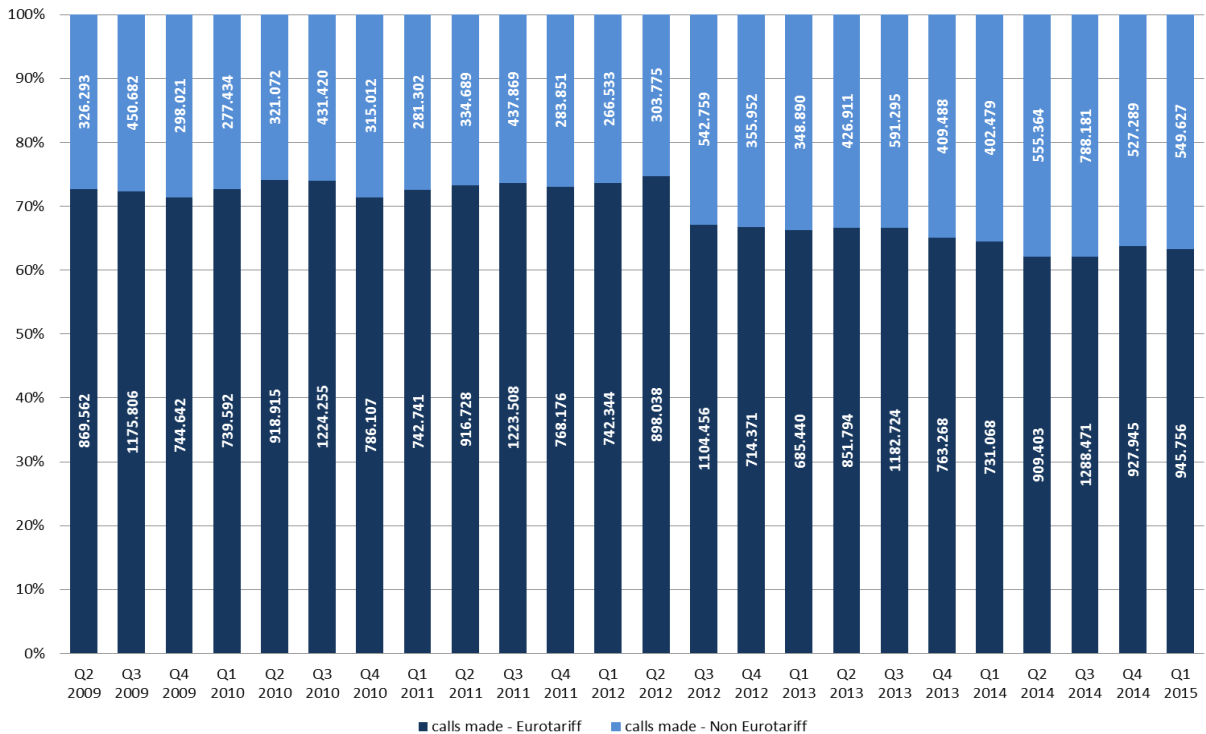
**Figure 17:** Average wholesale data price per Mb (prepaid+postpaid), EEA average



Source: BEREC IR Benchmark Report

## vii. Voice volumes for calls made:

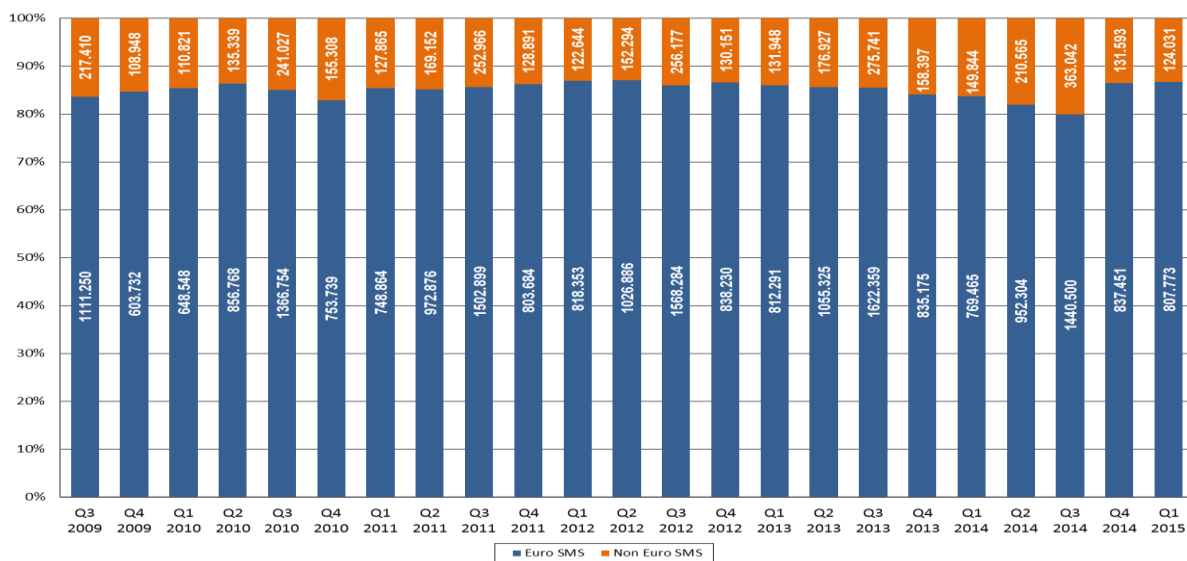
**Figure 18:** EEA percentage of calls made: Eurotariff and alternative tariffs (millions of minutes)



Source: BEREC IR Benchmark Report

### viii. SMS volumes:

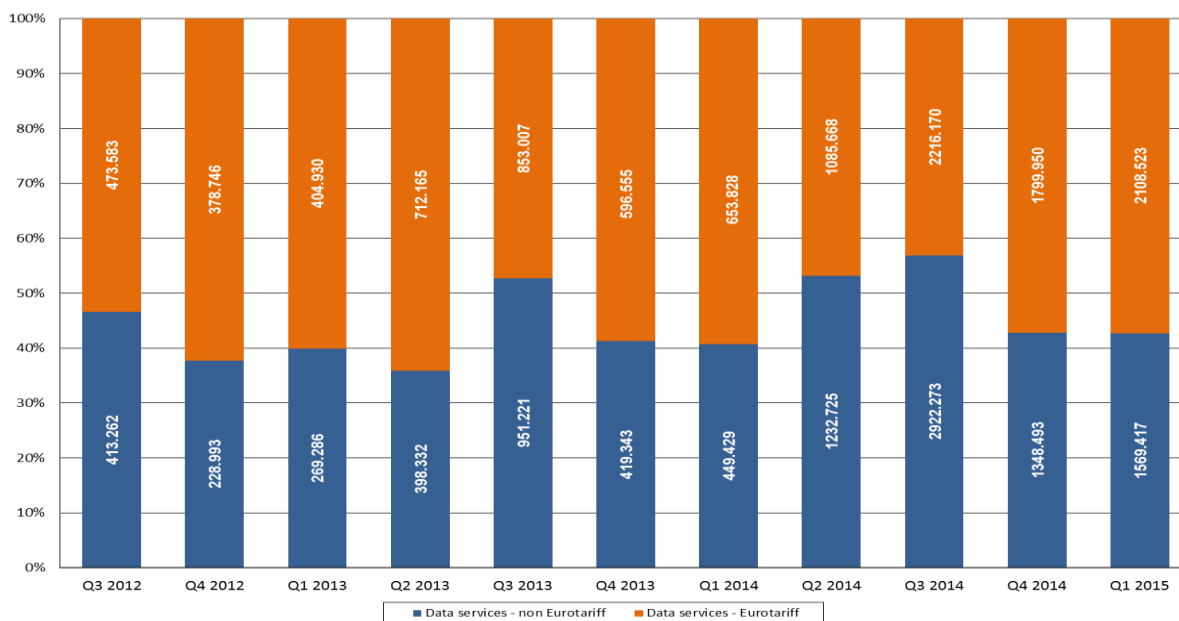
**Figure 19:** EEA percentage of SMS messages: Euro SMS and Non Euro SMS (millions of messages)



Source: BEREC IR Benchmark Report

### ix. Data volumes:

**Figure 20:** EEA percentage of Data service: Eurotariff and Non Eurotariff.



Source: BEREC IR Benchmark Report

## 10. Termination rates evolution

BEREC constantly monitors domestic<sup>17</sup> TRs in Europe and provides an overview report twice a year on FTRs, MTRs and SMS TRs.

Following NRA interventions in the two relevant markets, namely Market 1, 'Wholesale call termination on individual public telephone networks provided at a fixed location', and Market 2, 'Wholesale voice call termination on individual mobile networks', and the implementation of the Commission Recommendation on TRs, the wholesale rates both for mobile and fixed interconnection have fallen significantly and keep decreasing.

In most EU countries, SMS services are not subject to a wholesale termination price regulation. Nevertheless, a substantial decrease in SMS termination rates over the years is observed in the EU markets.

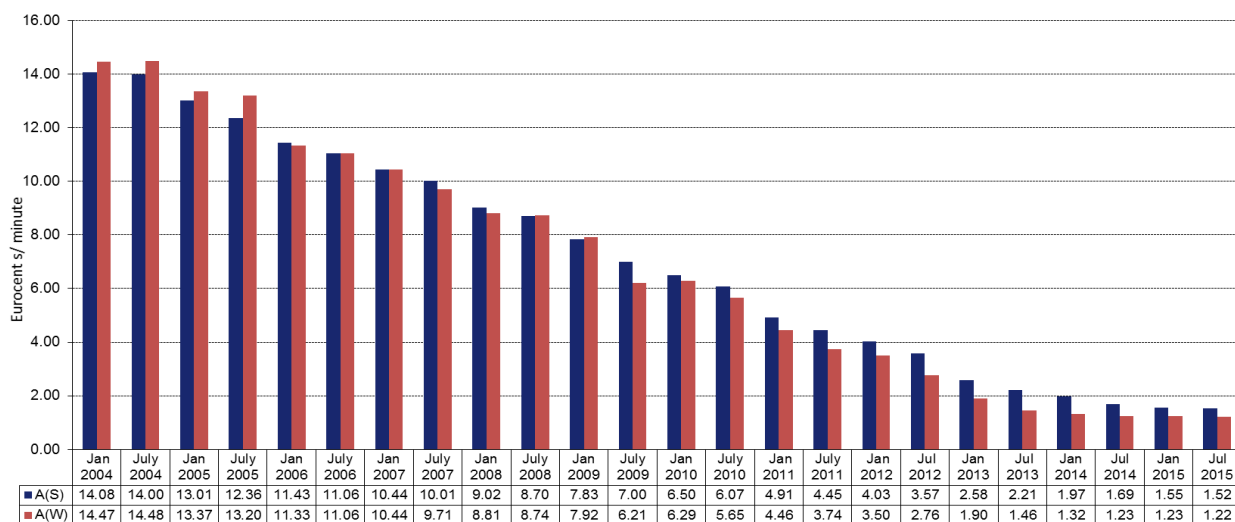
### 10.1 Mobile termination rates

MTRs have been regulated based on cost-oriented pricing in all countries of the EU-28 since the beginning of the decade. Most NRAs have implemented the Commission Recommendation on TRs, which established pure LRIC as the cost standard to be applied to the interconnection service for voice in mobile networks at the wholesale level. As shown in the graph below, wholesale interconnection rates for mobile telephony services in Europe fell markedly between January 2004 and July 2015: the simple average A(s) fell from 14.08 to 1.52 Eurocents per minute, while the weighted average A(w) fell from 14.47 to 1.22 Eurocents per minute<sup>18</sup>.

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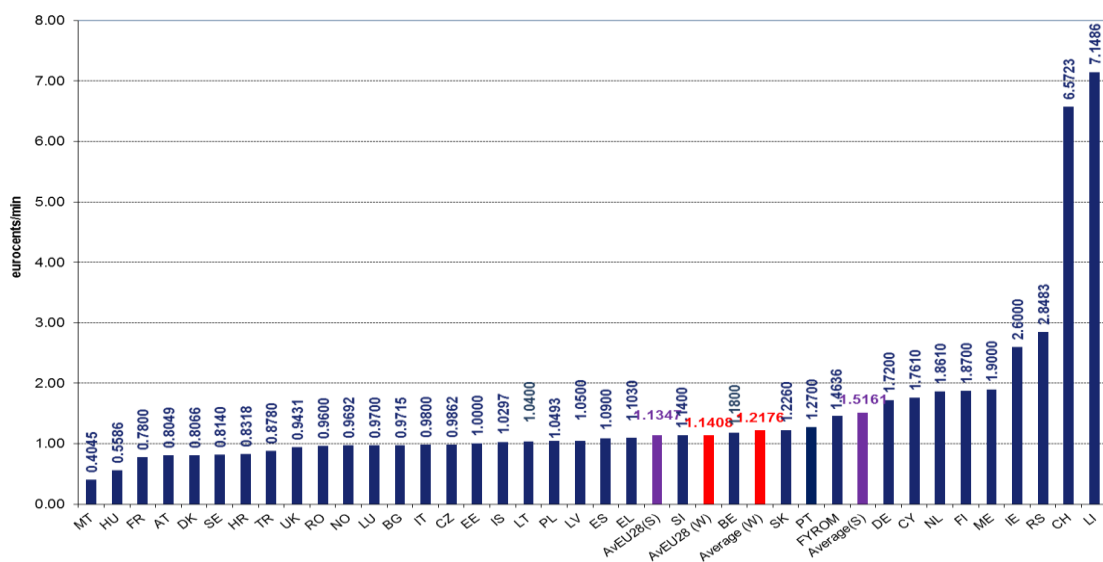
<sup>17</sup> Referring to calls originating and terminating in the same EU country.

<sup>18</sup> In the BEREC periodic MTRs benchmarks, both a simple average and a weighted average are reported. The latter is calculated by weighting each country's average with the relative share of the country's subscribers (over all the subscribers).

**Figure 21:** Average MTR: Time series of simple average and weighted average at European level

Source: Termination rates at European level July 2015

For the first time, the averages for the 28 EU Member States were calculated as well. The MTR A(s) at the EU level (EU Member States only) stands at 1.13 Eurocents per minute, whereas A(w) at EU level is estimated at 1.14 Eurocents per minute. For July 2015, individual Member States' and observers' average rates<sup>19</sup>, together with European and EU simple and weighted averages, are shown in the figure below.

**Figure 22:** MTR per country - July 2015

Source: Termination rates at European level July 2015

<sup>19</sup> Average MTR per country is obtained by weighting the average MTR of each operator by its market share, measured in terms of subscribers.

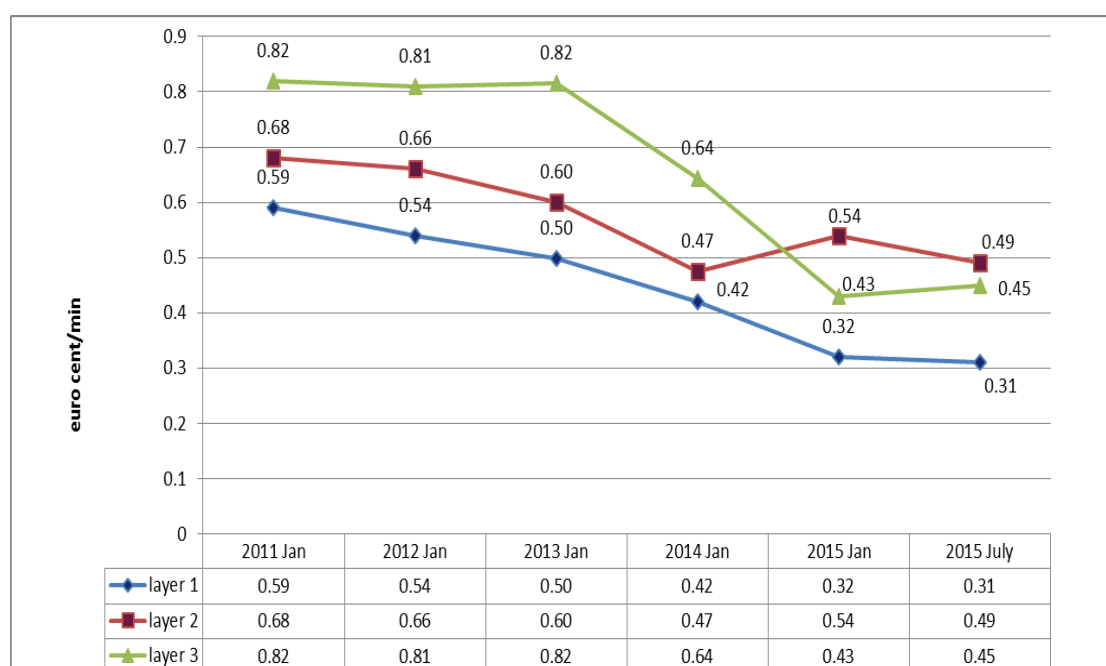
## 10.2 Fixed termination rates

Since the beginning of the liberalisation period, when incumbent operators held all the end customers of fixed network services, the termination service has been regulated not only in the price dimension but also in service characteristics and quality parameters. The regulation of voice termination in fixed networks has resulted in a clear overall decline in FTRs over the past decade, although this is of a smaller magnitude than the decline in MTRs. In the past year, however, a significant reduction in this regulated price has taken place in the EU-28 countries thanks to the increasing implementation of the Commission Recommendation on TRs, although it remains less advanced for FTRs than for the MTRs.

Fixed interconnection services may be supplied at different levels of the incumbents' or any other fixed rival network. The BEREC analysis is based on differentiation of network hierarchies and, in particular, on three different network layers for the relative distance of the interconnection level to the termination point. Although some countries have more layers, a three-layer model is usually offered: local transit (layer 1), single transit (layer 2) and double transit (layer 3). As of 2013, not all NRAs regulate all three layers, but at least one is most commonly found. Moreover, interconnection in fixed networks at EU level is provided under time-based regime, under which a variable price for each minute of interconnection and for each possible layer is set.

Compared with MTRs, the fall in FTRs is smaller, as the level of tariffs has been significantly lower and the state of implementation of the LRIC cost standard is less advanced than for MTRs. As shown in the figure below, the simple average of wholesale interconnection rates for a fixed telephony service terminated in the network of European incumbent operators declined between January 2011 and July 2015 from 0.59 to 0.31 Eurocents per minute (layer 1); from 0.68 to 0.49 Eurocents per minute (layer 2); and from 0.82 to 0.45 Eurocents per minute (layer 3).



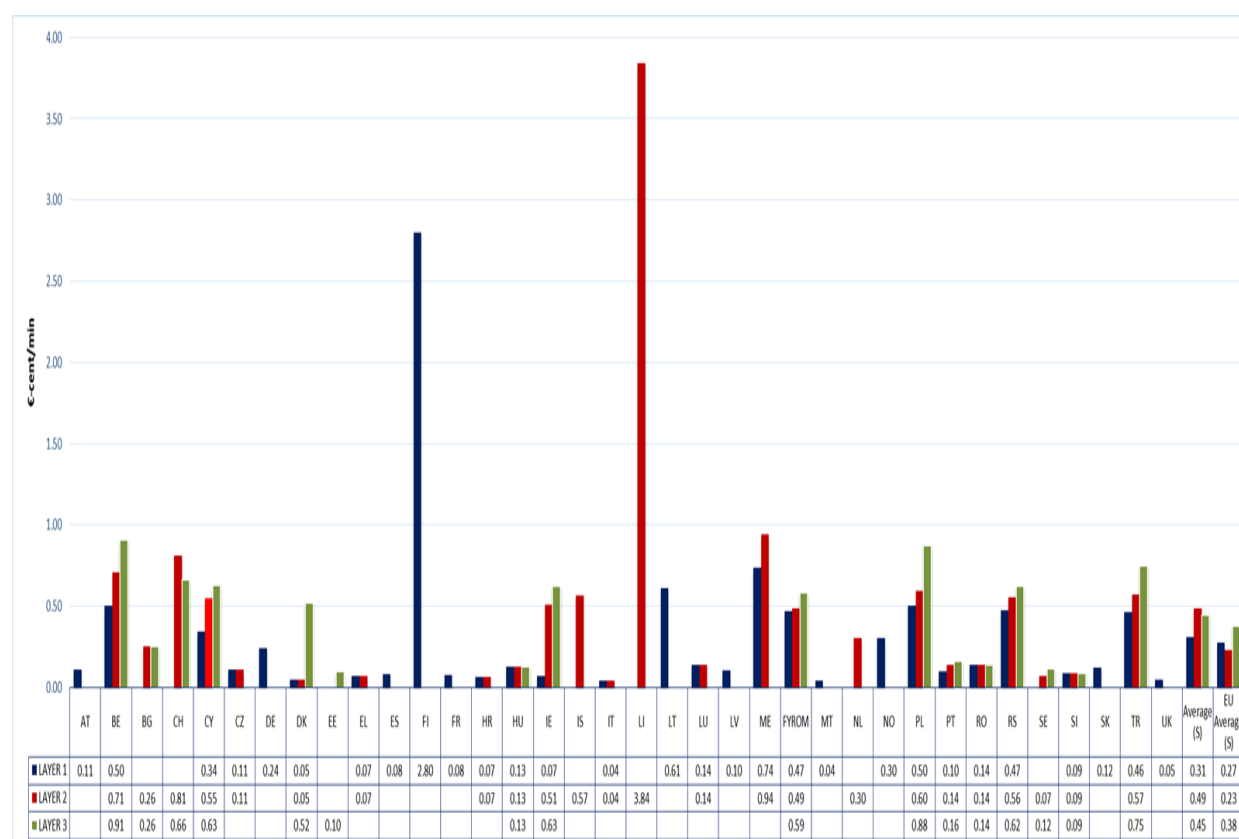
**Figure 23:** Simple averages<sup>2021</sup> of incumbents' fixed termination rates at the European level per layer

*Source: Termination rates at European level July 2015*

Individual Member States' simple average FTRs for incumbent operators of each layer are shown in the table below. Data refer to 1 July 2015 and, in addition to previous reports, also include simple averages per layer of EU countries.

<sup>20</sup> The average for layer 2 is slightly higher in January 2015 than January 2014, due to the inclusion of additional countries that did not provide information for January 2014.

<sup>21</sup> The average for layer 3 in July 2015 is slightly higher than January 2015, due to the inclusion of different countries that did not provide information for January 2015.

**Figure 24:** Overview of incumbents' fixed termination rates per country and layer – July 2015

Source: Termination rates at European level July 2015

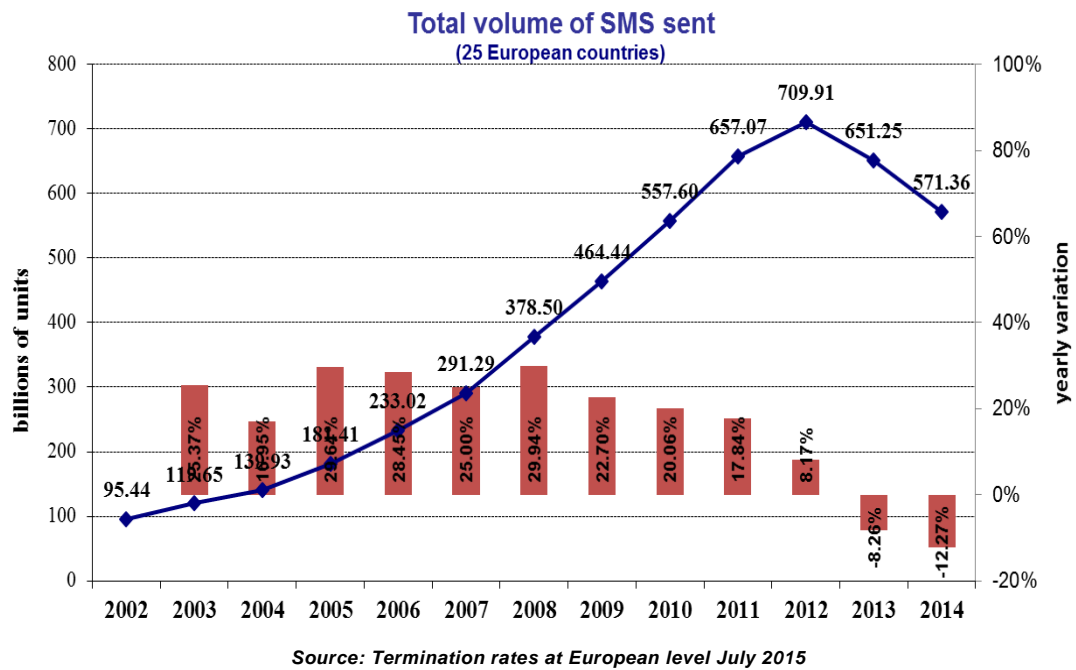
### 10.3 Short message service termination rates

A traditionally important service in terms of revenues generated is the messaging (or SMS/MMS) service. Just like voice calls, each SMS that originates on one network and is sent to an end-user on another network will need an interconnection, and thus a termination service. In general, off-net wholesale SMS services have not been subject to price regulation in the majority of EU-28 countries (i.e. they have been freely set by commercial agreements among operators).

In 2013 SMS volumes decreased for the first time after a trend of increasing volumes over previous years, in parallel with reductions in the price per SMS. This decrease in the total volume of SMSs sent continued in 2014.

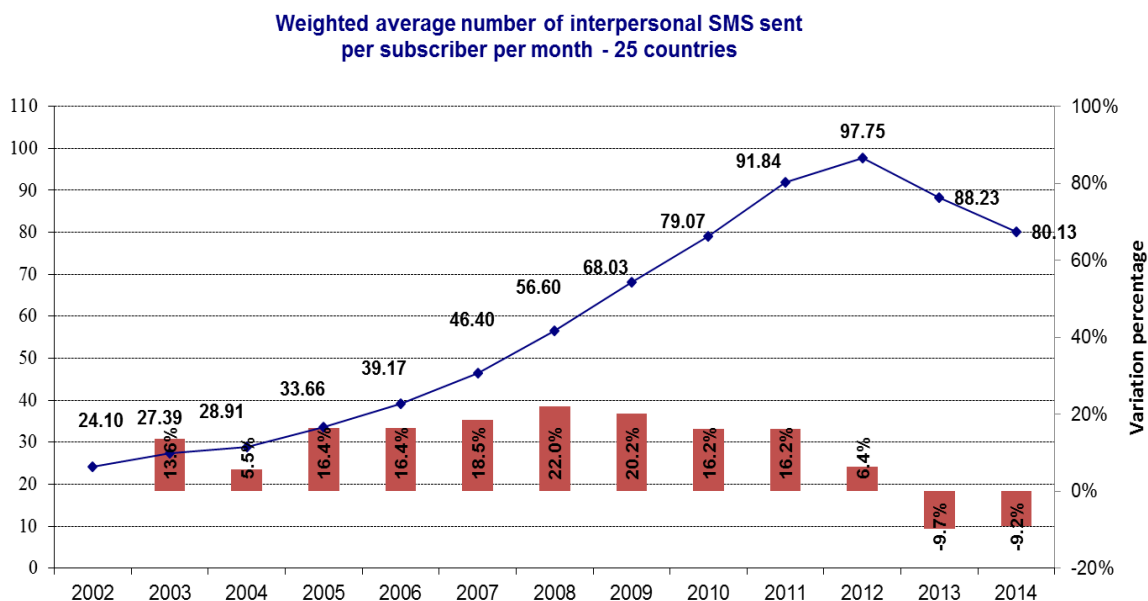
In this regard, the graph below describes the long-term trends in the total volume of SMSs sent at European level<sup>22</sup>.

<sup>22</sup> The graph is based on the time series of the countries for which information was available for the entire period from 2002 to 2014, namely Austria, Belgium, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Lithuania, Malta, Norway, Poland, Portugal, Romania, Slovak Republic, Spain, Sweden, Switzerland and the UK.

**Figure 25:** Volumes of SMS sent

Since SMS volume growth has two components (the development of usage, i.e. the change in consumer consumption, and a variation in the number of subscribers), it is worth describing SMS usage through the average number of SMSs sent per subscriber per month for each country (and its variation over time).

The next figure describes the trend from 2002 onwards for the same 25 countries as mentioned in the figure above. For a given year, the weighted average is obtained by weighting the average number of interpersonal SMSs per subscriber per month in each country by its relative part of total subscribers (used in the panel of countries).

**Figure 26:** SMS per subscriber per month

*Source: Termination rates at European level July 2015*

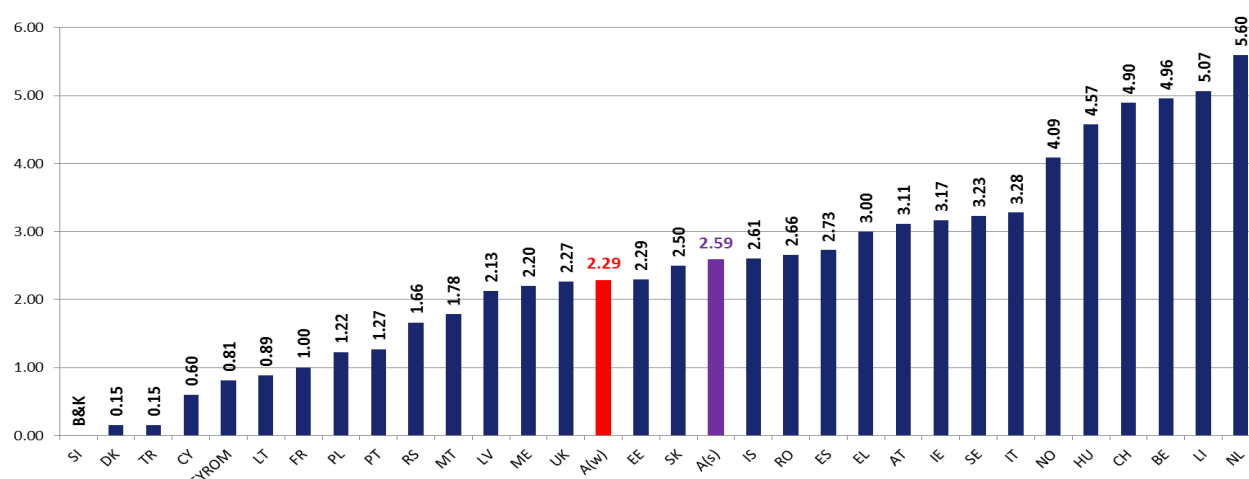
The general trend for those countries that report on SMS TRs is of reductions over the years.

The averages of wholesale SMS termination rates increased from January 2015 to July 2015 from 2.35 to 2.59 Eurocents per SMS in terms of the simple average, and from 2.20 to 2.29 Eurocents per SMS in terms of the weighted average. The increase of both averages can be explained by two factors:

- the significant negative impact of the exchange rates; and
- the inclusion of Serbia, which changed its regime from Bill & Keep to a SMS TR regime.

Individual Member States' average rates (Eurocent per message) together with simple and weighted averages as of 1 July 2015 are shown in the figure below<sup>23</sup>.

<sup>23</sup> B&K means that 'Bill & Keep' agreements are in place for traffic between all domestic operators: termination rates are reciprocally set to zero.

**Figure 27: SMS TR per country – July 2015**

Source: Termination rates at European level July 2015

## 11. Regulatory accounting developments in 2015

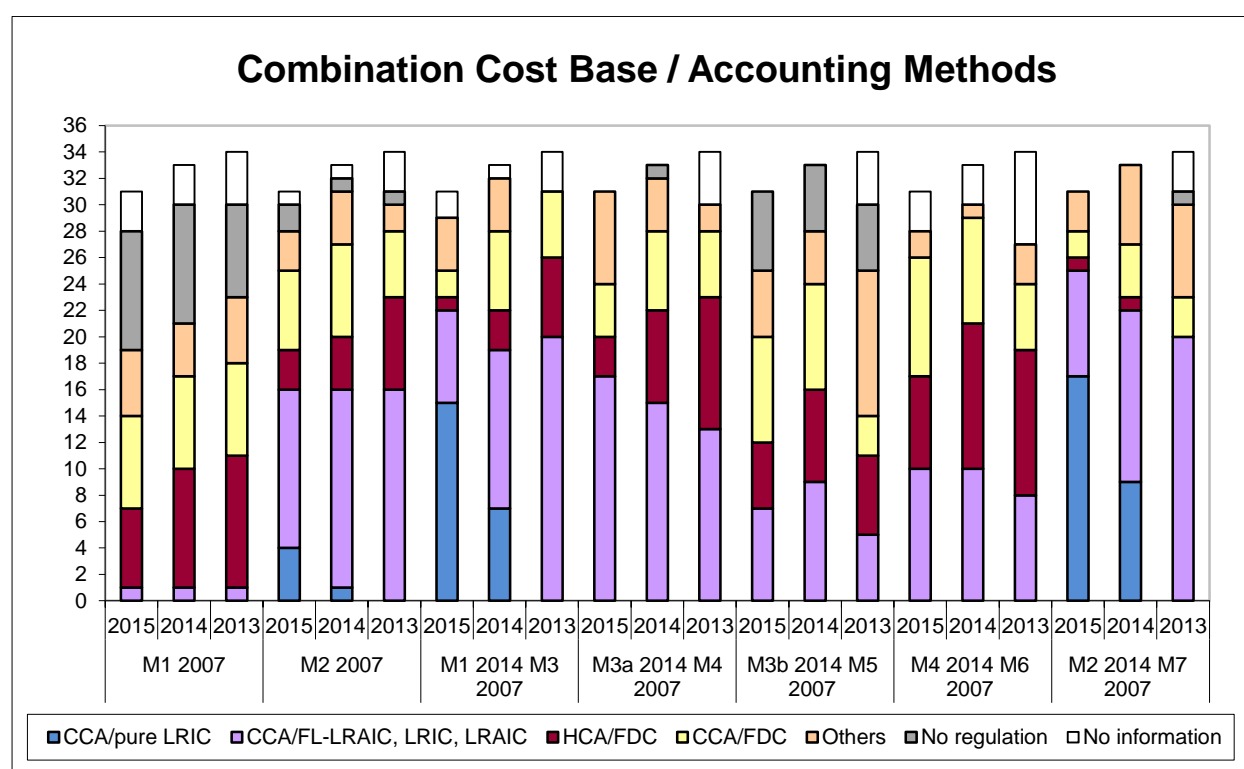
The overall picture is relatively stable in comparison with last year, with just a small number of changes by NRAs. There are clear preferences for price control methods (cost orientation alone or in combination with price cap), cost base (current cost accounting (CCA)) and allocation methodologies (mainly long-run incremental costs (LR(A)IC) with fully distributed costs (FDC) preferred only in a few markets). The degree of consistent application of methodologies continues to be high and accommodates the use of elements or parameters that reflect national circumstances. These findings reflect the primary cost base or allocation methodology selected by a NRA but do not highlight situations in which a NRA would strengthen its financial analysis by comparing outcomes from one principal methodology with alternative approaches, such as comparing bottom-up models with top-down or incurred costs. For all markets except Market 1/2007 – and to a lesser extent Markets 3b/2014 and 4/2014 – the combination of CCA and (FL) LR(A)IC is the most favoured approach; in particular, this combination is preferred in the termination markets (Market 1/2014 and Market 2/2014), where the LRIC approach often takes the form of pure LRIC to comply with the TR Recommendation No 2009/396/EC.

The analysis over time of the key wholesale markets – Local Access (Market 3a/2014), Central Access for mass-market products (Market 3b/2014) and High quality Access (Market 4/2014) – has shown a clear preference for cost orientation, a trend towards CCA and a fairly even distribution of LRIC and FDC accounting methods. Slightly different results are observed for Wholesale Line Rental, where retail minus is the favoured price control method, historical cost accounting (HCA) and CCA are used quite in the same proportion and FDC is clearly the preferred choice of allocation methodology.

The following figure<sup>24</sup> summarises the combinations of cost-base / cost-allocation methodologies for the relevant Markets 1/2007 and 2/2007 and all relevant markets of the 2014 Recommendation on relevant markets susceptible to *ex ante* regulation (2014/710/EU) applied by NRAs. There are four main combinations:

- CCA and pure LRIC<sup>25</sup>;
- CCA and (FL)-LR(A)IC<sup>26</sup>;
- CCA/FDC;
- HCA/FDC.

**Figure 28: Combination Cost Base / Accounting Methods**



Taking into account the information detailed for different products in Market 3a/2014, cost orientation is the preferred price control method for all products under analysis. As far as the allocation methodology is concerned, LR(A)IC prevails by far for all products except duct access products where also FDC is observed.

Regarding the WACC, the survey and the update provided in this report shows that while NRAs use near identical methods and parameters for determining the WACC, the value of these parameters and the ensuing WACC naturally differs, reflecting national financial market conditions. This is due to the underlying calculations that are based on economic and financial

<sup>24</sup> Figure 29 of the Regulatory Accounting in Practice Report 2015.

<sup>25</sup> The combination CCA/pure LRIC has been added as a separate category to the 2014 Report, since several NRAs had adopted a pure BU-LRIC approach in line with Recommendation 2009/396/EC on TRs in wholesale fixed call termination and mobile call termination markets.

<sup>26</sup> Referred to as CCA/LR(A)IC, the 'FL' will be omitted.

market circumstances as well as tax and inflation rates in the individual European countries. Furthermore, the regulatory periods and therefore the update periods for the WACC parameters differ in each country.

Related to the relevant market, some patterns regarding the rationale to choose a particular costing methodology can be seen; in particular, the 'strict cost-orientation' price control method is chosen to promote competition/stimulate investment/increase benefits for consumers.

Overall, the 2015 data confirm the trend towards an increasingly consistent approach to regulatory accounting approaches and a stabilisation in the application of particular methods for cost valuation or cost allocation among NRAs. The latter indicates that NRAs are providing predictable and stable regulatory environments in their countries.

Good progress has been made in developing effective regulatory accounting frameworks to meet the needs of NRAs. However, this is a complex and highly technical topic which requires regular maintenance and enhanced implementation of the regulatory accounting framework as competition develops, technology improves and new regulatory challenges emerge.

The Regulatory Accounting in Practice Report 2015 was adopted at the third plenary meeting (1 October 2015) in Riga.

## Conclusions

Last year was rather intense for BEREC, which, under the frame of its medium term strategy (2015-2017) and following its work programme for 2015, approved several important pieces of work that respond to market developments and coming challenges, in particular the review of the regulatory framework for electronic communications.

It is therefore appropriate to underline the approval and submission of BEREC's input and opinion on the framework review, which are intended to assist the EC to develop its legislative proposals.

BEREC also approved reports on subjects such as oligopoly analysis and regulation, consumers' valuation of net neutrality in an evolving marketplace and Layer 2 wholesale access products, either addressing areas that raise potential concerns or where synergies amongst NRAs are identifiable.

Relevant support to EU institutions was also given by BEREC within the context of the TSM regulation that tackles roaming and net neutrality, issues that are highly positioned in the political agenda.

Finally, BEREC started to address emerging topics, such as OTTs or Internet of Things, namely by launching public consultations on its draft reports on these matters. These will ultimately also feed into the next framework review.

During 2016, guaranteeing consistency and continuity of its work, in line with its medium term strategy, BEREC will develop some subjects launched in 2015, including the approval of its reports on OTTs and Internet of Things. A common position on Layer 2 wholesale access products is also planned.

With regard to the TSM regulation, BEREC has key deliverables on roaming and net neutrality, in particular the guidelines on the latter, which raise high expectations amongst stakeholders.

Lastly, BEREC is ready and eager to contribute to the framework review, notably by continuing to strengthen the engagement with, and support to, the EU institutions, as the legislative proposals are developed.



## List of Acronyms

ACM – Authority for Consumers and Markets (Netherlands)

ADSL – Asymmetric Digital Subscriber Line

AEC – Agency for Electronic Communications (the former Yugoslav Republic of Macedonia)

AGCOM – Autorità per le Garanzie nelle Comunicazioni (Italy)

AK – Office for Communications / Amt für Kommunikation (Liechtenstein)

AKEP – Electronic and Postal Communications Authority of Albania

AKOS – Agency for Communication Networks and Services of the Republic of Slovenia

ANACOM – Autoridade Nacional de Comunicações (Portugal)

ANCOM – National Authority for Management and Regulation in Communications (Romania)

ANO – Alternative Network Operator

APDC – Associação Portuguesa para o Desenvolvimento das Comunicações

ARCEP – Autorité de Régulation des Communications électroniques et des Postes (France)

BEREC – Body of European Regulators for Electronic Communications

BIPT – Belgian Institute for Postal Services and Telecommunications

BMK – Benchmarking

BNetzA – Federal Network Agency (Germany)

BoR – Board of Regulators

BU-LRIC – Bottom-Up Long-Run Incremental Costs

CCA – Current Cost Accounting

CN – Contact Network

CNMC – Comisión Nacional de los Mercados y la Competencia (Spain)

COCOM – Communications Committee, European Union

COMCOM – Federal Communications Commission (Switzerland)

COMREG – Commission for Communications Regulation (Republic of Ireland)

CP – Common Position

CPE – Customer Premises Equipment

CRC – Communications Regulation Commission (Bulgaria)

CTRC – Canadian Radio-Television and Telecommunications Commission

CTU – Czech Telecommunication Office

DBA – Danish Business Authority

DG – Directorate General

DG CONNECT – Directorate General for Communications, Networks, Content & Technology

DSM – Digital Single Market

EaPeReg – Eastern Partnership Electronic Communications Regulators Network

EBA – European Banking Authority

EC – European Commission

ECODEM – Ecosystem Dynamics and Demand-Driven Forces in Net Neutrality

ECS – Electronic Communications Services/Sector

ECTA – European Communities Trade Mark Association

EDF – European Disability Forum

EEA – European Economic Area

EENA – European Emergency Number Association

EETT – Hellenic Telecommunications and Post Commission (Greece)

EFTA – European Free Trade Association

EIF – European Internet Forum

EKIP – Montenegro Agency for Electronic Communications and Postal Services

EMERG – Euro-Mediterranean Regulators Group

ENISA – European Union Agency for Network and Information Security

ERG – European Regulators Group

ERGA – European Regulators Group for Audiovisual Media Services

ERGP – European Regulators Group for Postal Services

ESA – European Supervisory Authorities

ESMA – European Securities and Markets Authority

ETNO – European Telecommunications Network Operators' Association

ETNS – European Telephony Numbering Space

ETRA – Estonian Technical Regulatory Authority

EU – European Union

EWG – Expert Working Group

FCC – Federal Communications Commission (United States of America)

FDC – Fully-Distributed Costs

FICORA – Finnish Communications Regulatory Authority

FL LRAIC – Forward-Looking Long-Run Average Incremental Costs

FNI – Fixed Network Incumbent

FT-ETNO Summit – Financial Times-European Telecommunications Network Operators' Association Summit

FTR – Fixed Termination Rate

FTTC/B – Fibre-To-The-Cabinet/Building

FTTH – Fibre-To-The-Home

FTTP – Fibre-To-The-Premises

GB – Gigabyte

GDP – Gross Domestic Product

GSM – Global System for Mobile Communications

GSMA – Global System for Mobile Communications Association

HAKOM – Croatian Regulatory Authority for Network Industries

HCA – Historical Cost Accounting

HDM – Harmonisation of Digital Markets

HICP – Harmonised Index of Consumer Prices

HK – Hong Kong

IAS – Internet Access Services

IC – Interconnection

ICANN – Internet Corporation for Assigned Names and Numbers

ICTA – Information and Communication Technologies Authority (Turkey)

ILR – Institut Luxembourgeois de Régulation (Luxembourg)

IoT – Internet of Things

IP – Internet Protocol

IPvIC – Internet Protocol Voice Interconnection

IR – International Roaming

IS-Portal – Information Sharing- Portal

ITRE – European Parliamentary Committee on Industry, Research and Energy

ITU – International Telecommunication Union

KCC – Korea Communications Commission

LATAM-EU TMR Symposium – Latin America-EU Symposium on Telecoms & Media Regulation

LLU – Local Loop Unbundling

LR(A)IC – Long Run (Average) Incremental Costs

LSA – Licensed Shared Access

LTE – Long-Term Evolution

MB – Megabyte

MCA – Malta Communications Authority

MMF – Mobile Manufacturers Forum

MMS – Multimedia Messaging Service

MNO – Mobile Network Operator

MTR – Mobile Termination Rate

MVNO – Mobile Virtual Network Operator

NGA – Next Generation Access

Nkom – Norwegian Communications Authority

NNHH – National Media and Infocommunications Authority

NRA – National Regulatory Authority

OCECPR – Office of the Commissioner of Telecommunications and Postal Regulation (Cyprus)

OFCA – Office of the Communications Authority (Hong Kong)

OFCOM – Office of Communications (United Kingdom)

OFNO – Other Fixed Network Operator

OTT – Over-the-Top

PoH – Point of Handover

Pol – Point of Interconnection

PRD – Project Requirements Document

PTA – Post and Telecom Administration (Iceland)

PTS – National Post & Telecommunications Agency (Sweden)

QoS – Quality of Service

RATEL – Regulatory Agency for Electronic Communications and Postal Services (Serbia)

Regulatel – Latin American Forum of Telecommunications Regulators

RIPE NCC – Regional Internet Registry for Europe, the Middle East and parts of Central Asia

RLAH – Roam Like At Home

RoW – Rest of the World

RRT – Communications Regulatory Authority (Lithuania)

RSPG – Radio Spectrum Policy Group

RTR – Austrian Regulatory Authority for Broadcasting and Telecommunications

RU – Regulatory Authority for Electronic Communications and Postal Services (Slovak Republic)

SA – Surveillance Authority

SLU – Sub-Loop Unbundling

SMP – Significant Market Power

SMS – Short Message Service

SPRK – Public Utilities Commission (Republic of Latvia)

TSM – Telecom Single Market

TDM – Time-Division Multiplexing

TR – Termination Rate

WCA – Wholesale Central Access

WHQAFL – Wholesale High Quality Access at a Fixed Location

WLA – Wholesale Local Access

WP – Work Programme

UK – United Kingdom

UKE – Office of Electronic Communications (Poland)

US – Universal Service

USD – Universal Service Directive

US FCC – United States Federal Communications Commission

VDSL – Very-High-Bit-Rate Digital Subscriber Line

VLAN – Virtual Local Area Network

VULA – Virtual Unbundled Local Access

WACC – Weighted Average Cost of Capital

WAP – Wholesale Access Product

WLR – Wholesale Line Rental