BEREC's OPINION ON
THE REVIEW OF THE FUNCTIONING OF THE DELEGATED REGULATION SETTING UNION-WIDE TERMINATION RATES REGULATED UNDER THE REGULATION (EU) 2021/654

The Commission Delegated Regulation (EU) 2021/654 supplementing Directive (EU) 2018/1972 of the European Parliament and of the Council by setting a single maximum Union-wide mobile voice termination rate and a single maximum Union-wide fixed voice termination rate ('Delegated Regulation') requires the Commission to review the Delegated Regulation every five years, as stipulated in Articles 75(2) and 75(3) of the Code. This review process involves assessing whether the imposition of single maximum Union-wide termination rates remains necessary and taking in the utmost account, the opinion of BEREC. This ensures the regulatory framework remains fit for purpose in a rapidly evolving telecommunications landscape.

The structure of the **BEREC Opinion** would follow the following major topics/chapters *(related questions are shown below the heading of the chapters, but it does not mean that each question needs to be answered)*.

0. Introduction

This document represents the BEREC Opinion on the Commission Delegated Regulation (EU) 2021/654 supplementing Directive (EU) 2018/1972 (EECC) by setting a single maximum Union-wide mobile voice termination rate and a single maximum Union-wide fixed termination rate ("Eurorates")[1] according to Art. 75 EECC as requested by the letter of DG Connect General Director of 16 June 2025 to the BEREC Chair 2025 for the review of the Delegated Regulation (DR).

It is structured in five chapters, covering the major topics and broadly following the questions asked by the Commission to all the stakeholders. With the exception of one additional question addressed only to BEREC, these questions are identical to those of the public consultation opened on 16 June 2025.[2] This BEREC Opinion will not answer all questions as some are more addressed to individual NRAs while this document contains the collective view of BEREC based on a survey among the NRAs. It will also take into account the results of the 2025 Update of the mobile cost model for roaming and voice call termination[3] in order to assess whether the level of the single maximum Union-wide mobile voice termination rate needs to be adjusted.

[1] Delegated regulation - 2021/654 - EN - EU R-Lex
[2] Voice call termination services – Review of Regulation setting EU-wide rates and associated legislative proposal
[3] 2025 Update of the mobile cost model for roaming and voice call termination in the EU | Shaping Europe's digital future, published on 22 July 2025. The fixed cost model was published in 2019 and has not been updated since then.

I. Effects/Contribution of the Eurorates to the objectives of the Code, harmonization, market dynamics, prices, operators, interconnection agreements etc.

(1) In BEREC's view, have Eurorates affected market dynamics and/or competition between market participants? Please explain your response.

Overall, NRAs did not observe a change in market dynamics and/or competition. This was mainly attributed to the fact that even before the Eurorates entered into force, most NRAs had regulated termination rates according to the cost standard of pure LRIC, so rates were set at an efficient level and thus markets were considered to be competitive. Where NRAs identified Eurorates induced effects, they were rather positive like an increased traffic volume bringing prices down or less disputes. It was also mentioned that Eurorates harmonized the European market, had a unifying effect regarding competitive conditions on the national market and on the EU/EEA market and potentially fostered a more balanced wholesale market and encouraged fairer interconnection and roaming agreements between EU/EEA operators. On the negative side a few NRAs mentioned that when Eurorates entered into force revenues were cut, there was an incentive to increase prices in unregulated markets (e.g. external transit prices or termination rates of calls originating from numbers of non-EU/EEA countries). It was also stated that risks remain, and NRAs need to be equipped with the powers to intervene when necessary, e.g. in case of non-price related competitive issues (chapter II).

(2) In BEREC's opinion, have Eurorates achieved the goal of reducing regulatory burden and addressing competition problems consistently across the EU?

Nearly all NRAs agreed that the Eurorates reduced the regulatory burden and that they can be considered a good example of simplification and harmonization. It was also commented that for NRAs the involvement in the EU cost model caused a one-off burden (but the overall reduction with one EU cost model outweighed these efforts). It was pointed out that the picture for operators might look different as they still have to provide a considerable amount of data. Also, with the DR, operators lose their procedural rights which they have in administrative proceedings when the NRA is setting the termination rates.

(11) Has BEREC observed any impact on the level of retail prices, following the implementation of the Eurorates? If yes, please list the services concerned and provide underlying data.

In line with the observations to Question 1, no specific impact was identified. In case retail prices decreased, it was often attributed to an increased traffic volume without being attributed solely to the entry into force of the Eurorates (as retail prices are affected by a number of factors). In any case, a lot of NRAs mentioned that due to long-standing pre-existing regulation of termination rates, effects were very limited. One NRA (MCA) indicated that any impact on retail price levels could not be directly attributable to the implementation of the Eurorates, whereas another observed that in some cases prices to non-EU countries increased.

(12) Has BEREC observed any impact on voice call quality of service since implementing Eurorates? Please explain your response.

No impact on or deterioration of voice call quality of service was detected by NRAs. It was mentioned (as also in other responses) that operators complained about the problem of “disguised CLI” (spoofing) by non-EU/EEA operators to get the lower Eurorates for calls originating from numbers of non-EU/EEA countries.

(13) In BEREC’s view, how has the regulation affected interconnection agreements between operators in other EU Member States? Please explain your response.

Generally, NRAs did not observe a particular impact of the Eurorates on interconnection agreements between operators in other EU Member States or could not attribute it specifically to the entry into force of the Eurorates. A few times it was mentioned positively that interconnection agreements could be negotiated more easily and that operators, with the Eurorates in place, no longer need to maintain systems for different price schemes. It was however also pointed out that the prerequisite of getting the Eurorates, i.e. establishing a direct interconnection, can cause problems if a minimum number of Points of Interconnection (PoI) is required (constituting an entry barrier). However, it has to be said that a number of NRAs do not have specific information.

(14) In BEREC’s view, how has the transition to Eurorates affected EU operators’ operations, in particular taking into account the principle of cost recovery for termination services, regulatory predictability, and simplification?

A number of NRAs saw the transition to Eurorates as positively affecting EU operators’ operations or saw no effects/problems with regard to cost recovery (due pre-existing national termination rates regulation). Few NRAs mentioned the decrease of revenues that came with the introduction of Eurorates. It was also pointed out that the regulation of wholesale rates should allow cost recovery for all operators, including those whose efficient costs may be at the high-end of cost-modelling results, such as operators in smaller markets. However, it has to be said that a number of NRAs do not have specific information.

<u>Conclusion Chapter I:</u> Overall, it can be said that the introduction of the Eurorates did not cause a major impact on market dynamics, wholesale/retail prices etc., mainly due to the fact that the pre-existing termination rates regulation on the basis of the pure LRIC cost standard had already decreased the termination rates to a low level (efficient cost level). This is also in line with the results of the Updated mobile cost model for roaming and voice call termination in the EU[4] where the effect of including explicitly 5G technology in the cost model (which reduces costs significantly as the technology is more efficient) was less marked on voice termination costs than e.g. on voice roaming services as the room for further cost reductions on termination services is quite limited (see chapter IV).

With regard to the reduction of the regulatory burden the answer was clearly positive – the introduction of the EU cost model instead of national cost models reduced the regulatory burden for NRAs – and to a certain extent also for operators. The Eurorates also simplified and harmonized the termination rates regulation and the EU-wide price cap made interconnection more fluid between EU/EEA operators. But it was also stated that the risk of misbehavior by market participants does not go away and NRAs need to retain powers to intervene particularly in case non-price problems arise (see chapter II). A few times, the

[4] 2025 Update of the mobile cost model for roaming and voice call termination in the EU | Shaping Europe’s digital future, published on 22 July 2025. The fixed cost model was not updated.

potential problems of cost recovery (in particular for operators in smaller markets) were pointed out. With regard to non-EU operators, the problem of calling line identification (CLI) spoofing was mentioned several times as well as non-reciprocity (see chapter III).

II. Non-price problems (still requiring national regulation) such as access, one-off fees, cost allocation between termination and transit services etc.

This chapter considers non-price problems at national level or across the EU that NRAs still face today or still may require in BEREC's view national regulation, referring to the following chapter for the problems with non-EU operators.

(3) Has the deregulation of termination markets, as a result of Eurorates, led to any consistent problems or complaints across the EU, and if so, what are they?

The deregulation of termination markets, as a result of Eurorates, has not led to many significant problems or complaints across the EU. Indeed, the majority (15) of the NRAs report no significant problems or complaints arising from the deregulation. It is, however, worth noting that some of these (7) have still not completely removed non-price obligations that had been previously maintained on the basis of Significant Market Power (SMP) regulation of termination markets, or have only recently deregulated them.

That said, some specific issues – particularly related to access and transit fees, non-discrimination and transparency obligations – have been identified by some NRAs, which in some cases have required direct interventions from them. These issues may warrant further investigation and potential regulatory action. Indeed, the Delegated Regulation has not addressed any non-price competition problems, leaving the space for specific (although isolated) anti-competitive behavior which may be specifically addressed through regulatory interventions at national level for which NRAs should be equipped with the necessary tools and regulatory powers.

Firstly, some issues refer to denying access to one network, which has been associated in one case with charging a high transit fee through another network and in another case with referring to an exclusive transit provider that charges high rates. One NRA registered disputes of refusal for interconnection from national operators.

Other issues refer to charging high rates for ancillary services such as colocation and/or Ethernet services. In general, ancillary services may be used by terminating operators to put in place anti-competitive strategies typical of termination markets, because ancillary services are essential for the provision of termination services. Indeed, apart from the interconnection ports, the Eurorates do not include the costs of any other ancillary services[5]. BEREC invites the Commission to clarify that costs of other ancillary services are not included. BEREC points out that it seems that in some cases ancillary services other than interconnection ports were overcharged.

[5] Neither are transit costs included.

Some concerns have been raised about the removal of non-discrimination and transparency obligations, which may be still necessary in order to prevent the anti-competitive behavior of applying different prices for the same service to different operators.

Therefore, non-price obligations such as access, non-discrimination, and transparency should be explicitly addressed (or at least mentioned in the recitals) so that these important aspects of ensuring end-to-end connectivity and healthy competition are acknowledged as being within the spirit of the Delegated Regulation. For example, it may also be a good point to review whether widening the scope of the Delegated Regulation to include associated / ancillary services (e.g. transit, connection link, etc.) and facilities (e.g. co-location, access to the interconnection points, etc.) may have merit given the potential for excess prices to be set for access seekers for these necessary components of making a call.

Having regard to the above-mentioned issues or any other non-price issues that could be incurred in the future by the NRAs, BEREC reckons that it is important to allow NRAs to adopt symmetric decisions to regulate termination markets if necessary, while keeping the mechanism of settling dispute resolutions at national level. Likewise, NRAs should adopt decisions specifying the requirements applicable to the technical and financial conditions about interconnection and access, when needed.

Finally, it is worth pointing out that one NRA commented that the Delegated Regulation should further clarify the definition of termination service. The current definitions, as indicated in article 2 (a) and (b) of the Delegated Regulation, clearly state that mobile/fixed termination services mean the wholesale services required to terminate calls to mobile/geographic numbers where there is interconnection with at least one network. So, although definitions specify that interconnection is irrespective of the technology used, termination services (both mobile and fixed) require – among other conditions – interconnection between networks. This NRA argued that it is unclear, under these definitions, whether telecom operators operating under the VoIP model (having only certain network elements, and a numbering allocation, etc. but operating only on internet basis) can charge termination rates.

BEREC is aware that the definition of interconnection, as reported by art. 2 (28) of the Code, clearly specifies that the interconnection is both physical and logical and excludes the possibility that the interconnection could be only logical.

However, the same NRA mentioned that the application of the Delegated Regulation may be different among EU countries, because it could be decided that termination services take place only in case of physical interconnection or in case of logical interconnection or both. This NRA further argued that in the next revision of the Delegated Regulation, the EC should clarify the definition, making it possible to overcome the doubt about the type of interconnection required for a service to be defined as termination.

Stated the above, BEREC is aware that although SIP Trunking (logical links) is very much used by VoIP providers, including both over managed (provided by traditional operators) as well as unmanaged (provided by OTT operators) IP calls, the interconnection with other public networks is usually done solely by providers who have the means to interconnect with other public networks. In general, this may rule out purely

OTT VoIP providers who typically do not have the means to technically host their own numbers (whether assigned or sub-assigned) and cannot control the termination, as the interconnection with other public networks is in practice done by the network provider which has the interconnection point with at least another public provider. Hence, this interconnection provider would be really the one who charges the termination rate.

Said that, **BEREC believes that termination services to be considered as subject to the Delegated Regulation may be realized under both types of interconnection (physical and logical), as can be deduced by putting together the definition of interconnection given by the Code with the indications reported in the Delegated Regulation. As well, BEREC believes that only the interconnection providers are eligible to charge termination rates.**

III. Non-EU operators (calls originating from numbers of non-EU/EEA operators) problems such as non-reciprocity, fraud (spoofing) etc.

This chapter covers problems faced by EU/EEA operators with non-EU/EEA operators (third-country operators), as a consequence of the Delegated Regulation. The Delegated Regulation establishes that fixed and mobile Eurorates do not apply to calls originating from numbers of non-EU/EEA operators, with the exception of two cases, i.e. 1) if the non-EU/EEA operator applied, for the termination of calls addressed to its customers, a termination rate equal or lower to Eurorates and 2) if in the non-EU/EEA country a regulation based on the same criteria used for the definition of Eurorates was applied and the EC put such a country in the Annex to the Regulation. In both cases the EU/EEA operator has to apply the Eurorates for the termination of the calls originated from numbers of non-EU/EEA operators.

The application of Eurorates only in the two above-mentioned cases moves from the asymmetric regime between EU/EEA countries, where Eurorates are in place, and various non-EU/EEA countries, where termination rates are higher than Eurorates. This asymmetry would have a negative impact on retail tariffs in the Union and on the cost structure of Union operators, preventing the emergence of pan-European retail offerings that include calls to certain third country-numbers and distorting competition because of the different degrees of exposure of Union operators to higher call charges for the termination by non-EU/EEA operators.

Having regard to the effect of such problems, BEREC is aware of only few cases of clear reaction from EU/EEA operators. Indeed, many NRAs (8) have no reliable data on how the regulation has affected EU operators' relationships with non-EU/EEA operators, particularly in terms of reciprocity. In a couple of cases an increase in tariffs have been reported for the termination of non-EU/EEA calls by EU/EEA operators. That said, the application of termination rates from non-EU/EEA operators higher than Eurorates is still an issue, as highlighted by different NRAs (3). One reason relies on the complexity, if not impossibility, for the EU/EEA operators of effectively negotiating with the non-EU/EEA counterparts, especially when they do not offer equivalent rates.

That stated, it has to be said that some NRAs have imposed the application of regulated termination rates only for calls originated from numbers of EU/EEA countries before the adoption of the Delegated Regulation. Therefore, for those countries, the impact of the

Delegated Regulation has not been very relevant. However, it is worth pointing out that, given that provision, European operators are not forced to charge low, pure-LRIC based TR to non-EU (EEA) operators and are not pushed into negative financial balance; therefore, it should be confirmed in the next review.

(4) Are there any issues with the current scope of the regulation, particularly regarding calls originating from non-EU countries, that BEREC has identified?

Issues with the current scope of the regulation, particularly regarding calls originating from numbers of non-EU/EEA countries

With respect to issues with the current scope of the regulation regarding calls originating from numbers of non-EU/EEA countries, whilst some NRAs are not aware of any problems at all (8), some concerns were nevertheless identified by other NRAs (see below).

> (7) Does BEREC have any insight, how has the regulation affected EU operators' relationships with non-EU operators, particularly in terms of reciprocity? Moreover, how have EU operators reacted/adjusted their termination rates towards operators from third counties that decrease the rates?
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> (8) In BEREC's experience, are there issues with determining whether third-country operators' rates are equal to or below the Union-wide termination rate? In addition, please explain if there are difficulties in determining whether charged termination rates include transit.

Lack of clarity and transparency

First of all, the lack of clarity and transparency in the current regulation linked to exceptional application of Eurorates to the calls originated from numbers of non-EU/EEA countries is a concern.

Knowing whether to apply Eurorates to calls from numbers of non-EU/EEA countries is complex.

In the simplest form, the EU/EEA operator needs to know if that third country has termination rates equal or lower to the Eurorates.

A further example of the complexity and challenges which arise in applying Eurorates in a reciprocal manner (that is, only to specific operators of third countries which in turn apply Eurorates) occurs when number portability is implemented in that non-EU/EEA country. Indeed, in such cases, it would be difficult, if at all possible, for a terminating EU/EEA operator to distinguish between incoming calls from the non-EU/EEA provider setting termination rates equal to or lower than the Eurorates and those from other providers in the same non-EU/EEA country.

Moreover, in many cases, EU/EEA operators do not have direct interconnections with non-EU/EEA operators, so they rely on international transit carriers, which deliver the outgoing calls addressed to non-EU/EEA operators providing a transit service to the operator of origination. International transit carriers charge EU/EEA operators higher rates than termination prices applied in the third countries because of the addition of transit rates, however without giving (in the majority of the cases) evidence of the transit rate applied but producing one rate for the overall service termination plus transit. This means that **EU/EEA operators are generally unable to determine which non-EU/EEA operators apply termination rates equal or lower than the Eurorates.**

Therefore, issues of transparency arise, because EU operators are generally not in a position to know the list of non-EU operators to which Eurorates apply.

Likewise, application of Eurorates to calls originated by operators in non-EU/EEA countries where regulation is consistent with that of the EU/EEA (second case) requires evidence of the list of countries to which the Eurorates apply. The Delegated Regulation (see article 1 (4)) establishes that a third country is listed in the Annex to the Regulation. **However, so far, no information is available in any public Annex on the EC website, leading to the conclusion that no non-EU/EEA countries apply regulation consistent with the one in place in the EU/EEA.**

Eurorates have to be applied also to calls originated from countries outside the EU/EEA which are part of European countries and this could raise some concerns. This is the case of operators in the French overseas territories, which have been charged by some EU operators termination rates higher than Eurorates, even though these territories are part of the EU, because they do not use the metropolitan French country code (+33) but their own international country codes as specified in the Recommendation ITU-T E.164 of the ITU about the international public telecommunication numbering plan[6].

BEREC recommends that the next review of the Delegated Regulation clearly indicates the country codes to which Eurorates apply having regard even to these cases. Moreover, an annual publication of this list would be helpful, since it enables operators (especially new entrants) to be regularly updated about the non-EU/EEA country codes to which Eurorates apply. At the same time, this gives information about the countries where termination rates are equal or lower than Eurorates, making it possible to check the rates applied for termination to third countries.

On the other side, the termination rates applied by EU/EEA operators to calls from numbers of non-EU/EEA countries vary widely depending on the operator, the country of origin, the geographical area, etc. For international operators it is not possible to know with any certainty the termination rates applied by European operators for calls from numbers of a specific country. **BEREC suggests the creation of a specific summary sheet hosted by NRAs or BEREC, where operators would include directly their voice termination rates.**

[6] https://www.itu.int/rec/t-rec-e.164/en.

(9) Is BEREC aware of any reciprocity or discrimination issues from non-EU operators since implementing Eurorates? Please provide concrete examples on the increase of termination fees by non-EU operators, and its cause.

Discrimination issues from non-EU operators since implementing Eurorates

The majority of the NRAs reported no issues of reciprocity or discrimination from non-EU operators since implementing Eurorates.

However, one NRA noted that some non-EU/EEA operators in countries close to the EU, such as Switzerland and Monaco, apply termination rates higher than the Eurorate, despite French operators applying reciprocal call termination rates. The same NRA (Arcep) referred to some cases where EU numbers are used by non-EU/EEA operators and this leads to massive asymmetries to the detriment of EU operators[7].

(10) Is BEREC aware of any third-country willingness to apply for the Article 1.4(b) mechanism of the Delegated Regulation?

After Ukraine and Moldova[8] will belong to the RLAH zone as of 1st January 2026, they are deemed to apply the Delegated Regulation acc. to Art. 1.4(a) and need not be listed in the Annex where countries that fulfill the Art. 1.4(b) mechanism of the Delegated Regulation are listed. In BEREC's view it would be better, for **transparency reasons,** to add all countries that fall under either Art. 1.4(a) or Art. 1.4(b) of the Delegated Regulation in the Annex of the next Delegation Regulation, so that operators know when to apply the Eurorates. To facilitate a continuous update, the Annex could include a clause that it is updated on the Commission's or BEREC website when changes occur.

Risk of fraud and identification of caller origin

Other issues refer to risk of fraud and identification of caller origin. In general, operators of third countries or even transit operators could spoof CLI, in order to avoid termination rates higher than Eurorates. One NRA has reported disputes regarding CLI manipulation, making it difficult to properly identify the country of origin of the call. In one country network operators charge an anti-fraud rate for incoming calls where the PAI (P-Asserted-Identity) is either not transmitted or not transmitted completely, in order to counter fraud by non-EU network operators in the case of direct interconnections or call forwarding.

[7] As an example, for historical reasons, some EU-numbers are used by non-EU countries (for example, Monaco Telecom, the only operator in Monaco, has the possibility to use both French and Monegasque numbers) which leads to massive asymmetries to the detriment of EU operators: a call from Monaco may display a French number as a caller ID even though the termination rates applied by the Monegasque operator (which is reached through +377) is way higher than the Eurorate.

[8] The European Commission's communication of October 2023 informed NRAs that the Moldovan NRA had published a decision which sets the termination rates for mobile and fixed voice calls to the level of Eurorates. Whilst this decision entered into force on 1 January 2024, it was implemented in accordance with Article 1.4(a).

Combatting fraud

Unfortunately, the imposition of Eurorates may have inadvertently created an incentive for bad actors to originate systemically fraudulent calls in bulk. Thus, it may be appropriate to consider potential measures to address such fraud, particularly in cases where the increase in fraudulent activity can be directly linked to the applicable interconnection charges. In other words, the exclusion of large-scale systemically organised fraudulent calls abusing the Eurorates regulation can provide an opportunity to financially undermine the “business case” of such illegal activity.

Therefore, it may be appropriate to consider potential measures to address large-scale systematically organised fraudulent calls, particularly in cases where the increase in fraudulent activity takes advantage of the applicable Eurorate interconnection charges. One possibility could be to include a provision in the Delegated Regulation stating that operators are not bound to apply Union-wide termination rates to termination of calls if the CLI is missing, invalid or fraudulent. This would provide legal certainty and empower operators that come across such systematic fraud.

There is also the potential for fraud tied to arbitrage between the differences in EU / non-EU termination rates (e.g. routing calls outside the EU to avoid Eurorates, substitution of a non-EU number with an EU number, or call forwarding of non-EU call from an intermediary EU number, call by-pass through OTT apps, etc.).

A question arises from the existence of a heterogeneity of the rules applied by operators for the identification of the caller’s origin. Indeed, two different types of CLI exist in the Session Initiation Protocol (SIP), which is widely used worldwide for interconnection: the FROM header, which is the number of the caller which will be displayed on the phone of the person called, and the PAI header which is the principal (or technical) number of the client. Therefore, it should be clearly stated whether, in the case of SIP, “FROM”, “PAI” or both should be used to find out where the call comes from. Such clarification should also consider the equivalent parameters in other protocols (e.g. ISUP) to ensure technological neutrality.

IV. Proposals for improvement (plus the question of whether or not to adjust the level of the Eurorates)

BEREC consider that questions 5, 6, 15, 16, and 17, are linked in their focus on refinements / improvements based on drivers of change in terms of technology but also learning from experience and challenges with the existing approach. Also, BEREC would like to comment on the level of the Eurorates and whether or not to adjust them (taking into account the results of the Updated cost model for roaming and voice call termination services in the EU.

(5) In BEREC’s view, should any specific voice termination services or technologies be included in or excluded from the regulation's scope?

Q5 – include/exclude specific voice termination services / technologies

In relation to including or excluding certain voice termination services or technology, BEREC recommends that the EC should seek to be technology neutral as regards the sources of traffic; seeking to rule traffic in or out could lead to obsolescence of the Delegated Regulation and its intent. Due to on-going developments in technology, BEREC calls attention to ensuring **technological and service neutrality**. It is possible for voice traffic to emanate not just from traditional fixed telephony or mobile based services but may also emerge from internet based or OTT service providers who do not rely on a local loop. Therefore, it would be prudent for the regulation (and definitions contained therein) to be kept as technologically neutral but also as clear and practicable for implementation as possible (e.g. the definition of the term “termination service” should also include managed VoIP and 5G, etc.). The definitions should avoid ambiguity and should clearly state which costs are included in the termination rate (namely only the interconnection links are included in the Eurorates) and, consequently, which are not and may be thus charged on top of the termination rate.

One NRA also emphasised maintaining the exclusion from the scope of the Eurorates for the termination of calls to numbers used for value-added services (e.g. premium-rate services, toll-free services and shared-cost services), as well as the termination of calls to numbers from numbering ranges specific for machine-to-machine. This is because the concerns outlined in recital (7) of the Delegated Regulation remain relevant.

(6) What technical challenges has BEREC encountered in implementing the regulation, and what improvements are needed?

Q6 Tech challenges and improvements

Broadly, BEREC members have not encountered significant technical challenges in relation to implementing the Regulation.

However, NRAs are aware of technical challenges, which include identifying the origin of calls especially from third countries, and the consequent classification of services (e.g. whether a rate includes transit which should not be the case). One consequence of the difficulty in identifying the origin of calls is that fraudulent activities such as CLI spoofing cases are difficult to identify and therefore address. As previously discussed, addressing fraud related matters through guidance to operators should assist efforts in combatting such negative impact on the Eurorates effort.

In relation to improvements, BEREC suggests that the issued guidance be updated based on at least the following examples / queries NRAs have received. For example, on billing it would be useful to clearly explain how EU/EEA operators should consider transit rates particularly for non-EU originated traffic.

For example, where interconnection has been established between an EU/EEA operator and one from a third country then this single interconnection should not give rise to separate charges for setting up and maintaining interconnection, instead only a single tariff should apply as the interconnection is handling calls both ways (i.e. from EU/EEA numbers and from non-EU/EEA numbers).

There appears to be a discrepancy between the Delegated Regulation and the EC's Q&A guidance on whether the Eurorate applies to calls to satellite mobile numbers or not. This should be further clarified.

(15) In BEREC's opinion, what emerging technologies or market trends may require adjustments to the current regulation?

Improvements for the future to fix tech / operational issues

(16) What improvements would BEREC suggest for future iterations of the regulation to better address technical and operational realities?

(17) Are there any other issues, challenges, or opportunities related to the regulation that BEREC thinks are important to consider? If so, please explain your perspective.

To better address technical and operational realities, BEREC considers that the following elements could lead to improvements:

Transparency

The EC should publish a list of non-EU/EEA countries with regulation close to that of the EU to assist EU/EEA operators in applying Eurorates (or not) to calls originating from numbers of these non-EU/EEA countries. In that vein, and building on the technical challenges noted earlier, the imposition of some form of controls or reciprocity measures with third countries may also be advisable to avoid the benefits of Eurorates being diminished through unfavorable trading with third countries.

One NRA is aware that operators are charging call origination rates instead of termination rates in specific situations, for example for calls to freephone numbers, but these are not regulated and are therefore far from Eurorates even though the costs for the origination and the termination of a call is the same for any operator. This NRA stated that this practice should be clarified by the EC. In this regard, BEREC acknowledges that Article 75 of the EECC is only applicable for the regulation of voice termination services and does not cover voice origination services. Furthermore, the termination of calls to freephone numbers is outside the scope of Delegated Regulation, in accordance with recital (7). Moreover, BEREC notes that the costs for termination and origination services may not necessarily be comparable due to the use of different costing methodologies (e.g. pure LRIC is considered appropriate solely vis-à-vis termination services).

Practical considerations

The EC is likely already aware that in article 5a of the amended Regulation (EU) 2015/2120, operators from 1 January 2029 "*shall not apply different retail prices to con-*

sumers for domestic communications and intra-EU communications“ and since 1 January 2025 “*may on a voluntary basis comply with the obligation not to apply different retail prices*“. This Regulation can lead to unfair competition for some operators at a wholesale level like it was before the introduction of the Eurorates for voice calls, as it appears there is a significant asymmetry between EU operators in terms of SMS termination rates[9] – which may need to be considered and clarified by the EC and can be defined quite easily by the EC as the cost model for roaming already includes all the information to determine this price[10]. Given the natural bottleneck that exists in terminating such traffic on an MNO's network and the variation of SMS termination rates within the EU/EEA area which may distort the development of the internal market, it may be worthwhile to consider either including SMS termination in the Delegated Regulation, or at least to foresee a comprehensive evaluation addressing the issue.

Article 75.3 of the Code states that “*National regulatory authorities shall annually report to the Commission and to BEREC with regard to the application of this Article.”*, but such an obligation requires substantial effort and does not appear to be of use / used by those to whom it is addressed and, as already specified in part 2 of this report, BEREC notes that NRAs collect limited data on this matter. Therefore, it would be sensible to remove this obligation or reduce the frequency to perhaps every two or five years with an overall report made by BEREC instead of by each NRA. Unless the modelling is used to alter the outcome there appears to be little benefit for significant burden being placed on NRAs and in turn operators.

Level of the EU-wide termination rates (and cost modelling results)

The cost modelling assumptions should be made more realistic to take into account the real shape and conditions of mobile networks as well as geographical structure of countries. The assumptions used by the EC in the model are too theoretical and detached from real conditions faced by operators. BEREC understands that, in modelling, simplifying assumptions are necessary. However, given the consequence of this modelling leads to a financial impact on operators of varying size across the EU, it may be prudent, where the data permits it, to lean more towards the existing deployment of networks rather than the theoretically derived optimum.

While BEREC was not asked specifically to consider the proposed level of the Eurorates being set by the EC following its cost modelling work, BEREC would like to make the following comments as it is important for BEREC to consider in this round whether there is a case for increasing or decreasing the Eurorates. In the absence of clear data to indicate hardship on operators or excessive prices for end-users BEREC urges the EC in this instance to continue the existing approach. While the updated cost model

[9] The BEREC report BoR (21) 159 specifies in its part 4.2 that SMS termination rates varied in June 2021 from 0.8132 eurocents to 4.96 eurocents per SMS, see https://www.berec.europa.eu/sites/default/files/files/document_register_store/2021/12/BoR_%2821%29_159_Termination_Rates_Report_-_30_June_2021_P4_2021_clean.pdf.

[10] BEREC understands that wholesale charges for regulated roaming SMS messages defined in Art. 10 of the Regulation (EU) 2022/612 shall, like the wholesale charges for the making of regulated roaming calls specified in Art. 9 of the same Regulation, include origination, transit and termination costs.

foresees clear cost savings through explicitly introducing the more efficient 5G technology for data and voice roaming services, the decrease is less marked for voice termination services. **Thus, it could be justified to maintain the current level of the Eurorates.** However, BEREC would like to ask the Commission to specify more precisely how the current level has been derived to be sure it is still justified today.

BEREC is also wondering if the EC plans to organise, as happened for the last Delegated Regulation, expert group meetings to discuss this specific matter after the public consultation.

V. General conclusions

Conclusion Chapter I: Overall, it can be said that the introduction of the Eurorates did not cause a major impact on market dynamics, wholesale/retail prices etc. mainly due to the fact that the pre-existing termination rates regulation on the basis of the pure LRIC cost standard had already decreased the termination rates to a low level (efficient cost level). This is also in line with the results of the Updated mobile cost model for roaming and voice call termination in the EU[11] where the effect of including explicitly 5G technology in the cost model (which reduces costs significantly as the technology is more efficient) was less marked on voice termination costs than e.g. on voice roaming services as the room for further cost reductions on termination services is quite limited.

With regard to the reduction of the regulatory burden the answer was clearly positive – the introduction of the EU cost model instead of national cost models reduced the regulatory burden for NRAs – and to a certain extent also for operators. The Eurorates also simplified and harmonized the termination rates regulation. But it was also stated that the risk of misbehavior by market participants does not go away and NRAs need to retain powers to intervene particularly in case non-price problems arise. A few times, the potential problems of cost recovery (in particular for operators in smaller markets) were pointed out. With regard to non-EU operators, the problem of spoofing was mentioned several times as well as non-reciprocity.

Conclusions Chapter II: While the Eurorates addressed pricing issues of termination services, some specific issues – particularly related to access and transit fees, non-discrimination and transparency obligations – have been identified by some NRAs, which in some cases have required direct interventions from them. Indeed, the Delegated Regulation has not addressed any non-price competition problems, leaving the space for specific (although isolated) anti-competitive behavior which may be specifically addressed through regulatory interventions at national level for which **NRAs should be equipped with the necessary tools and regulatory powers.**

Having regard to the above-mentioned issues or any other non-price issues that could be incurred in the future by the NRAs, BEREC reckons that it is important to allow NRAs to adopt

[11] 2025 Update of the mobile cost model for roaming and voice call termination in the EU | Shaping Europe’s digital future, published on 22 July 2025. The fixed cost model was not updated.

symmetric decisions to regulate termination markets if necessary, while keeping the mechanism of settling dispute resolutions at national level. Likewise, NRAs should adopt decisions specifying the requirements applicable to the technical and financial conditions about interconnection and access, when needed.

Finally, it is worth pointing out the definitions of termination service in the Delegated Regulation should be **technologically and service neutral**. BEREC believes that termination services to be considered as subject to the Delegated Regulation may be realized under all types of interconnection (physical and logical), irrespective of the technology used. Furthermore, the Delegated Regulation should state clearly that the Eurorates cover costs for termination (and not transit) and that only the costs for the interconnection ports (incl. installation and testing) are to be included, not costs for any other ancillary service.

Conclusions Chapter III: BEREC identified a **lack of transparency** as EU/EEA operators are generally unable to determine which non-EU/EEA operators apply termination rates equal or lower than the Eurorates. However, so far, no information is available in any public Annex on the EC website, leading to the conclusion that no non-EU/EEA country applies a regulation consistent with the one in place in the EU/EEA. Therefore, BEREC recommends that the next review of the Delegated Regulation clearly indicates the country codes to which Eurorates apply. BEREC recommends that the EC should publish a list of non-EU/EEA countries with regulation close to that of the EU to assist EU/EEA operators in applying Eurorates (or not) to calls originating outside of the EU/EEA. In that vein, and building on the technical challenges noted earlier, the imposition of some form of controls or reciprocity measures with third countries may also be advisable to avoid the benefits of Eurorates being diminished through unfavorable trading with third countries.

On the other side, the termination rates applied by EU/EEA operators to calls from numbers of non-EU/EEA countries vary widely and international operators do not know which termination rates are applied by EU/EEA operators. BEREC therefore suggests the creation of a specific summary sheet hosted by NRAs or BEREC, where operators would include directly their voice termination rates.

A problem mentioned several times is the **risk of fraud** and identification of caller origin. In general, operators of third countries or even transit operators could spoof CLI, in order to avoid termination rates higher than Eurorates. Thus, BEREC considers it appropriate to consider potential measures to address such fraud, in particular in cases of systemically fraudulent calls in bulk, operators may be further empowered to exclude such calls from being charged in accordance with the Eurorates.

Conclusions Chapter IV: BEREC notes that article 5a of the amended Regulation (EU) 2021/2120 providing that operators as of 1st January 2029 “*shall not apply different retail prices to consumers for domestic communications and intra-EU communications*” may result in unfair competition for some operators at a wholesale level given that SMS termination rates vary across the EU/EEA. BEREC therefore asks the EC to clarify the issue. Also, it may be worthwhile to consider either including SMS termination into the Delegated Regulation, or at least to foresee a comprehensive evaluation addressing the issue.

Regarding the reporting obligation of Article 75.3 of the Code, BEREC considers it sensible to remove this obligation or reduce the frequency of the reporting and replace the individual NRA reports with a BEREC report to reduce the resources needed for the reporting.

With regard to the level of the Eurorates, BEREC considers it important that the cost modelling assumptions are realistic for all operators, also those active in smaller markets. In light of the results of the Updated cost model and absence evidence of hardship on operators or excessive prices for end-users, BEREC considers it justified **to maintain the current level** of the Eurorates. BEREC proposes to set up an expert group to discuss these costing/pricing aspects in more detail.