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**REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND
THE COUNCIL**

on the review of the roaming market

{SWD(2025) 164 final}

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1. Introduction

The roaming policy is a European success story, giving millions of consumers and businesses in the EU the benefits of staying connected without surcharges in the digital single market in their daily life. Since 15 June 2017, EU residents have access to mobile services (voice, SMS and data) at no extra costs when travelling periodically in the European union ('EU')/European Economic Area ('EEA').

In these cases, mobile operators are not allowed to levy any charges in addition to the domestic price for roaming services. These roaming rules are widely known as "**Roam-Like-At-Home**" (RLAH).

In 2022, the RLAH rules were revised. These rules are now set out in the recast Regulation (EU) 2022/612 (the Roaming Regulation) ⁽¹⁾ which also extended their application for an additional 10 years until June 2032.

In 2022, the following novelties were introduced to increase consumer benefits and protections:

- The **new quality of service ('QoS') measures, which clarified the previous provisions**, ensure that roaming customers can at least have the same level of roaming quality abroad, e.g. speed and network generation, as they normally have at home, when this is technically feasible. Moreover, mobile network operators in the visited country are required to give visiting mobile operators access to all network technologies and generations, if they make a reasonable wholesale roaming access request.
- Improved rules were introduced for **emergency communications** to ensure that customers who are roaming can seamlessly access emergency services without the risk of being charged. They can, for example call the single European emergency number, 112, all over the EU, or use SMS or emergency applications without any surcharges. In addition, travellers should be informed about the means of contacting emergency services, including those designed for users with disabilities, in the EU/EEA country they are visiting.
- To protect roaming customers from unexpected surcharges, new rules were introduced to ensure roaming providers give sufficient information to their customers about the increased costs they might incur from using **value-added services** while roaming, as well as connecting to a **non-terrestrial network** such as on a ship or plane. Roaming customers now benefit from two automatic cut-off limits once they have consumed

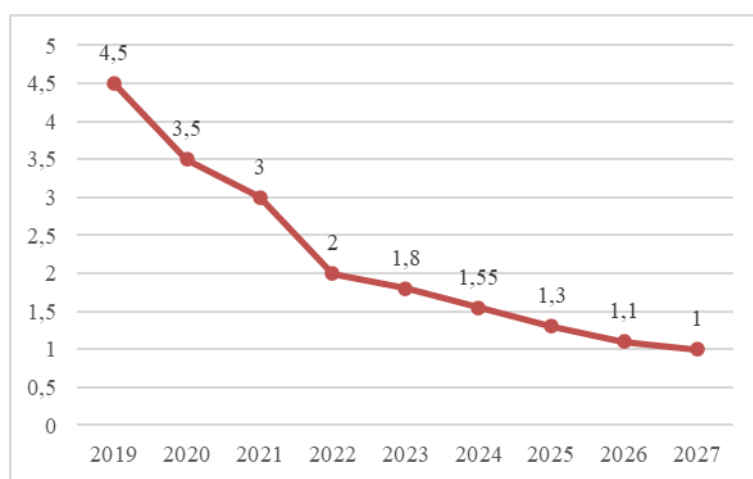
⁽¹⁾ Regulation (EU) 2022/612 of the European Parliament and of the Council of 6 April 2022 on roaming on public mobile communications networks within the Union (OJ L 115, 13.4.2022, p. 1–37).

EUR 50 and EUR 100 of roaming services, instead of having to opt-in to such a service as was the case in the previous regulation.

- Lastly, the RLAH regime has been made sustainable for operators. At wholesale level, the **price caps were further substantially reduced in 2022**, in particular for data traffic. The wholesale glidepath ensures progressive reductions of the caps every year until 2027 (reaching EUR 1 per GB), to ensure that market players can benefit from wholesale rates that allow for the sustainable provision of roaming services to their customers without levying any charge on top of the domestic price.

The wholesale roaming price caps, based on a cost model study ⁽²⁾ that takes into account operators' costs, also ensure that wholesale costs are fully recovered by the operator providing the wholesale roaming service. Additionally, the decreasing wholesale caps provide benefits on the retail side. Surcharges exceptionally applied to consumers are constantly decreasing, given that the wholesale caps set the maximum retail surcharge that operators can apply.

Figure 1: Decreasing trend in the data surcharge operators can apply over the years (€/GB)



Source: Regulation (EU) 2022/612

In line with its reporting obligations laid down in the Roaming Regulation ⁽³⁾, on 15 January 2024 the Commission published a Staff Working Document ('SWD') on the findings of the 2023 periodic review of the rules on roaming fair use policy and the sustainability derogation laid down in the Commission Implementing Regulation (EU) 2016/2286. This 2023 Review Report concluded that, overall, the fair use policies (FUP) were effective ⁽⁴⁾.

⁽²⁾ [Finalisation of the mobile cost model for roaming and the delegated act on a single EU-wide mobile voice call termination | Shaping Europe's digital future](#), 18 December 2024.

⁽³⁾ Article 7 of the Roaming Regulation

⁽⁴⁾ The review confirmed that the vast majority of EU residents enjoy mobile services while travelling in the EU/EEA under RLAH conditions. The existing fair use policy has been widely implemented by operators and allowed them to ensure RLAH benefits to periodic travellers while addressing abusive or anomalous use of roaming. Finally, no major impact has been observed on domestic markets: the tariff structure and availability of domestic mobile subscription remained unchanged.

The Roaming Regulation further mandates the Commission to submit, by 30 June 2025, a comprehensive review report to the European Parliament and to the EU Council assessing the functioning of the roaming market. This is the purpose of this Report and its accompanying Staff Working Document.

2. FUNCTIONING OF THE ROAMING MARKET

2.1. Compliance with the rules

In addition to conducting comprehensive data collection in line with Article 17 of the Roaming Regulation, the national regulatory authorities ('NRAs') must monitor and supervise compliance with the Roaming Regulation.

A high level of compliance with the Roaming Regulation has been identified, based on inputs from NRAs and the Body of European Regulators for Electronic Communications (BEREC). NRAs are using reactive (e.g. treatment of consumer complaints) and proactive (e.g. periodic reviews) approaches to monitor the implementation of the RLAH provisions.

At the same time, the level of consumer satisfaction appears high, based on input from the two most recent Eurobarometer studies⁽⁵⁾ (around 80% of travellers across the EU consider that they are benefiting from roaming rules), and complaints received by NRAs⁽⁶⁾ are relatively low.

Finally, in the nine countries that reported non-compliance cases since 2022, most issues were promptly resolved by the NRAs, reflecting effective enforcement. NRAs have not yet reported monitoring of the quality-of-service provisions introduced in 2022. The findings of the Quality-of-Service Study⁽⁷⁾ suggest that the level of compliance could be significantly improved. However, further monitoring and assessment of the underlying circumstances is required.

2.2. Retail roaming market

The continuous increase in roaming consumption is led by data consumption

In 2017, the introduction of RLAH had triggered an immediate and massive increase in retail roaming traffic compared to pre RLAH values. In the first year after the introduction of RLAH, compared to the same period the previous year, roaming data consumption increased by a factor of 5⁽⁸⁾ and roaming phone calls made increased by a factor of 2.5⁽⁹⁾.

In recent years, mobile data consumption while roaming has continued to massively increase. Looking at Q3 for each year, the most roaming-intense quarter, a continuation

⁽⁵⁾ Flash Eurobarometer 521, European Commission, July 2023 and Special Eurobarometer 560 (still to be published)

⁽⁶⁾ In 2023, most NRA reported fewer than 50 consumer complaints. Even in the most populated countries, the reported complaints remained below 300.

⁽⁷⁾ See pages 11-12.

⁽⁸⁾ In the first three quarters after the introduction of RLAH (Q3 2017, Q4 2017 and Q1 2018) compared to its level one year before.

⁽⁹⁾ Q3 2017 compared to one year before.

of the data-consumption growth can be observed, with a 48-fold increase since the introduction of the RLAH regime in 2017⁽¹⁰⁾.

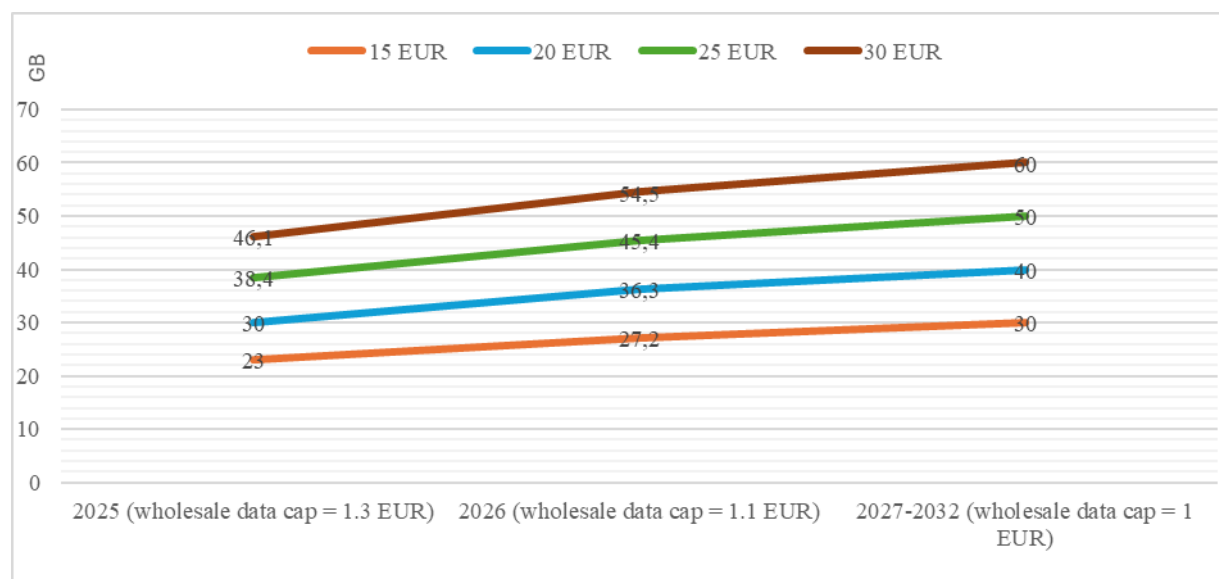
However, retail roaming voice traffic has been slightly but steadily declining since Q3 2019. This trend could be attributed to the rise of Over-The-Top (OTT) platforms, which offer voice and messaging services over the internet, increasingly supplementing traditional voice calls and SMS messages, while contributing to the increase of roaming data consumption.

The massive increase in retail roaming data volume confirms how successful and effective the RLAH regime is in bringing concrete benefits to the EU residents, allowing them to stay connected in the same way as in their home country while they are periodically travelling in the RLAH area.

Consumers have benefited from increased roaming data allowances, which have risen as a result of the progressive reduction of wholesale caps

As wholesale caps progressively decrease, with a target of EUR 1 per GB by 2027, EU consumers are directly benefiting from the resulting lower prices at retail level. In fact, 71% of operators in 2024 applied a fair use policy to “open data bundle”, for which the data allowance while roaming is directly linked to the wholesale caps, which are currently falling. Hence, EU consumers are benefiting from a higher data allowance, year after year, as shown by Figure 2 below.

Figure 2: Future evolution of FUP data limits (GB/month) for various retail prices (excl. VAT) where the data limit on unlimited bundles was applied in 2025-2032 ⁽¹¹⁾.



Source: European Commission. Calculation based on Article 4(2) of Commission Implementing Regulation (EU) 2016/2286 in conjunction with Article 11(1) of the Roaming Regulation (EU) 2022/612 ⁽¹²⁾.

⁽¹⁰⁾ Q3 2017 compared to Q3 2024.

⁽¹¹⁾ Figure 2 indicates cases of operators applying open data bundle limits as allowed by the Commission Implementing Regulation, showing the link between a decreasing wholesale cap and the increasing roaming allowance under the Fair Use Policy, for users with a subscription that has a constant monthly price over the years. The relevant formula used is the following: FUP data allowance = (price of the tariff plan without VAT/wholesale roaming cap)

The decreasing trend in wholesale caps has led to a constant and continuing increase in the roaming data allowance that is benefiting EU consumers and has addressed the increasing need for roaming volumes. As the wholesale cap continues to decrease, it should be noted that the additional benefit for consumers will depend on the type of subscription the consumer has. Consumers subscribing to unlimited data bundle plans (i.e. where the subscription does not include any domestic data volume limit) will progressively benefit from higher allowances, in line with the lower wholesale caps ⁽¹³⁾.

Fair use policies are fit for purpose, and surcharges beyond any fair use policy limits are only exceptionally applied

FUPs are widely implemented by operators (80% of operators applied at least one of the FUP measures in 2024). While the FUP remain commonly applied by operators, it is worth noting that the majority of roaming customers never reach these limits (only 4.65% of roamers in Q3 2024), making the application of the surcharges beyond any FUP limits or measures exceptional.

Since 2022, operators acknowledged the effectiveness of FUP mechanisms but the results from operators decreased in 2024. The reasons behind this evolution are not evident from the available data or the BEREC Opinion⁽¹⁴⁾, and will be monitored by the Commission. Additionally, the technical complexity and cost of some FUP measures have also been highlighted by stakeholders. However, the difficulties to implement the FUP mainly affect new entrants, as most existing operators have already implemented FUPs since 2017.

Surcharges imposed by operators can apply on the very rare occasions when safeguard mechanisms are activated or users exceed the set fair use policies, but these surcharges are limited to the level of the wholesale caps. As described above, the caps follow the decreasing glidepath set in 2022. As of 2025, the caps are set at EUR 1.30 per GB (and will further decrease to EUR 1 in 2027), EUR 0.003 per SMS, and EUR 0.019 per minute of call.

Therefore, the FUP measures remain fit for purpose, striking a balance between the benefits for EU consumers on the one hand, and the sustainability and cost-recovery needs of operators on the other, without prejudice to the exercise of the fundamental freedoms. The Commission analysis confirms the findings of the 2023 Review Report⁽¹⁵⁾ and does not call for immediate action. It should be noted that the

⁽¹²⁾ If the FUP roaming data limit exceeds the domestic volume limit, the domestic volume is the limit that applies. All prices and caps are illustrative and presented solely for example. The FUPs presented are the results of the formula applied. Application of the FUP depends on whether the subscription is considered an open data bundle or an unlimited data subscription.

⁽¹³⁾ In contrast, consumers of other open data bundle plan (i.e. where the price per GB included in the domestic subscription is lower than the regulated wholesale price) would not benefit from increased data allowance. In this case, the roaming customer will be able to consume their total domestic data volume even when roaming – as it is already the case. For the roaming customer, the lower wholesale price will not lead to additional data roaming volumes. The roaming provider is not obliged to offer more data roaming than the domestic data volume.

⁽¹⁴⁾ BoR(25)48.

⁽¹⁵⁾ SWD(2024) 8, Commission Staff Working document on the findings of the 2023 periodic review of the rules on roaming fair use policy and the sustainability derogation laid down in the Commission Implementing Regulation (EU) 2016/2286 of 15 December 2016.

Commission continues to periodically review the rules on fair use policy as provided under Article 7 of the Roaming Regulation.

The derogation mechanism is acting as an effective safety net for the few remaining operators requiring such measures

Since the introduction of the RLAH rules, the sustainability derogation rules have worked effectively. In recent years, there has been a clear decrease in the number of operators in need for derogations. Since 2022, no mobile network operators ('MNOs') have requested or applied for sustainability derogations⁽¹⁶⁾. The volumes of voice and data roaming services subject to sustainability surcharges have dropped below 0.82% in every considered Member State.

These positive outcomes can mainly be explained by the lowering of wholesale roaming caps and the fact that, in some cases, the wholesale roaming charges effectively applied were even below the caps.

However, for other operators such as mobile virtual network operators ('MVNOs'), the derogation mechanism is still used and is useful as an effective safety net. It allows operators to avoid domestic price increases, if they are able to demonstrate a likely relevant negative margin for providing regulated roaming services.

The sustainability derogation system may have also contributed to preventing the increase in domestic prices when RLAH came into force. The 3% limit for the negative margin, set in the Implementing Regulation (EU) 2016/2286 as a minimal condition for the NRAs to grant derogations, has not hindered the sustainability objectives of the derogations.

RLAH does not affect domestic tariff price trends or structure

Despite increasing volumes of roaming traffic, the RLAH regime does not negatively impact the domestic tariff structure and price trends in EU/EEA countries.

BEREC data shows that from 2019 to 2024, the Average Revenue Per Paying User (ARRPU) has remained stable, with constant prices and expanded services, like larger data volumes. Increases in ARRPU cannot be solely linked to RLAH, as pricing is affected by inflation and competition. BEREC observes a trend towards unlimited tariff plans and emphasises the importance of FUP for sustaining RLAH.

NRAs and BEREC cannot accurately assess the Roaming Regulation's effects on national markets due to the dynamic nature of these effects. They cannot determine which changes on the national market are caused by the roaming intervention versus other factors. BEREC has found no evidence of mobile providers exiting the market because of Roaming Regulation obligations.

The findings of the 2017-24 study "Mobile Broadband Price in Europe" ⁽¹⁷⁾ confirm a downstream trend in prices across the EU following the implementation of RLAH. The

⁽¹⁶⁾ In 2024, only 9 MVNOs were granted a sustainability derogation.

⁽¹⁷⁾ Empirica's studies apply the minimal normalised prices in euro (€/purchasing power parity) across each EU Member State for a collection of baskets. The details regarding the consumption included in each analysed basket can be found in Section 3 (Methodology)

prices for the least expensive offers for all mobile baskets assessed decreased by 19-86% on average between 2017 and 2024.

Only a small percentage of users subscribe to the domestic-only tariff plans. The BEREC opinion indicates that the average share of domestic-only tariffs within the EU/EEA using roaming-enabled SIM cards has declined from 4.4% to 3.2% between Q4 2021 and Q3 2024. As of Q3 2024, the percentage of subscribers on domestic-only tariffs is 3% for MNOs and 2% for MVNOs.

Use of alternative tariffs follows a consistent downward trend. Despite one-third of operators offering alternative tariffs, in Q3 2024 the proportion of roaming call minutes made within the EEA by subscribers on alternative tariffs was 5.5%, while the corresponding data usage share was 4.2%. According to BEREC, in Q3 2024 an average of 4.17% EEA roaming enabled customers were subscribed to an alternative tariff.

Overall, this shows that the RLAH regime has brought benefits to EU residents without impacting the tariff structure at the national level, further confirming the success of the RLAH initiative.

Extension of “roam-like-at-home” benefits beyond EU borders

The benefits of the RLAH policy for consumers are so visible that several regions outside the EU have decided to introduce measures to lower roaming charges in cross-border settings. In the Western Balkans, a regional RLAH regime has been established since 2021.

The Roaming Regulation encourages initiatives that aim to lower the roaming charges for roaming services between the EU and third countries on a reciprocal basis. Beyond the economic benefits, it also seems that in certain cases, especially for citizens of candidate countries, being able to freely use mobile devices while periodically travelling in the EU represents has a symbolic value of belonging to the “EU family”.

The EU has already made steps towards extending the RLAH area to countries within the EEA and lately also to some candidate countries. The extension of Roam-Like-at-Home benefits to non-EU countries requires these countries to incorporate the so-called “EU roaming acquis” in their national law. The “EU roaming acquis” includes the Roaming Regulation, Commission Implementing Regulation (EU) 2016/2286⁽¹⁸⁾, Commission

⁽¹⁸⁾ Commission Implementing Regulation (EU) 2016/2286 of 15 December 2016 laying down detailed rules on the application of fair use policy and on the methodology for assessing the sustainability of the abolition of retail roaming surcharges and on the application to be submitted by a roaming provider for the purposes of that assessment (OJ EU L 344, 17.12.2016, p. 46, ELI: https://eur-lex.europa.eu/eli/reg_impl/2016/2286/oj).

Delegated Regulation (EU) 2021/654 ⁽¹⁹⁾, as well as certain provisions of Regulation (EU) 2018/1971 ⁽²⁰⁾ and of Directive (EU) 2018/1972 ⁽²¹⁾.

Ukraine and Moldova have progressed well on the path towards joining the EU RLAH area. Ukraine has fully aligned with EU roaming legislation, and, on this basis, the Commission proposed to the Council the inclusion of Ukraine into the EU RLAH area, with a transition period for the operators to adapt. This proposal requires approval by the EU Council before a final decision can be adopted, to effectively extend the EU RLAH area to Ukraine. Moldova has notified to the Commission its alignment with the EU roaming acquis and could also join the RLAH area, subject to a positive assessment of the degree of alignment. The Commission will observe the outcome of extending the RLAH to the two candidates and other potential candidates such as in the Western Balkans, in the short and long term.

The Commission is exploring legally viable solutions to extend the RLAH area to the Western Balkans, as follow-up to the Western Balkan Growth Plan. In parallel, operators in Ukraine ⁽²²⁾, Moldova ⁽²³⁾ and the Western Balkans ⁽²⁴⁾ have voluntary arrangements in place with some EU operators for lowering roaming charges.

Rest of the world roaming

To keep track of potential increases in roaming rates outside the EU/EEA, BEREC collects data for its International Roaming Benchmark Reports. No indications were found of increase in non-EEA roaming prices after the implementation of RLAH. In fact, operators report a general trend of declining average retail prices for roaming services outside the EU/EEA.

Between Q4 2020 and Q3 2024, operators indicated that their average retail rates for data roaming in the “rest of the world” decreased from EUR 10.87/GB to EUR 5.16/GB, while the prices for calls received, calls made and SMS messages saw a more gradual

⁽¹⁹⁾ Commission Delegated Regulation (EU) 2021/654 of 18 December 2020 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 (OJ EU L 137, 22.4.2021, p. 1, ELI: https://eur-lex.europa.eu/eli/reg_del/2021/654/oj).

⁽²⁰⁾ Regulation (EU) 2018/1971 of the European Parliament and of the Council of 11 December 2018 establishing the Body of European Regulators for Electronic Communications (BEREC) and the Agency for Support for BEREC (BEREC Office), amending Regulation (EU) 2015/2120 and repealing Regulation (EC) No 1211/2009 (OJ L 321, 17.12.2018, p. 1–35).

⁽²¹⁾ Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code (OJ L 321, 17.12.2018, p. 36–214).

⁽²²⁾ The EU-Ukraine voluntary agreement for affordable or free roaming and international calls was signed in April 2022, https://ec.europa.eu/commission/presscorner/detail/en/ip_22_2371.

⁽²³⁾ The Joint Declaration by EU and Moldovan mobile operators to reduce roaming charges was signed in May 2023, <https://digital-strategy.ec.europa.eu/en/library/joint-declaration-eu-and-moldovan-mobile-operators-reduce-roaming-charges#:~:text=Thanks%20to%20the%20declaration%2C%20from,tariffs%20and%20data%20roaming%20tariffs>.

⁽²⁴⁾ The EU-Western Balkan roaming declaration was signed in December 2022, <https://neighbourhood-enlargement.ec.europa.eu/system/files/2022-12/eu-wb-roaming-declaration.pdf>.

drop ⁽²⁵⁾. Despite this positive declining trend, some consumer complaints received by NRAs indicate that there are still occasionally problems with very high charges billed to consumers roaming outside the EU, especially when they do not benefit from special arrangements (add-ons, special offers, holiday packages).

Finally, it should be noted that following Brexit, most of the main MNOs in the United Kingdom have reintroduced retail surcharges for roaming in the EU for their customers, showing how relevant the current RLAH regime is. The Commission also welcomes initiatives from many EU operators to maintain favourable conditions and preserve roaming without surcharges within the United Kingdom for their subscribers, to the benefit of European consumers.

2.3. Wholesale roaming market

Wholesale roaming prices have been steadily falling

As presented in the accompanying SWD, the average EEA wholesale roaming prices for data services dropped from 2.2 EUR/GB in 2018 to 1.3 EUR/GB in 2021, representing a decrease of 41%. This decrease aligns with the reduction of the regulated wholesale data cap, which was lowered in the same period from 6 EUR/GB in 2018 to 3 EUR/GB in 2021 ⁽²⁶⁾.

The recast Roaming Regulation in 2022 established a new glidepath to further lower the wholesale caps, setting it at 2 EUR/GB in 2022, 1.8 EUR/GB in 2023 and 1.55 EUR/GB in 2024 for data roaming services. These reductions in the regulated wholesale caps were reflected in the actual applied wholesale prices, which decreased to 0.7 EUR/GB in Q3 2024. This represents a reduction of 50% compared to the wholesale prices of 1.3 EUR/GB that were actually applied in Q3 2021 ⁽²⁷⁾.

For roaming voice services, the regulated wholesale caps have decreased gradually from 3.2 EUR cents/min in 2017 to 2.2 EUR cents/min in 2022 ⁽²⁸⁾. Despite this steady glide path, the actually applied prices have been progressively declining over the past five years. Prices dropped from 2.14 EUR cents/min in Q2 2018 to 1.97 EUR cents/min in Q2 2021, representing a decrease of 8%. By Q3 2024, the prices had further decreased to 1.3 EUR cents/min, marking a 34% reduction compared to the 2021 value.

The decline in wholesale roaming prices was primarily driven by several factors. First, new and progressively decreasing maximum wholesale roaming prices introduced in the 2017 roaming regulation, along with further cap reductions introduced in the 2022 recast of the Roaming Regulation, have set increasingly lower caps for wholesale prices. This triggered competitive market dynamics among operators offering wholesale roaming access below those caps.

⁽²⁵⁾ A comparison of the period from Q4 2022 to Q3 2023 for calls and SMS reveals a slight increase, which is attributed to a methodological change implemented in 2021 concerning roaming, which reclassified UK providers (at the wholesale level) and UK subscribers (at the retail level) from the 'EEA' group to the 'Rest of World' (RoW) category, impacting roaming prices for the UK.

⁽²⁶⁾ Further wholesale roaming caps introduced in the 2022 Roaming regulation are 1.55 EUR/GB in 2024, 1.3 EUR/GB in 2025, 1.1 EUR/GB in 2026 and 1 EUR/GB from 2027 onwards.

⁽²⁷⁾ 30th BEREC International Roaming Benchmark Data and Monitoring Report, BoR (24) 38, March 2024.

⁽²⁸⁾ From 2025 onwards, the wholesale cap for voice roaming services is set at 1.9 EUR cent/min.

Second, the implementation of RLAH led to a substantial increase in roaming volumes, as demonstrated in the first section. In this context, operators increasingly offer price discounts based on roaming traffic volumes, a practice that has further pushed down wholesale roaming prices below the regulatory caps. The combination of increased volumes and volume-based pricing incentives has intensified competition, further driving wholesale roaming prices down in a highly competitive market environment.

The Commission welcomes these market dynamics that can lead to improved and stable functioning of the roaming markets. Such market trends can contribute to a more dynamic and beneficial wholesale roaming market but will require further observation and assessment.

Finally, the evolution of 5G technology has significantly reduced the general costs of providing network services, enabling operators to offer even lower wholesale roaming rates. Together, these factors have prevented adverse effects of RLAH on outbound operators.

The new cost model indicates economic potential for further reductions in the wholesale caps

The Commission has published an external study to build a cost model for an efficiently operating mobile network in each EU/EEA country⁽²⁹⁾. The estimates that can be inferred from the model and from additional transit price data provided by operators⁽³⁰⁾ show that the caps on wholesale roaming prices set in the Roaming Regulation in 2017, along with further cap reductions introduced in the 2022 recast of the Roaming Regulation, have allowed a full recovery of costs at wholesale level plus margin.

The reduction in wholesale roaming prices, whereby average wholesale market prices have continued to undershoot the declining regulated maximum wholesale tariffs, demonstrates that operators have been able to meet the increasing demand in wholesale roaming services while at the same time recovering the cost of their network investment, including the cost of capital.

Based on the Commission's external study, BEREC assessed that there is some economic space for further reducing the wholesale caps while keeping them above the underlying costs in all Member States and including some space for negotiations below the caps.

The Commission will consider these inputs in its assessment of the wholesale caps. The Commission will also consider the impact of the extension of the RLAH area to countries outside the EU, as described above.

Specific situation of mobile virtual network operators (MVNOs) on the wholesale roaming market

⁽²⁹⁾ Study CNECT/2022/OP/0065 'Assessment of the cost of providing mobile telecom services in the EU/EEA' by AXON, December 2024, available <https://digital-strategy.ec.europa.eu/en/library/finalisation-mobile-cost-model-roaming-and-delegated-act-single-eu-wide-mobile-voice-call-0>. Latvia, Lithuania, Estonia, Netherlands, Iceland and Liechtenstein have not provided the necessary data to build the model in these countries. The study was run in close collaboration with NRAs and BEREC.

⁽³⁰⁾ The cost model and its outputs, as well as estimates of transit prices, are presented in the accompanying staff working document.

Due to their specific nature ⁽³¹⁾, MVNOs cannot accommodate roaming traffic from foreign MNOs in exchange for the roaming traffic they send to those MNOs. Instead, they must purchase outbound roaming traffic generated by their customers abroad at wholesale rates, without the ability to trade or exchange this traffic for inbound roaming traffic.

This structural difference places MVNOs in a distinct position from MNOs when negotiating wholesale roaming access, as recognised by BEREC in its previous opinions (2019 and 2021). These challenges contribute to MVNOs' difficulty in competing with MNOs. The primary reason lies in their reliance on MNOs for network access, both domestically and internationally. Additionally, due to their typically smaller size, MVNOs often lack significant purchasing power. This is further described in the accompanying SWD to this report.

Quality of service

Since 2022, the Roaming Regulation lays down new and clarified QoS obligations at retail and wholesale level. At retail level, roaming providers have to ensure that roaming customers have at least the same quality of the roaming service as they normally have at home, when this is technically feasible. At wholesale level, visited operators have to ensure that all reasonable wholesale access requests are met and that a wholesale access seeker is given access to all technologies and networks, to be able to provide the QoS level that they normally provide for their customers at home.

The wholesale-level obligation ensures that visited operators do not limit wholesale access to certain networks or technologies. With the increasing 5G deployment it is expected that the discrepancies explained below in terms of QoS between domestic and roaming services will gradually decrease. The Roaming Regulation includes a level of flexibility for roaming services to catch up with gradual technological developments.

In its Opinion, BEREC does not identify any issue with the QoS provisions and considers them to be fundamental to the functioning of the RLAH principle. NRAs have not reported any disputes between roaming providers (access seekers and access providers) concerning QoS, either on regulated roaming services or on Machine-to-Machine (M2M) roaming services.

Stakeholders who contributed to the call for input to the BEREC Opinion consider that the obligations regarding QoS rules are effective in ensuring that roaming customers benefit from same QoS as domestically. Some operators have expressed concerns about discriminatory practices. BEREC confirms that QoS is an issue that requires ongoing monitoring and may necessitate further attention and review in the future, as well as identifying the factors that contribute to variations.

In the 2023 Review Report, the Commission presented detailed findings on QoS. According to the findings, approximately 1 out of 4 consumers have experienced lower quality with their roaming service than what they usually have at home, such as lower speeds and different network generation.

⁽³¹⁾ An MVNO operates without owning a radio access network in the country or countries where it provides services.

The 2025 Eurobarometer survey confirms that roaming customers continue to experience differences between their domestic and roaming QoS. 1 in 3 of the respondents who had travelled in the past two years (11% of total respondents to the survey) have experienced lower mobile internet speeds compared to what they usually have domestically. Almost 1 in 3 of the respondents have experienced a lower broadband standard compared to domestically.

BEREC confirms that QoS is one of the categories where the fewest consumer complaints are received (3%).

The 2025 QoS study⁽³²⁾, conducted by the contractor Mozark for the Commission, brought more accurate data on that topic. The study finds that for download speeds, 76% of roaming end users do not enjoy the same performance as they do on their home network and in 80% of the cases the download speeds were lower than the ones of the local subscribers of the visited network. Results are slightly better for upload speeds, where in 63% and 68% of the cases, roaming customers had lower speeds compared to their home network and the visited network, respectively. Performance in terms of latency was also worse for roaming users compared to both their home network (in 92% of the cases) and the visited network's end users (in 90% of the cases).

A further analysis of the cases where roaming performance was poorer than at home shows that 84% experienced lower download speeds and 78% lower upload speeds than the performance usually offered by the visited network. In 91% of the cases where the latency of a roaming user was worse than the home network, it was also worse than the latency in the visited network.

On the other hand, 17% of the roaming end users experienced better download speeds than the home network and 30% better upload speeds. When compared to the visited network, roamers outperformed download speeds in 14% of the cases and upload speeds in 24% of the cases. Latency for roaming end-users was better in 4% of the cases when compared to the latency of the home network, and 3% when compared to the visited network.

When it comes to generation of cellular network technology, the 2025 QoS study concludes that roaming end users were able to access 5G technology in over 70% of the test instances.

These results can be attributed to several factors, either technical or commercial. To get a better overview of the potential problems, it would be necessary for NRAs to monitor and assess QoS practices by operators.

2.4. Market and technological developments

5G deployments in Europe had a positive impact on roaming

The 2025 Digital Decade report shows that 5G coverage reached 94.35% ⁽³³⁾ of EU territory in 2023. This technological evolution has been taken into account by the Commission in its assessment of the roaming markets.

⁽³²⁾ Not yet published. Reference number: EC-CNECT/2024/OP-0084.

⁽³³⁾ The KPI used for the 5G target does not take into account quality of service, and therefore most of the current 5G deployment can be categorised as "basic 5G". "Stand-alone" 5G, which provides high reliability

At retail level, the recast of the Roaming Regulation in 2022 aimed to ensure that EU consumers can directly benefit from the development of 5G networks while travelling in the EU. EU users roaming in the EU/EEA should enjoy the same quality of service, including mobile network generations and technologies, as in their home country.

5G technology provides networks with better performance and easier characteristics when it comes to speed, latency and virtualisation. The emerging “network slicing” is an important technological development enabled by 5G, introducing new use cases. Up to now 5G slicing solutions have not been adopted massively in the market, neither are there any indications that it is expected to be used in the near to mid-term future. This is also confirmed by BEREC in their Opinion, which notes that it is still premature to assess the impact of such developments on traditional roaming services. In terms of impact on new or innovative roaming services and substitutes to roaming, 5G has not contributed significantly to a change of the roaming landscape.

At wholesale level, the cost model demonstrates that the implementation of 5G standards has led to a significant decrease in unit cost when identifying a hypothetical “efficient operator”. In concrete terms, this suggests that operators investing in 5G will be able to reduce their costs and become more competitive in the market. The overall sustainability of RLAH has increased since the reduction in the cost of providing wholesale roaming services has led to a reduction of wholesale prices paid by visiting operators. This reduction in prices does not seem to have been offset by an equivalent increase in the roaming volumes facilitated by 5G deployment.

There is currently no compelling evidence supporting the need to regulate permanent roaming for machine-to-machine (M2M)/internet of things (IoT) connectivity

In principle, M2M/IoT use cases are subject to the application of average wholesale roaming caps and the fair use policies.

However, permanent roaming for M2M/IoT use cases is subject to wholesale commercial negotiations, while operators are expected to increasingly conclude permanent roaming agreements for this purpose ⁽³⁴⁾.

Regulation (EU) 2022/612 aims ⁽³⁵⁾ to facilitate roaming for M2M/IoT use cases, since this is “an important driver for digitising the EU’s industry” and indicates that the measures facilitating roaming for M2M/IoT use cases “should build on related EU policies in sectors such as health, energy, environment and transport”.

and low latency and is crucial for enabling advanced features, is still not deployed on any meaningful scale, except in a very few cases of private networks. Meanwhile, 5G coverage in the 3.4-3.8 GHz band, considered the primary pioneer band for 5G in the EU – and the only available mid-band on a large scale that offers a good balance between coverage and capacity – stands at 67.72% in 2024.

⁽³⁴⁾ Recital 22 of Regulation (EU) 2022/612: “[...] However, permanent roaming is subject to commercial negotiations and can be agreed by two roaming partners in a wholesale roaming agreement. In order to allow the development of more efficient and competitive markets for machine-to-machine communications, it is expected that mobile network operators will increasingly respond to and accept all reasonable requests for wholesale roaming agreements on reasonable terms and explicitly allow permanent roaming for machine-to-machine communications.”

⁽³⁵⁾ In this respect, see recital (68) of Regulation (EU) 2022/612.

The roaming connectivity for M2M/IoT use cases raised questions about the possibility of changing the regulatory approach for the IoT (beyond periodic travelling) and the possible need to further facilitate machine-to-machine roaming and internet-of-things roaming.

The Commission has assessed the evolution of the connectivity market for M2M/IoT use cases (see the SWD for detailed analysis), finding a generally effective competitive environment with both direct and indirect competitive constraints on the possible market power of roaming connectivity providers.

Providers of M2M/IoT use cases have easy access to permanent roaming connectivity solutions, with EU coverage, and at relatively low retail prices per connected device. Consequently, at this stage, there is no compelling evidence for regulatory intervention as regards permanent roaming connectivity conditions for M2M/IoT use cases.

However, MVNOs reported that at least some of the MNOs with a strong national market position have put in place potentially restrictive wholesale practices for permanent roaming, such as exclusive roaming access agreements or hard-to-achieve minimum purchasing service volumes, as a (pre)condition for concluding permanent roaming agreements. For more detailed analysis of these issues, see the SWD.

The Commission will continue to monitor the development of the M2M/IoT market and the Roaming Regulation's adequacy for its specific needs.

Other technological developments

In the 2019 review report⁽³⁶⁾ the Commission assessed the impact of technological development on the roaming market. The assessment particularly looked at the impact of OTT services, Wi-Fi, eSIM and 5G. The Commission concluded that these technologies do exert some competitive pressure, but it is not sufficient to change the competitive landscape of roaming services. In this review, the Commission is revisiting that assessment.

Technological developments that may affect regulated roaming can generally be divided into two main categories: (i) those that enable end-users to bypass roaming (e.g. Wi-Fi and Wi-Fi aggregation, OTT services, as well as low earth orbit (LEO) satellite communications) and (ii) those that enable other players to come into play and offer roaming services (e.g. eSIMs and 5G slicing).

Each type has certain advantages, but none appear to be a concrete substitute for regulated roaming services under the RLAH regime, neither are they exerting significant competitive pressure. In its Opinion, BEREC considers that the various technologies which could aspire to be substitutes for roaming services are only seen as complementary or specific to projects with well-defined terminal characteristics. While eSIMs could put some pressure on operators, they are currently mostly used for RoW roaming.

For Wi-Fi, its increased availability and ease of use is counterbalanced by the lack of full coverage, as well as by the big advantages of 5G-increased quality and the flexibility of RLAH, that allows users to benefit from their domestic subscriptions. At the same time, 5G slicing has not gained significant importance yet and has not been used extensively.

OTTs seem to be gaining in importance for both domestic and roaming traffic, but the impact specifically on roaming cannot be regarded as a step change, while eSIMs – at least for the near future – will not impact roaming. The fact that an eSIM-based solution may in some cases require the user to change mobile number while roaming is considered a major drawback.

The eSIMs solution also requires extensive cooperation between different parties in the value chain, including device manufacturers, MNOs, MVNOs and consumers. Despite their significantly increased number, eSIMs are expected to play a role in ‘rest of the world’ roaming rather than in a RLAH environment.

LEO satellites may offer full EU/EEA coverage, but the solutions are still not widely available for end-users.

Finally, online trading platforms, although available, are only used by a limited number of operators. Consequently, their limited reach prevents them from being effective in reducing wholesale prices to an extent sufficient to justify lifting the regulatory obligations under the Roaming Regulation.

Having considered the above, the Commission considers that there will be no short-to-medium-term technological developments that would seriously act as a

⁽³⁶⁾ Commission Staff Working Document accompanying the Report from the Commission on the review of the roaming market (SWD(2019)416 final).

competitor or substitute to the currently applicable RLAH regime, or that would exert sufficient competitive pressure to make the current regime irrelevant.

Therefore, the regulatory measures imposed appear to still be appropriate and fit for purpose in the current context.

3. Conclusion

This review covering all the relevant factors outlined in Article 21 of the Roaming Regulation concludes that the RLAH regime remains fit for purpose, effectively achieving its objectives of promoting competition, reducing prices and improving the quality of roaming services, for the benefit of European consumers.

As in 2019, the review shows that, despite signs of competitive dynamics on both the retail and wholesale roaming markets, the underlying basic competition conditions have not changed substantially and are not likely to change in the foreseeable future.

The overall framework of the Roaming Regulation has proven to be effective, also in intensifying competition at wholesale level and creating dynamics in the wholesale market, with wholesale roaming prices steadily decreasing and remaining well below the regulated wholesale caps.

The example of Brexit, with the full deregulation of roaming services between the EU and the UK, highlighted the importance of the current RLAH framework and the need to maintain it to ensure free retail roaming services for EU consumers. In parallel, the RLAH area is likely to see its first enlargement in the next months to include Ukraine and Moldova, subject to a positive assessment of its alignment with EU legislation – a process that will be monitored by the Commission.

Based on the cost model results and the BEREC opinion, the Commission will, in particular, further monitor and assess the market dynamics and potential impacts of reductions in wholesale caps, given the economic space indicated by the cost model.

BEREC suggested in its Opinion that other improvements to the already well-functioning roaming rules could be considered as regards clarifying certain FUP mechanisms, better designing the welcome message and transparency measures (including the databases) and ensuring that inadvertent roaming problems are effectively tackled. The implementation of these rules requires further monitoring. Similarly, the findings on QoS will require close monitoring by NRAs and the Commission of the currently applicable QoS provisions. Additionally, some other improvements, suggested by BEREC, such as streamlining the data collection process with the NRAs and BEREC, could also be implemented without amending the Roaming Regulation.

Overall, the suggested improvements do not call into question the general principles underlying the Regulation, which remain relevant and effective and should be maintained. This is especially important as this successful European framework is soon set to be extended to other non-EU countries.