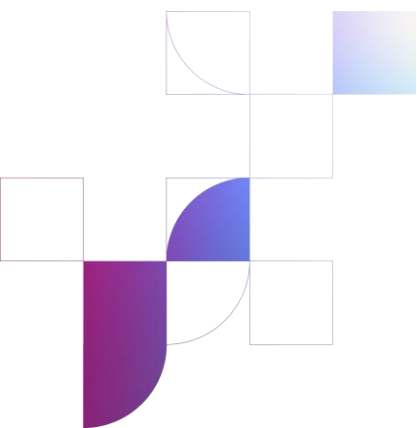


# **BEREC Report on the outcome of the Public Consultation about the Draft BEREC Report on M2M and permanent roaming**



05 December, 2024

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## Executive summary

During the 59th BEREC plenary meeting on June 6, 2024, the Board of Regulators approved the draft BEREC Report on M2M communications and permanent roaming (BoR (24) 96) for public consultation. This draft report gathers insights from access seekers (operators requesting wholesale roaming services for M2M devices abroad) and access providers (operators serving as network operators for M2M devices used outside their home network). The feedback provides a comprehensive view of the M2M market, covering topics such as wholesale access, pricing, quality of service, and competition.

Key points of the draft report include the increasing importance of M2M communications, particularly for permanent roaming, which requires robust wholesale agreements. Common solutions for wholesale access comprise direct roaming access, resale access contracts, and sponsored International Mobile Subscription Identity (IMSI) roaming. Standard cellular technologies like LTE-M and NB-IoT are prevalent, although some MVNOs face access restrictions. Quality of Service (QoS) agreements, while not widespread, may become essential for future time-sensitive M2M applications.

The draft report also highlights competition concerns, particularly expressed by MVNOs, regarding high costs and restricted access. MVNOs suggest regulatory interventions, while large MNOs oppose such measures, citing concerns over increased costs and network impacts. Additionally, there is a call for harmonizing numbering rules across Europe to better manage M2M services.

During the public consultation, BEREC received six contributions, including proposals for amendments to the BEREC report on M2M and permanent roaming. Some of the contributors advocate for maintaining the current regulatory framework, while others emphasize the need for introducing certain regulatory measures. The importance of permanent roaming as a critical solution to address specific needs in the M2M and IoT markets was highlighted, as well as the complexity of the M2M market, which encompasses a wide range of applications and services. BEREC analysed all the feedback received and adapted the draft BEREC report on M2M and permanent roaming accordingly, where deemed necessary.

Following the feedback received during the public consultation, which closed on August 23, 2024, BEREC has published this summary of all contributions, respecting confidentiality where requested, as well as the final BEREC report on M2M and permanent roaming, incorporating amendments based on the input received. Non-confidential submissions are also published on BEREC's website.

The findings from this consultation will further inform BEREC's analysis for its forthcoming Opinion on the Roaming Regulation, which will be submitted to the European Commission in March 2025.



## 1. Introduction

This report summarises the responses sent by stakeholders to the public consultation on the Draft BEREC Report on M2M and permanent roaming. The public consultation was open from 11 June to 23 August 2024.

In response to the consultation, BEREC received 6 contributions from the following stakeholders<sup>1</sup>:

1. AT&T;
2. Global System for Mobile Communications Association (GSMA) and European Telecommunications Network Operators' Association (ETNO);
3. European Emergency Number Association (EENA);
4. Mobile Virtual Network Operator Europe (MVNO Europe);
5. Contributor 1;
6. Contributor 2.

BEREC is grateful for the submissions received and has carefully considered them to determine whether amendments to the draft report are necessary.

## 2. General comments

**AT&T** generally advocates for a "light-touch" regulatory approach, emphasizing the importance of fostering growth in the M2M and IoT markets and facilitating the global deployment of IoT products and services. The company particularly highlights the transnational nature of this market and underscores the need to facilitate cross-border data flows and adopt innovative numbering solutions.

**GSMA-ETNO** presents arguments supporting the stance that the current regulatory framework should remain unchanged, asserting that additional regulations would stifle the development of a dynamic and competitive market. Furthermore, GSMA-ETNO expresses concern that the document appears to be a mere summary of questionnaire responses from various stakeholders, incorporating claims that have not been sufficiently substantiated or researched. According to GSMA-ETNO, surveys should not form the basis for regulatory recommendations but should instead be used solely for gathering statistical data, with careful attention to the validity and representativeness of the sample.

**EENA** identifies challenges related to the implementation of Next Generation eCall and stresses that numbering should not be used as a means to prevent access providers from entering into roaming agreements with access seekers, nor to impose varying wholesale charges based on number ranges.

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<sup>1</sup> In alphabetical order.

**MVNO Europe** advocates for the introduction of certain regulatory measures in the market described in the Draft Report, which it believes are necessary to prevent harm to competition, innovation, and the interests of end users.

**Contributor 1** emphasizes the importance of permanent roaming as a critical solution to address specific needs in the M2M and IoT markets. While noting that there is ongoing debate suggesting the diminishing relevance of permanent roaming for industrial IoT/M2M due to recent technological advancements, particularly in the field of private networks, Contributor 1 asserts that permanent roaming remains highly relevant in multiple use cases. The company also opposes price regulation in this context.

**Contributor 2** highlights the complexity of the M2M market, which encompasses a wide range of applications and services, from home automation to industrial systems and infrastructure monitoring. The company argues that a nuanced analysis of the diverse aspects of this heterogeneous market is essential when considering revisions to the regulatory framework. Generally, Contributor 2 advocates for the imposition of a limited set of obligations for both access seekers and access providers. These obligations would be based on the prior declaration of the IMSI range used for M2M services, an indication of whether roaming is permanent, and the separation of M2M and P2P traffic through distinct Access Point Names (APNs).

**GSMA-ETNO, MVNO Europe, and Contributor 1**, in their comments, refer to the European Commission's White Paper titled "*How to Master Europe's Digital Infrastructure Needs?*". Contributor 1 expresses interest in some of the scenarios outlined in the document, particularly highlighting the benefits of the country-of-origin principle. MVNO Europe also supports the country-of-origin principle. GSMA-ETNO supports the White Paper's assessment of the current state of the European telecom sector, which is described as experiencing weakened financial health and facing significant investment requirements to meet the Digital Decade Targets. Therefore, according to GSMA-ETNO, any overregulation of this sector will introduce further barriers to attract new investments in digital infrastructure.



**BEREC Response:**

- BEREC extends its thanks to all stakeholders who contributed feedback to this public consultation, as well as to all organizations that participated in the call for input, which served as the basis for drafting the Draft Report. BEREC is pleased to address the specific topics and proposals raised in the following chapters, which reflect the structure of the Draft Report.
- BEREC reiterates that the objective of this Report is to gather comprehensive information on the ongoing evolution of the M2M communications market, with particular focus on permanent roaming. This work is set within the broader context of preparing BEREC's Opinion on the Review of the Roaming Regulation, in accordance with Article 21 of the Regulation. Throughout this process, BEREC is committed to engage with stakeholders via public consultations and calls for input. All relevant contributions received have been documented in the Report and will be thoroughly considered and evaluated in subsequent stages when preparing the BEREC Opinion. It should be noted that the inclusion of a stakeholder's view in this report does not imply that BEREC endorses that view.
- BEREC welcomes the ongoing discussion on the European Commission's White Paper "*How to Master Europe's Digital Infrastructure Needs?*". As addressing certain scenarios proposed in the document, including the country-of-origin principle, extends beyond the scope of the current report on M2M, reference is made to [BEREC's input to the European Commission's public consultation on the White Paper](#), where BEREC's views are elaborated in greater detail.

### 3. Comments on wholesale access

**GSMA and ETNO** note that there is a significant number of wholesale roaming agreements, which have been increasing over time, as referenced in figure 7 of the draft report submitted for public consultation by BEREC. In their view, this is in line with the expectation of the current regulation, where mobile network operators are accepting requests for wholesale roaming agreements on reasonable terms, and explicitly allowing permanent roaming for M2M communications. Therefore, they consider that the market is competitive, without signs of market failures, and that the current framework should not be reviewed at all.

GSMA and ETNO highlight that not only MVNOs have to negotiate separately wholesale roaming access for M2M to achieve a complete footprint for their services, but the same applies to MNOs.

GSMA and ETNO express their doubts regarding access seekers complaining about different obstacles to negotiate permanent roaming for M2M within EU/EEA, as mentioned in section 3.6 of the draft BEREC Report on M2M and permanent roaming. They are of the view that this

cannot be considered a general issue within the EU/EEA because if there was indeed a systemic challenge with negotiating such agreements, an escalation of these cases would be visible. NRAs and BEREC would be in a central position to provide such information if there were a general challenge.

They note that access seekers can negotiate agreements with various providers, and that competition in the mobile wholesale markets will ensure that MVNOs and MNOs obtain competitive access conditions and prices. In their view, the competitive situation of M2M/IoT roaming provision will continue to reflect the competitive situation in the European mobile markets, which is strong with multiple operators in each country and therefore without ex ante regulation in the national mobile access markets.

It should also be noted that GSMA and ETNO consider that if an access seeker wants to conclude an agreement for new M2M technologies, which are not designed to be used with regular commercial roaming, such agreements should be concluded with the understanding that this is a commercial business that needs to both generate a profit and cover development and investment costs.

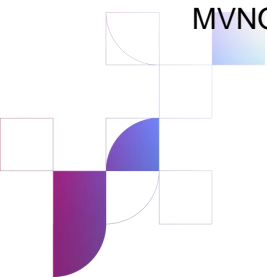
GSMA and ETNO provide several suggestions to improve clarity and accuracy in the Draft BEREC Report on M2M and permanent roaming. As regards the section about wholesale access, GSMA and ETNO suggest that on page 13, paragraph 2, the confusing statements about the use of SIM cards for global roaming based on shared country codes should be removed.

Also, on page 13, paragraph 5, they disagree with the statement: “*Once a sponsored roaming agreement is in place, the using company does not have control over the quality of service and face data limitations*”. They consider that sponsored roaming potentially offers more control rather than less. The host offering sponsored roaming faces the same QoS challenges as the sponsored roaming party. However, in contrast to the host, the user can decide to swap IMSI and, in effect, via a different host, may influence the QoS and/or data limitations.

On page 13, paragraph 5, they disagree with the statement: “*Sponsored roaming agreement further add complexity to the design of IoT and M2M devices – thereby increasing manufacturing cost and managing two SIM cards can increase power consumption*”. They consider that sponsored roaming does not result in additional complexity or increased power consumption. Sponsored roaming can take place either via the use of the identity of the MNO or by using the IMSI of the host MNO. If, however, a user of sponsored roaming changes IMSIs frequently, it will result in additional functionality used that is not available to non-sponsored roaming devices (change of identity / Sponsored Roaming host).

**MVNO Europe** notes that BEREC’s Draft Report on M2M and permanent roaming correctly highlights severe critical problems faced by MVNOs focused on the Internet of Things (IoT), notably when negotiating wholesale roaming access with Mobile Network Operators (MNOs), in particular with entities acting on behalf of multiple MNOs which are part of a large group. These severe issues include restrictive wholesale access conditions, technology restrictions, and problematic wholesale charges and charging mechanisms (including excessive fees, per-IMSI fees, high minimum financial commitments, etc.).

MVNO Europe also notes that there are conditions in MNOs’ wholesale roaming reference



offers and contracts that limit which customers can be served. Such conditions should not be permitted going forward. Therefore, according to MVNO Europe, the Roaming Regulation review should make progress in the following areas regarding wholesale roaming/wholesale resale roaming contracts (and, where applicable, domestic MVNO access contracts):

- The removal of restrictions on the services to be provided and guaranteeing that the bandwidth made available is not less than that of the host MNO's own retail services or contractual partners' retail services.
- The removal of restrictions on which customers can be served under the contract (e.g. excluding the home country of the host MNO, excluding types of customers, traffic profiles, etc.). Related to this, according to MVNO Europe, action is also needed to remove the imposition through contracts of extreme reporting requirements on the usage of wholesale roaming, as well as clauses which enable rapid termination of services or contracts.
- Guaranteeing unequivocal wholesale access to all (existing and future) cellular technologies and prohibiting bandwidth restrictions imposed through wholesale contracts.

**Contributor 1** notes that, as permanent roaming is the simplest and most straightforward way to provide pan-European and global access, it should be ensured and supported. For this reason, permanent roaming should be recognized as an important IoT market enabler that is key for future digital growth within the EU/EEA. Therefore, it is vital that its importance is widely acknowledged by the Commission and the regulatory bodies, including BEREC.

**Contributor 2** highlights that, at wholesale level, it is impossible, for the visited network, to detect a permanent roaming M2M SIM. They consider that any definition of permanent roaming based on the prevalence of traffic and/or presence in roaming can be easily circumvented through steering techniques. Therefore, permanent roaming SIMs should be declared as such by the access seeker during negotiations, with the meaning of "permanent roaming" being defined among the parties involved. In this way, it will be easier to distinguish between "permanent" roamers for P2P services, under the current fair use policies, and permanent M2M roaming SIMs. They also consider that M2M services based on permanent roaming should remain unregulated to better accommodate the specific characteristics of the service requested, and the technology used, which is currently difficult to predict.

In their opinion, at wholesale level, every effort should be made to simplify the handling of declared permanent M2M SIMs. To do so, they suggest the following measures:

- a suitable numbering range<sup>2</sup> for M2M should be defined in advance (possibly with ranges defined in the national numbering plan) and
- M2M traffic (and possibly signaling traffic) should be carried on separate APN (Access Point Name) from traffic of P2P communication services.

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<sup>2</sup> Suitable measures should be investigated to address M2M SIM already in use on legacy networks/ solutions using different IMSI ranges.



This would allow the visited network to easily detect if an M2M device is using an APN intended for P2P traffic, or vice versa, when a roaming provider attempts to mislead the visited network.

Contributor 2 believes that wholesale access obligations should be differentiated between P2P and M2M services. They suggest that a few obligations can be imposed in case of access requests for M2M services:

- On the access seeker side: the obligation to declare: i) the M2M IMSI range used, ii) whether the services are permanent or not, iii) APN differentiation from P2P services.
- On the access provider side: the obligation to negotiate access conditions under a reasonable request, provided that the access seeker respects the above obligations.



**BEREC Response:**

- Regarding GSMA and ETNO's comment that MNOs also have separate M2M wholesale agreements, BEREC considers that this aspect is already addressed in paragraph 4, section 3.2, of the Draft BEREC Report on M2M and permanent roaming. Therefore, no modification to the document is required.
- Regarding GSMA and ETNO's comment on page 13 of the draft report, paragraph 2, concerning the removal of a sentence, BEREC would like to highlight that this information was reported by some MVNOs in the context of the call for input. Thus, BEREC considers it preferable not to remove it.
- Regarding GSMA and ETNO's disagreements on page 13 of the draft report, paragraph 5, BEREC considers that this information should be retained, as it was mentioned in the context of the call for input. However, BEREC will adjust the paragraph to include GSMA and ETNO's perspective.
- MVNO Europe has identified several conditions that constrain wholesale negotiations with MNOs. BEREC accepts some of these proposals for addition and will incorporate them into section 3.6 of the BEREC M2M and permanent roaming report. Regarding the guarantee of unequivocal wholesale access to all (existing and future) cellular technologies, BEREC wishes to highlight that, according to Article 3(3) and Recital 14 of the Roaming Regulation, as well as BEREC Wholesale Guideline 3, MNOs are required to grant all reasonable requests for access to all available technologies and networks that may be necessary for the access seeker to provide a retail roaming service. In the event of an access refusal, the access seeker may file a dispute to the competent NRA, in accordance with Article 18 of the Roaming Regulation.
- Contributor 2 has proposed mechanisms to differentiate M2M traffic from P2P traffic. BEREC acknowledges these suggestions and will incorporate them in sections 3.7 and 4.2 of the BEREC M2M and permanent roaming report.

## 4. Comments on wholesale pricing

**GSMA and ETNO** argue that the market trends indicate decreasing wholesale prices per units over time and no significant market failures, and therefore, they believe the existing framework should remain unchanged.

The response emphasizes the importance of commercially negotiated agreements in maintaining a competitive market. Wholesale prices for permanent roaming should reflect the traffic impact on the network and be determined through market-driven negotiations.

According to GSMA and ETNO, if wholesale roaming regulation were further extended into M2M within the EU/EEA, it would create an imbalance between the negotiating parties (one

in the EU/EEA subject to extended regulatory obligations and the other one outside the EU/EEA, being exempted from any regulatory obligations in its home market). GSMA and ETNO outline that non-EU providers (MNOs and MVNOs) have unilateral access to EU/EEA-roaming tariffs (for P2P), which is already disruptive for EU/EEA-based MNOs, as it enables non-EU/EEA providers to offer services within the EU/EEA without having to invest in network infrastructure. EU/EEA operators do not have access to regulated roaming tariffs outside the EU and are therefore subject to fully unbalanced roaming tariffs when entering into roaming agreements with access seekers established outside the EU/EEA.

In relation to the minimum financial commitments (section 4.1. of the Draft BEREC Report on M2M and permanent roaming), which are mentioned as a potential obstacle by certain access seekers, GSMA and ETNO note that access providers have an interest in ensuring that access seekers entering the market have a credible foundation and that the wholesale access requests put forward are realistic and economically viable, as in any other commercial agreement.

As each wholesale agreement requires individual negotiation, implementation, and follow-up, providing wholesale access comes at a cost to the host operator acting as an access provider. GSMA and ETNO highlight that each business case must be evaluated on its own merits to ensure that the product offered to access seekers meets their specific needs. To support the healthy growth of this business, the resources and additional investments made by access providers should be duly considered. Recuperating set-up and operational costs, therefore, requires a minimum level of commitment from the wholesale access seekers.

**MVNO Europe** urges BEREC to retain the detailed descriptions of the problems/issues regarding restrictive wholesale access conditions, technology restrictions, excessive fees, high minimum financial commitments, and discriminatory pricing in the final report, as these issues significantly impact MVNOs' ability to compete in the IoT market.

MVNO Europe's submission points out that large MNO groups oppose regulatory intervention while seeking to maintain restrictive and discriminatory practices in the market. MVNO Europe argues that these MNOs aim to protect their market positions and their own IoT businesses from competition by innovative MVNOs through selective self-supplying of wholesale roaming services (and trading with selected other MNOs) under discriminatory conditions. MVNO Europe requests that BEREC includes commentary on the implications of the large MNO groups' positions, particularly regarding signalling fees, to better inform EU co-legislators. This is important to clarify the motivations behind positions advocating the status quo, opposing regulatory intervention, or supporting signalling fees.

MVNO Europe's position is that regulatory intervention on M2M and permanent roaming is necessary to prevent harm to competition, innovation, and end-user interests. MVNO Europe emphasizes that:

- Differentiating wholesale data roaming charges based on the type of usage, the type or the location of customers to be served is a common practice by MNOs today and should not be permitted going forward.
- Arguments made by large group MNOs relating to the alleged impact on network integrity and increased signalling costs must be critically assessed,



based on facts and in terms of their implications for competition, innovation, and benefits for Europe's businesses.

MVNO Europe advocates for change to the applicable EU legislation:

- Further substantial reduction of regulated wholesale roaming data caps.
- Rejection of suggestions to apply differentiated (i.e. higher) wholesale roaming caps for M2M in a permanent roaming scenario; rejection of per-IMSI fees or signalling fees.

Furthermore, MVNO Europe requests a formal BEREC opinion on the following price-related topics:

- Prohibiting wholesale roaming access (and wholesale roaming resale access) data prices that de facto exceed the wholesale data caps set by the EU Roaming Regulation, including through the application of up-front and recurring fees in wholesale contracts, the application of recurring fees per SIM card, etc.

MVNO Europe reiterates that several of the restrictions, obligations, wholesale pricing approaches, and other practices widely employed by MNOs/MNO Groups can resemble a constructive refusal to supply wholesale roaming access/resale. According to MVNO Europe, there can be no doubt that these applied restrictions seriously undermine the EU Single Market, business processes, and the ability of European companies (both MVNOs and their business customers) to be global players in global digitized businesses. This directly opposes the interests of European businesses and is ultimately detrimental to European consumers.

**Contributor 1** argues that the current market situation is competitive and functioning well, with no need for further price regulation.

The submission explains that wholesale prices for IoT roaming are complex due to the varied usage patterns of different IoT applications. The inbound IoT roaming traffic and business vary significantly between operators, making it difficult to establish a universal pricing model. The commercial wholesale agreements between operators are based on the average usage per IoT SIM, and different models are applied to compensate for low usage. Contributor 1 argues that, due to this complexity, the current practice of commercial negotiations between operators should continue rather than imposing further regulations. IoT is a global business, and intervention in the European context could disadvantage European operators compared to those outside EU/EEA.

They also mention the introduction of eUICC (eSIM) technology, which will increase competitiveness by reducing the lock-in effect of SIM fleets, thereby facilitating easier operator switching.

Contributor 1 addresses concerns about introducing a common model for IMSI (International Mobile Subscriber Identity) fees. They argue that IMSI fees are introduced to compensate visited networks for IoT applications with low data usage that do not justify the cost of providing



service. The fees are a recent development, and various charging models are being explored to ensure fair compensation based on network utilization rather than arbitrary aggregation of unique IMSIs. The charging model should ensure a compensation linked to network utilisation and not just an arbitrary figure based on the aggregation of unique IMSIs. For example, there is a significant difference in charges based on the monthly aggregation of unique IMSIs in the case of the same unique IMSI visiting daily versus 30 different unique IMSIs; the first will result in one IMSI fee, while the second results in 30 IMSI fees, even though the daily network utilisation is the same. It is therefore important that the parties negotiating IMSI fees finds a charging model that supports the roaming and usage patterns of the specific IoT application at hand. In summary, Contributor 1 highlights that it would be very difficult to find one common model that encompasses and supports all IoT applications.

**Contributor 2** argues that the M2M market is very heterogenous and is characterized by varied usage patterns, with some services requiring minimal data but heavy signalling, while others may have opposite needs. Contributor 2 argues that wholesale pricing for M2M (including in a permanent roaming scenario) should reflect these differences and should not be regulated in the same way as P2P services.

Contributor 2 supports the continuation of flexible wholesale pricing schemes that are not strictly based on data volumes consumed, such as flat payments, upfront commitments, capacity-based wholesale roaming agreements, or pricing schemes that reflect variations in demand throughout the year. Furthermore, pricing could be based on factors such as the number of connected devices per month or other innovative models that better reflect the needs of different M2M services.

It was further noted by Contributor 2 that the possibility of applying alternative tariff schemes between M2M and P2P traffic rely mainly on:

1. The capability to identify the related traffic (permanent M2M traffic, occasional roaming M2M services, P2P traffic, etc.)
2. The capability to identify and contrast fraud related to illicit routing of traffic.

Regarding point 1, the adoption of traffic routing on different APNs (Access Point Names) should be promoted to properly apply tariffs to different types of traffic. This solution should also be integrated with:

- The adoption of predeclared IMSI ranges exclusively used for a certain type of traffic carried on that APN;
- A database with the list of types of equipment that could generate traffic routed on that APN.

According to Contributor 2, point 2 requires further investigation, but as a first step, it can be addressed by cross-matching the information above. For example, if traffic originated from a device used for P2P communication (e.g. a smartphone) is detected in the APN for M2M traffic, further scrutiny should be applied.

They caution against fixing prices that could encourage improper traffic routing to take advantage of the most favourable rates and advocate for maintaining the option to negotiate pricing schemes that account for varying demand throughout the year.



**BEREC Response:**

- GSMA and ETNO warn of an imbalance between EU/EEA providers subject to regulatory obligations and non-EU/EEA providers that are exempt from such obligations. According to GSMA and ETNO, non-EU providers' unilateral access to EU-roaming tariffs is already disruptive for EU/EEA-based MNOs. BEREC would like to clarify that the Roaming Regulation applies only within the EU/EEA. However, sponsored roaming offered by EU/EEA providers might enable non-EU/EEA providers to access wholesale services within the EU/EEA at regulated prices. BEREC understands that the comment from GSMA and ETNO aims to caution against extending the Roaming Regulation for M2M, as this could exacerbate such effects. These concerns from GSMA and ETNO are been included in Chapter 6.2.
- GSMA and ETNO have provided justification, from the perspective of access providers, for the need for a minimum financial commitment. These explanations are included in Chapter 4.1 of the final BEREC report.
- The report also considers wholesale pricing models from the perspective of access seekers. The description of the issues and challenges faced by access seekers is retained in the final report, as requested by MVNO Europe. The implications for access seekers are also addressed in the report.
- BEREC notes MVNO Europe's position regarding the need for regulatory intervention for M2M and permanent roaming. Additional proposals mentioned in the consultation are added in Chapter 6.2 of the BEREC M2M report. Furthermore, BEREC has incorporated in Chapter 4.2 MVNO Europe's considerations about the potential effect of any restrictions imposed.
- BEREC acknowledges the position of Contributor 1 on the need for flexible tariff schemes to accommodate usage patterns and has added this to Chapter 4.2 of the amended report.
- BEREC takes note of the suggestion from Contributor 2 to use dedicated APNs for M2M traffic. It requires further analysis to determine whether such a solution would yield the desired outcome for the relevant market players. BEREC has included relevant references to these considerations in the final report (Chapters 3.7 and 4.2).

## 5. Comments on quality of service

**Contributor 2** notes that QoS requirements for M2M services differ significantly from those for P2P services. They suggest that different QoS standards can only be set if M2M traffic can



be clearly distinguished from P2P traffic, potentially through the use of separate APNs or other mechanisms.

It states that an operator using sponsored roaming is not able to control any QoS measures. Furthermore, it mentions that P2P and M2M have different QoS Requirements. Therefore, this differentiation can only be achieved if data and signalling traffic of M2M services can be distinguished.

**GSMA and ETNO** cautions against imposing specific Service Level Agreements (SLAs) and QoS requirements for M2M services, arguing that these could place undue burdens on access providers and complicate operations without necessarily improving service. They suggest that any SLA or QoS requirements should be part of bilateral negotiations between access seekers and providers rather than being mandated through regulation.

Regarding the topic raised in the draft BEREC report that, in the future, MVNOs, in particular, should not have to learn of M2M service outages through customer complaints (page 24, paragraph 7), GSMA and ETNO explains that MVNOs have access to the same information and have the same possibilities as MNOs in their role as home operator/access seeker. Passive and active monitoring in a roaming network is possible within certain boundaries.

***BEREC Response:***

- BEREC notes that some respondents have provided detailed explanations and background information to support their positions. Although BEREC had already incorporated relevant arguments and explanations in the draft report, it will include in the final report the considerations regarding the differences between P2P and M2M traffic, as well as the arguments in favor of keeping SLA or QoS issues within the scope of bilateral negotiations.

## **6. Comments on competition aspects**

### **6.1. Specific roaming agreements to provide M2M communication services at national level**

Regarding local in-country access agreements, **AT&T** calls for a regulatory framework that prevents monopolistic practices and encourage local access agreements to promote competition and provide greater choices for consumers. AT&T cites past challenges in negotiating localized M2M resale arrangements with local MNOs and suggests that a regulatory framework that mandates or encourages local access would facilitate competition among service providers and ultimately provide greater choices for the public.





In contrast, **GSMA and ETNO** challenge the report's executive summary, where it is stated that "*Large group MNOs on the other hand are against any relevant regulatory intervention. These MNOs argue that domestic competition from low-cost MVNOs poses challenges in the context of an expected growth in M2M traffic volumes and devices which may lead to increased signalling costs, low levels of revenue, and potentially hamper network integrity.*" They clarify that roaming agreements should not be used for national market competition and stress that these agreements do not cover the costs associated with building national networks or fulfilling local regulatory obligations.

**BEREC Response:**

- BEREC notes that different views have been expressed by EU MNOs and a non-EU MNO on this topic and has incorporated them in the final report in Chapter 6.1.

## 6.2. Respondents' proposals for regulatory intervention

MNOs (AT&T, GSMA and ETNO, and Contributor 1) believe that the M2M market is competitive and well-functioning under the existing regulatory framework. They argue that the market is dynamic, with increasing wholesale agreements and declining prices, suggesting no need for further regulation. They caution that overregulation could hinder market growth and place EU/EEA-based providers at a disadvantage globally.

Regarding the M2M permanent roaming model, **AT&T** advocates for a "light-touch" approach that focuses on fostering the growth of IoT devices and services while addressing public policy issues through collaborative, self-regulatory initiatives among industry stakeholders. Supportive M2M policies must be based on the premise that the new business models for IoT differ greatly from the traditional models that have supported the mobile phone and tablet industry segments in the past.

This approach would protect innovation and facilitate rapid market developments without imposing excessive regulations that could stifle growth.

**AT&T** emphasizes the need for an international, interoperable policy framework that allows the seamless global deployment of IoT products and services. They highlight that policies should support cross-border data flows and avoid localized data retention requirements, reflecting the geographic agnosticism of IoT and M2M communications, as well as the new business models that could be threatened by such requirements.

The report notes that some access seekers (MVNOs and smaller MNOs) have reported difficulties in negotiating permanent roaming agreements. However, **GSMA and ETNO** argue that these are not systemic issues and should not prompt regulatory changes. They suggest that National Regulatory Authorities (NRAs) and BEREC would have identified these as general challenges if they were widespread. The response emphasizes the importance of commercially negotiated agreements in maintaining a competitive market. Wholesale prices



for permanent roaming should reflect the traffic impact on the network and be determined through market-driven negotiations.

**GSMA and ETNO** argue that existing MNO/MVNO relationships have evolved to reflect competitive dynamics and that there is no need to alter these practices specifically for the M2M segment. They believe that the competitive dynamics in the M2M market are similar to those in other mobile markets, where competition is strong due to multiple operators in each country, and that this competitiveness will continue without the need for additional regulation. The submission notes that non-EU providers have unilateral access to EU roaming tariffs without investing in EU infrastructure. In contrast, EU operators face unbalanced roaming tariffs when engaging with non-EU access seekers. This imbalance puts EU operators at a competitive disadvantage.

**GSMA and ETNO** suggest an adjustment to the draft BEREC's report page 26, paragraph 4, which mentions, among protectionist practices by incumbent MNOs, "*procrastinating to offer permanent roaming or blocking non-geographic IMSI range that by definition is permanently roaming: some MNOs identify them as expensive satellite numbers, which is especially an issue for IoT services provided to automotive original equipment manufacturers and which require voice services for eCall.*" GSMA and ETNO clarify the potential confusion between shared telephone numbers and IMSI ranges and believe that the potential blocking of ITU-numbering ranges by some MNOs is problematic, especially in the context of ensuring that eCalls are available to vehicles supporting eCalls. They suggest that BEREC and its members address this issue to ensure that ITU-numbering ranges are not unduly blocked by operators within the EU/EEA.

**Contributor 1** emphasizes the importance of permanent roaming for providing global IoT services efficiently and argues against further price regulation, stating that the market is functioning well with current commercial agreements. **Contributor 2** also argues that roaming M2M services based on permanent roaming should remain unregulated in order to better accommodate the peculiarity of the specific service requested and the technology used to provide the service, which is currently difficult to predict.

On the other hand, **MVNO Europe** reiterates its position on the necessity of regulatory intervention in M2M and permanent roaming, specifically concerning wholesale roaming conditions, to prevent harm to competition, innovation and end-user interests. MVNO Europe calls on BEREC to explicitly identify areas in which changes to the EU Roaming Regulation (and, if applicable, to the EECC) are justified to promote competition, innovation, the Single Market, and the interests of citizens and businesses, thereby supporting the interests of European society and economy as a whole.

MVNO Europe points out that the M2M concept is restrictively defined, and IoT is not properly defined in the 2018 EECC and the 2022 EU Roaming Regulation. This lack of definition of IoT (in practice, the restrictive interpretation of M2M) is actively being used by MNOs to justify unduly restrictive practices. In MVNO Europe's view, the Roaming Regulation review should include a broad and progressive definition of IoT, based on market demand for IoT solutions, and should unequivocally remove restrictions on permanent roaming for IoT.



**BEREC Response:**

- BEREC notes that some respondents have provided detailed explanations and background information to support their positions. BEREC has already incorporated these arguments and explanations in the draft report. Therefore, BEREC considers that no further changes are necessary.
- With regard to GSMA and ETNO's comment on page 26 of the draft report, paragraph 4, BEREC accepts the suggestion and will clarify this point in the final report in Chapter 6.2.

## 7. Comments on other issues

### 7.1. Roaming Footprint

AT&T deems it particularly important that all regulatory policies protect cross-border data flows and avoid localized data retention requirements.

**BEREC Response:**

- BEREC agrees that regulation should protect cross-border roaming. However, localized data retention is necessary for lawful interception to protect public safety. The goal of cross-border roaming should not undermine this important aspect of obligation for data retention. Therefore, BEREC considers that there is no need to adapt the text in the final report.

### 7.2 Challenges and opportunities arising from expected growth in M2M volumes and devices

AT&T discusses the vast potential of IoT to drive economic growth and improve societal welfare across various sectors, including automotive, utilities, healthcare, public safety, and agriculture, where the number and variety of M2M applications will continue to accelerate. They highlight that IoT technologies enable greater efficiency, enhance data analytics capabilities, and provide new insights into business operations.

The global nature of M2M communications is seen as a strong asset that allows cross-border opportunities and creates economic benefits for EU member states by enabling successful exports and enhancing the global competitiveness of European businesses.

AT&T calls for regulatory policies that facilitate market entry by diverse participants and encourage the development of innovative M2M technologies and business models. They

argue that supportive M2M policies must be based on the premise that the new business models for IoT differ significantly from the traditional mobile phone and tablet segments.

**Contributor 1** highlights the diverse needs of IoT applications and suggests that flexibility in agreements is crucial to support different use patterns and technological requirements.

As regards the evolution of the M2M market, **Contributor 2** emphasizes the diversity within the M2M market, ranging from consumer applications like home automation (e.g., alarm systems, appliances) to industrial uses such as automation systems and infrastructure monitoring. They advocate for careful analysis of these different market segments before introducing any regulatory obligations. A one-size-fits-all approach could hinder the fair evolution of the M2M market, especially in terms of transparency obligations that should be differentiated between large companies and consumer applications.

***BEREC Response:***

- BEREC notes that some of the respondents have provided thorough explanations on the diversity within the M2M market and has incorporated relevant arguments and explanations in the final report.

## 7.3 Numbering

**MVNO Europe** calls for maximum harmonization of authorization, numbering, and related compliance and reporting requirements to NRAs.

**EENA** agrees with BEREC that numbering should not be used to prevent access providers from concluding roaming agreements with access seekers, nor to impose different wholesale charges based on the number ranges.

**AT&T** comments that the rapid development and deployment of IoT and M2M communications includes the need for the extra-territorial use of national numbering resources through roaming to make M2M services viable.

Such extra-territorial use of numbering resources for M2M services should not be confined to traditional roaming scenarios and should work in both directions—that is, national regulators should allow the use of their MCC+MNC and MSISDN numbers outside their national territories, as well as allowing the use of foreign numbering resources within their national territories.

Numbering solutions for M2M services also include a unique ITU-assigned MNC under a shared 90X MCC for M2M services (ITU Recommendation E.212 Annex A provides for the ITU to assign MNCs under a shared country code). However, AT&T claims that a Global SIM approach using roaming and the extra-territorial use of a national MCC+MNC offers an easily deployed and efficient solution. While the shared MCC 901 or MCC 90X code may be a potential long-term solution, at present the Global SIM approach based on a national IMSI is preferable, because the shared MCC 901 or MCC 90X code could involve considerable cost and time, up to 2 years, to get the necessary support structures and agreements in place.

Finally, AT&T underscores that the administration and regulation of numbers and electronic communications services properly remain within the scope of authority and interest of national regulatory authorities. Allowing the extra-territorial use of national numbering resources does not diminish or restrict that authority. AT&T further comments that in Europe, BEREC itself has acknowledged that allowing the extra-territorial use of national numbering resources appears to be central to the economic viability of M2M services.

**Contributor 1** refers to the country-of-origin principle put forth by the Commission in the recent White Paper on Mastering Europe's Digital Infrastructure Needs. In addition to maximum harmonisation of numbering and related compliance and reporting requirements to NRAs, the benefits of the country-of-origin principle for IoT deployments based on permanent roaming should be examined. Pan-European IoT services would benefit from one set of requirements, as intended by applying the country-of-origin principle. This would be particularly relevant in the automotive segment, where rules on in-car internet access services are applied differently across Europe, creating challenges for car manufacturers wishing to distribute vehicles across the continent.

***BEREC Response:***

- Most comments are already incorporated in the BEREC draft report. BEREC notes that some respondents provided explanations regarding the extra-territorial use of numbers and has incorporated these in the final report.

## 7.4 Signalling

**MVNO Europe** is of the opinion that large group MNOs oppose regulatory intervention while simultaneously openly demanding the right to continue restricting supply and applying discriminatory (i.e. higher) wholesale fees for M2M / permanent roaming and signalling to MVNOs.

MVNO Europe calls on BEREC to retain the comments on higher prices and the discriminatory approach of large MNOs with regard to signalling in the final BEREC Report on M2M and permanent roaming. In addition, the implications of the position taken by large MNO groups, including the alleged issues relating to signalling, should be also included in the report.

Finally, MVNO Europe affirms that arguments made by large group MNOs regarding the alleged impact on network integrity and increased signalling costs should be assessed critically, based on facts, and in terms of their implications for competition, innovation, and benefits for Europe's businesses.



**BEREC Response:**

- BEREC notes that the respondent has provided thorough explanations and background information in support of its positions. BEREC has already incorporated these arguments and explanations in the draft report. Therefore, BEREC considers that no changes are needed.

## 7.5 eCall

**EENA** argues that the migration to Next Generation eCall, utilising packet-switched 4G and 5G networks, introduces certain challenges for the provision of a service that relies heavily on roaming agreements and where normal operation is predominantly on a permanent roaming basis.

While VoLTE has been available for about a decade, its application in emergency communications is relatively recent and its introduction requires rigorous end-to-end testing in a home network and roaming network environment. EENA emphasizes that roaming on 4G networks is more complex than on 2G and 3G networks, posing significant challenges. This was evident in 2022 when European roamers in the US could not access a voice service after the shutdown of 2G and 3G networks. EENA further explains that when a VoLTE service cannot be provided and 2G and 3G networks are still available, it is possible to fallback to circuit-switched technology for an emergency call. However, Next Generation eCall are unlikely to retain legacy capabilities, and, in general, 2G and 3G networks will not remain available indefinitely.

EENA emphasizes that, in the absence of roaming agreements or a mismatch of roaming profiles, NG eCall may not work. This scenario would pose a significant public safety risk. It is therefore essential that appropriate roaming agreements are negotiated and compatible VoLTE roaming profiles are implemented for NG eCall. Rigorous end-to-end testing is also necessary.

In their submission, **GSMA and ETNO** address the observation included in the draft report that some MNOs identify numbers, including some that are used for eCall, as expensive satellite numbers. According to GSMA and ETNO, this relates to shared telephone numbers, not to shared IMSI ranges. MNOs use shared ranges for M2M and utilize them within their home network as well. They believe that the potential blocking of ITU-numbering ranges by some MNOs is a problem, and it has been raised as an issue towards BEREC in the context of ensuring that eCalls are available to vehicles supporting eCall. GSMA and ETNO again request that BEREC engages in a dialogue with its members to ensure that ITU-numbering ranges are not unduly blocked by operators within the EU/EEA.

GSMA and ETNO disagree with the statement on page 30, paragraph 3, which says, “*Another respondent set out that certain use cases (e.g. connected cars) may need to be supported by*

*a minimum of two access networks because of the obligation on car manufacturers to provide eCall, and suggested a need for support for permanent roaming at national level in that case".* According to GSMA and ETNO, the principle that has been in place since the beginning of mobile communication is that any mobile network will accept an emergency call, whether the call originates from one of its own customers or not. This is a basic principle that also applies in roaming. Therefore, emergency calls do not require a roaming agreement with a specific provider in each country; they are always accepted by the available network(s).

**BEREC Response:**

- BEREC understands that it is essential that compatible VoLTE roaming profiles are implemented for NG eCall. Rigorous end-to-end testing is also necessary. Public safety should not be impeded by refusals when negotiating a wholesale roaming agreement. The report will be amended accordingly.
- BEREC takes note of the GSMA-ETNO argument that emergency calls are always processed because the underlying principle is that a mobile network will accept an emergency call whether the call is originating from one of its own customers or not. BEREC will amend the report accordingly.