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Body of European Regulators for Electronic Communications

BEREC

International Roaming

Analysis of the impacts of "Roam Like at Home" (RLAH)

At the time of writing, uncertainties remain over the outcome of the process for the adoption of the draft Regulation laying down measures to complete a European Single Market for Electronic Communications and to achieve a Connected Continent. The analysis presented in this document is based on the European Parliament's first reading legislative resolution adopted on 3 April 2014, information collected from operators, and input from other stakeholders. This analysis is without prejudice to any future BEREC analysis of roaming issues or of a future final version of the Regulation.

17 December 2014

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2 Summary of analysis

BEREC's analysis of the risks and impacts of the European Parliament's RLAH proposals demonstrates that the removal of retail roaming surcharges across Europe is not currently sustainable or feasible in practice, given the significant variations in a number of important parameters across Member States, including (but not limited to) the levels of retail tariffs, costs, and travelling and consumption patterns. The situation is made more complex by differences between operators and between travel patterns of consumers within individual Member States. We consider below the extent to which fair use policies and/or adjustments to the relevant roaming wholesale caps might mitigate some of the distortions caused by the introduction of these RLAH proposals, and the analysis below illustrates that in all scenarios there are substantial trade-offs between the policy objectives of promoting greater use of roaming services, protecting competition, protecting investment and, importantly, protecting European consumers[1]. In other words, there is no RLAH "sweet spot".

Given that the underlying objective of the Commission's original proposals, the European Parliament's revised proposals, and the Council's deliberations is to reduce the cost of international roaming for European consumers, BEREC has considered the operation, risks and impacts of approaches that would improve consumers' ability to confidently replicate their typical domestic consumption patterns while periodically travelling abroad (RLAH). Subject to how it was designed in practice, including ensuring cost recovery and addressing some of the risks arising from the current large differential between retail prices and wholesale caps for data, such approaches could result in fewer market distortions, while This bringing immediate reductions to average retail voice roaming prices and substantial reductions to average retail data roaming prices across Europe, compared to the current regulated Eurotariffs, in the short term.

In the longer term, should the European Institutions wish to continue to work towards the removal of retail roaming surcharges altogether, attention will in any event need to be given to the operation of the roaming market at both retail and wholesale levels. This is particularly important in relation to data roaming, where the current wholesale caps are higher than costs (which have fallen substantially since the caps were adopted in 2012[2]), and average wholesale charges remain higher than domestic retail prices in many markets[3], but where data traffic increasingly drives network costs. The Roaming III Regulation anticipates that the European Commission will carry out a review of the wholesale and retail roaming market by mid-2016. In reviewing this market, it will be important to consider the possible impact on competition in national markets and ensure that operators in both home and visited markets are able to continue to recover their costs. This means that, even if the review results in a tightening of wholesale regulation (including a reduction to the regulated wholesale caps or the introduction of alternative wholesale arrangements), there is still likely to be a need for fair use limits, given the diverse travel and usage patterns across Europe, and consequently unequal impacts of roaming on different European markets, operators and consumers.

[1] For the purposes of this paper we shall use the "consumers" to include all users.
[2] Wholesale voice caps for Roaming III were calculated on the basis of the highest average costs at the time (2012) in ten countries. Wholesale data caps for Roaming III were based on the maximum cost in 5 countries, with an additional mark-up. In order to give operators room to compete through decoupling, legislators took the explicit decision to provide a mark-up between the wholesale data caps and the retail data caps.
[3] According to data collected in relation to Q3 2014 for wholesale and 2013 for retail.

3 Background

On 11 September 2013, the European Commission (EC) tabled a draft Regulation laying down measures concerning the European single market for electronic communications and to achieve a Connected Continent[4] (the Regulation), including proposals designed to offer operators an incentive to enable their customers to use their phones when travelling throughout the EU, while paying domestic rates.

On 17 October 2013 the Body of European Regulators for Electronic Communication (BEREC) published its views on the Regulation. In relation to the roaming proposals, BEREC stated that it "*would prefer to see progress made towards the reduction of roaming charges to zero, as far as possible within the existing legal framework of Roaming III. It is already anticipated that a report on Roaming III will be tabled in 2016, and if legislators want to move faster than currently contemplated, then BEREC would recommend that they begin to develop proposals to eliminate roaming charges to take effect once current price caps expire"*[5].

On 3 April 2014, the European Parliament (EP) adopted its First Reading report on the Regulation[6], including replacing the EC's roaming proposals with proposals to abolish retail roaming surcharges in order to allow customers to "Roam Like at Home" (RLAH) subject to a fair use limit. On 17 May 2014, BEREC published its views on the EP proposals[7] stating that, while the EP amendments represented an improvement on the EC's proposals, some of the problems of regulatory uncertainty BEREC had identified with the EC's original proposals remained.

On 9 April 2014, BEREC received a request from the EC for advice in assessing the state of the wholesale roaming market and defining the so-called fair use criteria, in order to inform discussions between the EC and the co-legislators, and help enable a smooth and predictable transition in the mobile market to any new requirements. The analysis presented in this document is based on the information received from NRAs in all Member States[8], from operators' and stakeholders' answers to a questionnaire, as well as inputs received from stakeholders during and after the BEREC Stakeholder Forum which took place on 16 October 2014.

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[4] Proposal for a Regulation of the European Parliament and of the Council laying down measures concerning the European single market for electronic communications and to achieve a Connected Continent, and amending Directives 2002/20/EC, 2002/21/EC and 2002/22/EC and Regulations (EC) No 1211/2009 and (EU)No 531/2012, see https://ec.europa.eu/digital-agenda/en/news/regulation-european-parliament-and-council-laying-down-measures-concerning-european-single

[5] BEREC views on proposal for a Regulation "laying down measures to complete the European single market for electronic communications and to achieve a Connected Continent; see: http://berec.europa.eu/eng/document_register/subject_matter/berec/opinions/2922-berec-views-on-the-proposal-for-a-regulation-8220laying-down-measures-to-complete-the-european-single-market-for-electronic-communications-and-to-achieve-a-connected-continent8221

[6] European Parliament legislative resolution of 3 April 2014 on the proposal for a regulation of the European Parliament and of the Council laying down measures concerning the European single market for electronic communications and to achieve a Connected Continent, and amending Directives 2002/20/EC, 2002/21/EC, 2002/22/EC, and Regulations (EC) No 1211/2009 and (EU) No 531/2012 (COM(2013)0627 – C7-0267/2013 – 2013/0309(COD)), see: http://www.europarl.europa.eu/sides/getDoc.do?type=TA&language=EN&reference=P7-TA-2014-0281

[7] BEREC's views on the European Parliament's report are available at: http://berec.europa.eu/eng/news_consultations/whats_new/2203-berec-publishes-its-views-on-the-european-parliament-first-reading-legislative-resolution-on-the-european-commissions-proposal-for-a-connected-continent-regulation

[8] "Member States" includes all 31 EEA Member States (28 EU Member States plus Iceland, Liechtenstein and Norway).

4 Key elements of the European Parliament's approach to "Roam Like At Home"

The analysis below is based on BEREC's understanding of RLAH as defined by the EP, i.e. that it must be applied to all customers and to all types of domestic tariffs for all regulated roaming services when customers are periodically travelling abroad. This assumption means that operators would not be allowed to levy any surcharge on calls made / SMS sent from a visited country to either the home country or any other Member State, or on any data consumed while travelling in another Member State, until the fair use limits (FULs) are reached. Moreover, according to the EP proposal, these FULs should be applied in such a way that customers are able to confidently replicate the typical domestic consumption patterns associated with their respective domestic retail packages while periodically travelling abroad[9].

RLAH under these conditions would be expected to increase consumers' use of roaming services when travelling abroad. Because home operators would be unable to levy retail roaming surcharges, however, their revenues would be reduced, while their wholesale bill would grow. Visited operators, meanwhile, would face greater demands on their networks, requiring additional investment to support additional demand.

This dynamic can have significant consequences on the competitive conditions in national markets and on investment in the sector, as well as distributional effects (such as price increases) on domestic (home and visited) retail markets, as further discussed in section 6 below.

There are two ways of mitigating these effects:

- **Fair use limits (FULs)** could be used to limit the amount of roaming (voice calls, SMS and data) that a customer could use before a retail roaming surcharge is levied, to limit the cost to the home network of providing roaming services (and subsequent distributional and competition effects on the home market). FULs would need to balance the objectives of RLAH and consumer expectations, and would have to be carefully designed in order to avoid creating market distortions.
- **Tighter wholesale tariff regulation** could be used to limit the charges that home network operators would have to pay to the visited network operators in order to provide their customers with a retail roaming service (and subsequent distributional and competition effects on the home market). It would be necessary to ensure that wholesale prices were not set too high (in order to protect wholesale roaming purchasers and their domestic markets), but also not so low that they alter competition and investment incentives, or have distributional effects, in the visited market.

The analysis below illustrates that the structural differences between Member States (and between operators, and consumers) mean that there is no RLAH "sweet spot", and that policy trade-offs would inevitably have to be made.

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[9] BEREC notes that there are also other interpretations of the concept of RLAH and therefore suggests that any future Regulation should define the concept of RLAH in a clear and precise way. For example, RLAH could also be defined to mean that a roaming call to a third Member State would be charged in the same way as an international call from the home country would be charged.

5 Structural differences between Member States

There are significant structural differences between Member States that have a bearing on whether the introduction of RLAH is possible on a sustainable basis.

- Retail price levels and price structures for mobile services vary significantly between Member States. Comparisons of domestic retail prices are complicated by the bundling of services, but BEREC's analysis shows average retail voice call prices per minute[10] varying between 2 cents and 14 cents per minute, and average data prices varying between 0.2 cent and 5 cents per MB across Member States.
- Consumption patterns of mobile services also vary significantly between Member States. For instance, average use of mobile data within Member States varies between 7% and 561% of the weighted EU average[11] (see Annex 2).
- The proportion of customers who use prepaid vs postpaid varies significantly. BEREC's analysis based on the Eurobarometer Household Survey shows that 75% of households in Italy have only prepaid subscriptions in contrast to Denmark where 83% of households have only postpaid subscriptions.[12]
- There are different travelling patterns of consumers across Europe. Eurostat and Eurobarometer data shows that the average number of days spent abroad for citizens of different Member States ranges from less than one day per year in Greece to 27 days per year in Luxembourg, and there is a general trend of greater travel from Northern Member States to Southern Member States than vice versa, which has typically resulted in Northern Member States being net buyers of roaming and Southern Member States being net sellers. The proportion of national consumers who travel abroad also varies between Member States.
- The costs[13] of providing mobile services vary significantly across Europe, underpinned by significant differences in, e.g., spectrum costs, labour and property costs, and coverage obligations and costs due to different geographies, which are major drivers of the cost of providing mobile services.
- The costs of providing roaming services also vary. In some countries the costs of providing roaming services are higher than the costs of providing domestic services, and (e.g. in some tourist destinations) roaming services might be the main driver of demand for network capacity. The cost structure of roaming in these areas will be different to that in those areas where roaming volumes are incidental to or distributed in the same way as domestic volumes.

These circumstances mean that it is not possible to design a single sustainable solution for RLAH applicable across Europe and, as discussed in section 6 below, pursuing this ambition will entail difficult policy trade-offs.

[10] Prices per unit refer to the average revenue per unit for operators.

[11] BEREC's analysis of usage patterns found that average mobile data consumption varied from 19 MB/month in Hungary to 1.6 GB/month in Sweden against an EU weighted average of 292 MB/month (2013).

[12] E-Communications and Telecom Single Market Household Survey, March 2014 (http://ec.europa.eu/public_opinion/archives/ebs/ebs_414_en.pdf), page 25 (households with mobile phone access on a pre-paid arrangement and/or on a contract or without mobile phone access).

[13] The calculation of "costs" includes an allowance of a reasonable margin through the calculation of the cost attributable to investments. When we refer to "cost" in this document it should be assumed that this includes an allowance for such a reasonable margin.

Below we consider in greater detail the scale and scope of the various risks to and impacts on the objectives of promoting the interests of consumers, and competition and investment (in both home and visited markets), and assess the potential for mitigating any of these negative effects through other measures.

6 Objectives of any intervention in the roaming market

Any proposed regulatory intervention should be assessed against the broader regulatory objectives of the regulatory framework. The same applies to any proposed intervention in the international roaming market. These objectives can be briefly described as follows:

1. **Protection of competition and investment incentives in visited markets** – by allowing all visited networks to recover efficiently[14] incurred costs.
    - In order to ensure that the provision of wholesale roaming services does not undermine operators' incentives to invest and provide domestic services, wholesale roaming caps should at least be at the level of the cost of providing domestic services (which costs vary between Member States).
    - Wholesale roaming regulation should not amount to de facto regulation of national wholesale access markets. In markets where MVNOs[15] have national roaming wholesale access prices set by commercial agreement, if wholesale roaming caps are set below this commercial level, MVNOs might not be able to compete against roaming services being offered on the visited network[16], which could undermine domestic competition in those markets.
    - In order to maintain operators' incentive to invest to provide roaming services, it is necessary for the wholesale cap to be at least at the level of the cost of providing that roaming service (noting that costs vary between Member States).
    - In markets where roaming traffic volumes are incidental to domestic volumes, the cost of providing roaming services is likely to include the cost of providing the domestic service (including any additional capacity) plus additional roaming-specific costs such as the cost of international transit of the call or data. However, in markets where roaming is concentrated in high-cost areas, or in tourist areas where usage is subject to seasonal peaks and mobile services are provided principally to support roamers, those costs of providing roaming services (including coverage costs in those areas) might be higher.

[14] According to the regulatory objectives in Article 8 of the Directive 2002/21/EC (the Framework Directive) as amended, NRAs shall promote efficient competition by ensuring inter alia efficient investments and ensuring that consumers derive maximum benefit in terms of choice, price, and quality.

[15] MVNOs, or Mobile Virtual Network Operators, buy wholesale domestic mobile services and provide mobile services in the domestic retail market.

[16] This is because intermediaries in the visited markets would be able to use international roaming agreements at regulated wholesale roaming caps to achieve lower costs of providing domestic services than MVNOs in those markets could do using existing MVNO commercial arrangements.

- Although permanent roaming (an arbitrage opportunity caused by the disparity in domestic retail tariffs across Member States[17]) would increase revenues to visited networks, if caps were set below cost these revenues would be insufficient to support the investment needed to meet the increased demand on the visited network.

2. **Protection of competition and investment incentives in home markets** – by allowing mobile operators the opportunity to recover efficiently incurred costs of providing services.

    - To avoid distortion to competition and investment in the home market, home operators should be able to recover (by way of retail revenues) the wholesale charge they have to pay to the visited network.[18] This means that wholesale roaming charges should not exceed what the operator is able to charge the roaming customer on a retail basis. BEREC analysis shows that average wholesale charges are currently higher than the domestic retail price of SMS and data in most countries. Operators in those countries with the lowest retail tariffs will find it more difficult to recover their costs than those in countries with higher retail tariffs.
    - The risk to home operators of their roaming costs exceeding their roaming revenues could be made worse by the risk of permanent roaming. In such a scenario, the retail offers of one country could be used for consumption abroad on a permanent basis, increasing demand more than would be the case with normal roaming by domestic customers.
    - Distortions to competition between mobile operators (including MVNOs) in the home market could be caused by an asymmetric impact of RLAH on their respective costs and revenues. Some operators are part of larger multi-territory groups able to steer roaming traffic from home customers onto the visitor network within the group, and thus internalise wholesale costs in a way that might not be possible for operators who are not part of such a group, even when those operators form roaming alliances[19].
    - The dynamics of the roaming market also mean that operators with higher traffic volumes are generally able to negotiate lower wholesale charges, while smaller, challenger operators and full MVNOs are unlikely to be able to secure wholesale roaming prices below their domestic retail prices.
    - In the longer term, the undermining of competition in the home market could in turn lead to an increase in retail prices in that market.

[17] Permanent roaming is where a SIM from one Member State is used to provide mobile services in another Member State on a permanent basis rather than just while the customer is travelling. Differences in retail prices across Member States could encourage permanent roaming (e.g. purchasing SIMs from countries with lower retail prices to be used abroad in countries with higher retail prices), and this kind of arbitrage could result in much higher traffic volumes than average roaming traffic patterns, and therefore cause distortions greater than those that would be caused by "normal" roaming traffic (to the home and visited networks, depending on the level of wholesale charges).

[18] BEREC is aware of the possible impact of the balance of traffic flows on this analysis, and will investigate this further in the context of a future review of the wholesale market.

[19] Roaming alliances do not provide the same incentives as being part of the same multi-territory group unless traffic volumes between alliance members are balanced. As there is a general flow of traffic from Northern markets to Southern markets, and as operators vary in size, it is not possible to replicate the incentives of groups.

3. **Protection of domestic consumers in visited markets against distributional effects** such as an increase in domestic prices available to non-roaming customers.[20]
    - Any reduction in wholesale caps might not be offset by greater roaming volumes, resulting in reduced revenues in visited markets. This could lead to a corresponding increase in domestic prices in those markets (as operators sought to compensate for the lost wholesale revenues, particularly where caps fell below cost) or to a degradation of the quality of the service provided.
4. **Protection of domestic consumers in home markets against distributional effects** such as an increase in prices available to non-roaming customers.
    - Any loss of margin (or a negative margin) (resulting from the lowering of retail roaming prices and not offset by growth in usage or, in the case of a negative margin, amplified by growth in usage) could result in an increase in tariffs in the home market (as the operator seeks to compensate for the loss of roaming margin).
    - A risk of permanent roaming could cause certain domestic tariffs to become unsustainable, resulting in an increase in those tariffs. This is particularly the case for the lowest tariffs.

It is clear that, given the differences between Member States described in section 5 above, the pursuit of RLAH will inevitably involve trade-offs between these objectives, and between the interests of types of operators and groups of consumers in the different national markets:

- Trade-offs between home networks and visited networks, given imbalances in international roaming traffic between Member States.
- Trade-offs between the goal of offering the lowest roaming prices for consumers for the provision of regulated roaming services, and an adequate degree of quality for users of such services.
- Trade-offs between national incumbent/pan-European operators, on the one hand, and smaller/challenger national operators on the other, given the differences in their respective buying power, and ability to internalise wholesale roaming costs.
- Trade-offs between the interests of roaming customers and non-roaming customers within an individual Member State, and between roaming customers from one Member State and domestic customers of the visited network in another, given the potential impact of RLAH on roaming revenues, and on operators' ability to recover their costs.

7 Assessment of RLAH options

Given the objectives described above, the European Parliament and Council have considered ways to mitigate the distortions resulting from RLAH with no retail surcharge for consumption abroad, and this document aims to assess those proposed mitigations against those objectives. We also consider

[20] Visitor roaming and domestic retail markets are separate markets with different customers (and changes in the wholesale caps for visitor roaming should therefore have no impact on the economics of supply to, or competition for, domestic retail customers). However, it is not possible to prevent operators from raising their domestic prices as domestic retail mobile markets are not subject to ex ante regulation.

the possible role for alternative approaches to reducing the retail price of international roaming for European consumers.

The illustrative options assessed here involve different combinations of retail pricing structures, retail fair usage limits (FULs) and wholesale roaming caps. In considering all of these options, BEREC has taken as its starting point the RLAH ambition and policy of the European Institutions, including that consumers be able to confidently replicate their typical domestic consumption patterns while periodically travelling abroad.

A. **No retail surcharge for consumption abroad, subject to a fair use limit (FUL)**.
    - **Option 1**: No retail roaming surcharges, but with restrictive retail FULs, and no change to current wholesale roaming caps, or
    - **Option 2**: No retail roaming surcharges, but with less restrictive FULs and tighter wholesale roaming regulation.
B. **Alternative approaches to enabling consumers to confidently replicate their typical domestic consumption when periodically travelling abroad**.
    - **Option 3**: Retail roaming could be subject to a fair surcharge on domestic prices up to the level of the current wholesale roaming cap, or an additional daily/weekly/monthly flat fee
C. **A combination of Options 1 or 2, and 3**
    - No retail roaming surcharges would apply, subject to a FUL but once the FUL was reached, a fair surcharge or daily/weekly/monthly flat fee would be applied.

The following assessment of each option against the objectives is also summarised in Table 1 (annexed).

Option 1 – no retail surcharge for consumption abroad, subject to a restrictive fair use limit (FUL), at current level of wholesale caps

Under current wholesale caps, restrictive FULs would be necessary to mitigate the negative effects of RLAH on domestic markets. However, a restrictive FUL might not fulfil the objective of enabling consumers to confidently replicate their domestic consumption while periodically travelling abroad, and mainly serve the needs of the least frequent travellers (leaving the needs of more frequent travellers to be addressed by the market). Even very restrictive FULs, however, could be ineffective in addressing the negative effects of RLAH in relation to prepaid.

Current wholesale roaming caps were set in order to be above cost[21], **so if wholesale regulation remained unchanged,** this Option would minimise the impact on incentives to invest in visited markets. If the caps remained above current negotiated wholesale access prices in the domestic markets, no impact on MVNO competition in visited markets would be anticipated. As a result, no distributional impacts (such as increases in retail prices) in visited countries would be anticipated.

[21] In the case of voice the cap is only just above the access, origination, transit and mobile termination rate (MTR) in some countries (and other roaming-specific costs), whereas for SMS and data it is above costs in all countries.

Given the disparity in domestic retail tariffs, RLAH would create a significant risk of permanent roaming. Under current wholesale conditions, permanent roaming would in turn translate into a significant risk to the sustainability of a number of tariff plans in those home countries with the most attractive retail offers. For postpaid this effect could be mitigated by retail FULs based on a limited number of days when roaming could be used each year and on the level of usage during that period for postpaid, for prepaid FULs could be circumvented so might not mitigate the effect.[22]

Even with a FUL, revenues and margin from roaming services today could be replaced by losses because of the disparity between domestic retail prices and the current wholesale data roaming charges), which could lead to an increase in domestic retail prices (including for non-roaming customers). The size of this effect would depend upon, amongst other things, the level and structure of fair usage limits, but would be expected to affect in particular the lower priced packages[23].

The additional cost of providing domestic services (i.e. the wholesale roaming charges resulting from the obligation to include roaming services at domestic prices) would be felt differently by different operators in different countries. Those who were able to internalise wholesale costs through being part of multi-territory groups would be able to serve domestic customers at a lower cost than those, typically challenger operators and MVNOs, who could not internalise wholesale costs in this way (which could undermine competition in domestic markets). Operators in countries with a large proportion of outgoing roaming traffic would be most exposed to this risk. As with the effect described above, the size of this distortion would depend upon the level and structure of the FULs and could have a significant effect on the balance of competition and domestic prices in the domestic market.

Under this option, the more restrictive the FUL, the more likely the potential negative effects of RLAH (for both home operators and home consumers, both roamers and non-roamers) would be mitigated. Given the potential ineffectiveness of FULs in relation to prepaid, it might not be possible to extend RLAH to prepaid. Under these conditions, RLAH would mainly serve the needs of the least frequent travellers, leaving the needs of the more frequent travellers to be addressed by the market.

Option 2 – no retail surcharge for consumption abroad, subject to a less restrictive fair use limit (FUL), with tighter wholesale regulation

A more generous FUL would require tighter wholesale regulation in order to mitigate the negative effects of RLAH on domestic markets. However, lower wholesale charges paid by operators in the

[22] Prepaid SIMs from countries with low retail prices could be used solely for roaming in countries with higher retail prices, and replaced when FULs are reached (effectively getting around any FULs). With soft-SIMs this replacement process could be electronic, requiring little or no end-customer intervention. Any customer resistance to permanent roaming caused by concerns about changing or foreign mobile numbers could be overcome by the use of a voice over IP application with its own number (which, following the use of soft-SIMs in some devices is a realistic prospect for the mass market). While the operator whose SIMs were being used this way would only receive the low domestic retail price (which in one Member State is on average €2/GB), it could be paying up to €50/GB (the current wholesale data roaming cap). Given the ineffectiveness of FULs in this situation, the potential exposure for the home operator would be substantial. These risks would make the continued availability of (domestic) low price tariffs unsustainable

[23] As an indication of the size of this effect, national average level of domestic usage used while roaming in a FUL of 15 days per year represents approximately 4% (15 days out of 365) of domestic usage. This would be included within the FUL. If wholesale prices are above domestic retail prices (noting that in many Member States wholesale costs incurred remain significantly above domestic retail prices for data services, by a factor of 2 to 4), then through a normal competitive adjustment, domestic providers could seek to recover lost margin from these customers by increasing domestic prices. If the same usage cap applied to all tariffs then the lost margin could be proportionately higher on lower revenue tariffs.

home market could affect the revenues of operators in visited markets, and wholesale charges would need to remain high enough to protect competition and investment incentives in visited markets.

If wholesale regulation was tightened, the potential financial exposure for home networks from the risk of permanent roaming would be lower and it could cease to be a risk in some Member States (i.e. if the wholesale roaming charges were to fall below the relevant domestic retail prices). Although we do not have information on all of the prepaid offers available across all Member States, we note that the price of data (across both prepaid and postpaid) in one Member State is 0.2c/MB, and the average prepaid data price in another Member State is approximately 1c/MB, both significantly below the current wholesale cap of 5c/MB. This suggests that the data wholesale cap would need to be lowered significantly for the financial exposure from the risk of permanent roaming on prepaid to be removed altogether. Again, although we have not done an analysis of costs, it is likely that this level is lower than the costs of providing domestic or roaming data services in some markets. The situation may be similar for SMS, but is different for voice as the voice wholesale cap has been through a tighter adjustment under the Roaming III Regulation.

Although lowering the wholesale roaming caps would reduce the distortive effects in home markets, loosening the fair usage limits would increase those distortive effects.

If wholesale roaming caps were reduced, there would also be a risk to competition and investment incentives in visited markets, and a risk of increases to domestic retail prices if the caps were set below the costs of providing domestic services in the visited market or below the cost of providing roaming services (a concern which is particularly relevant in tourist areas). Under these circumstances, any increased revenues from permanent roaming volumes might not be sufficient to support the additional investment needed to meet the increased demand. Some visited network operators in these circumstances could find it difficult to continue to provide wholesale roaming services altogether, or to maintain the quality of services.

In most cases, wholesale access prices for domestic services agreed with MVNOs will be at or above the cost of providing those domestic services. In markets where MVNOs play a significant role in providing competition at the retail level, there would be a potential distortion to competition if the wholesale roaming caps were set below the wholesale prices commercially agreed with MVNOs, and wholesale roaming regulation could amount to de facto regulation of the national wholesale market.

The challenge is finding a balance between wholesale charges that are sufficiently low to protect competition and avoid significant retail price increases in the home country, and sufficiently high to allow efficient cost recovery and return on investments to visited network operators and avoiding impacts on MVNO competition in the visited markets. As there is no uniform wholesale tariff that would satisfy those conditions in every Member State, this would entail difficult trade-offs between the protection of competition, investment and consumers in the home markets, on the one hand, and in the visited markets, on the other.

Option 3 – Alternative approaches to enabling customers to confidently replicate their typical domestic consumption when periodically travelling abroad

Operators could levy a per usage surcharge (at a fair level up to the current wholesale cap) for roaming services, above the domestic retail price, or offer consumers the option of a daily/weekly/monthly flat fee in addition to their domestic retail price to enable them to replicate their domestic consumption while abroad.

Under this Option, operators would charge for roaming either through a per usage surcharge (up to the level of the relevant current wholesale roaming cap[24]), or through a daily/weekly/monthly flat fee, or through the choice of either. There are packages currently available in the market in some Member States, where customers opt into paying a daily flat fee (of typically €1 - €3) in return for being able to consume roaming services as domestic rates.[25] The prevalence of packages of this kind suggests that the risks of permanent roaming could be avoided at current wholesale and retail price levels.

Option 3 would result in a reduction in the average retail prices for roaming data for most customers, though they would remain at a premium to average domestic retail prices. For those customers currently paying for data roaming at the current retail roaming cap, this would represent a substantial reduction in price. In the case of per usage surcharges, in particular in relation to data services, this could be a substantial premium to average domestic prices.

The risks to mobile operators of financial exposure from permanent roaming would be removed, as retail roaming prices would in all cases be capable of covering wholesale roaming costs (since the surcharge would be capped by reference to the current wholesale roaming caps). Thus, if retail prices for roaming in one market were still below retail prices for domestic services in another market, permanent roaming could still exist but would be unlikely to cause any harmful distortion.

There would be some risk of distortion to domestic competition, as some operators (those who belong to a group with a multi-territorial footprint) would be better able to internalise wholesale costs, and therefore be able to levy a smaller surcharge to cover their costs. [26] Compared to Option 1, however, the competitive distortions under this Option are likely to be smaller, as the higher retail roaming prices under this Option would be likely to limit roaming usage growth.

As with Option 1, current wholesale roaming caps are above the costs in all Member States, so there would be no impact on incentives to invest in visited markets, and no impact on MVNO competition would be anticipated.

Under this option, the current wholesale cap effectively becomes the new retail cap. Therefore, one risk with this Option is that there could be pressure for subsequent retail intervention (on the maximum surcharge levels) which could see the wholesale caps adjusted without due regard to cost recovery, and consequently to the other objectives of minimising distortions to competition and investment and other distributional effects.

If operators could offer either per usage surcharges or a daily/weekly/monthly flat fee, there could be consumer benefits as low-volume consumers would benefit from the per usage surcharge, and higher-volume consumers would benefit from the flat fee.

Combinations of Options 1 or 2, and Option 3

A combination of Options 1 or 2 and Option 3 could be designed, which sought to capture some of the potential benefits of each, while mitigating some of their risks. For example, customers could benefit from roaming without a roaming surcharge on their domestic tariffs until they reached their

[24] The surcharge would seek to cover the additional costs of providing roaming. As these additional costs are not known/will vary across Europe, the wholesale cap serves as a proxy.

[25] Another example of such commercial offers is Joint Venture, offering a data-capped form of RLAH in Luxembourg and Belgium (http://joinexperience.com/fr/plans.html).

[26] It is true that operators that are part of pan-EU groups already have a competitive advantage from their ability to internalise costs – but whereas at the moment operators can choose to use a retail surcharge to charge for roaming, under Option 3 all operators would be limited to charging for roaming in this way. Furthermore, one objective of the regulation is to stimulate growth in roaming, which would increase the distortion relative to today.

FUL, after which a per usage surcharge at a fair level up to the current wholesale cap or a daily/weekly/monthly flat fee would be applied.

Given the risks (for home markets) of permanent roaming under Option 1 and under Option 2 (for visited markets), and the fact that FULs might be ineffective in relation to prepaid, it would likely be appropriate to treat prepaid and postpaid differently in order to mitigate the risks to competition and investment (in both home and visited networks). However, even if the FULs were applied differently to prepaid and postpaid, there would still be the potential for prepaid customers (and for postpaid customers who benefit from domestic prices within the FUL, also beyond the FUL) to enjoy lower roaming prices than they currently do, as the level of the retail surcharge operators would be allowed to levy would be limited by the relevant wholesale cap – currently, the retail caps are all above the levels of the wholesale caps, and in relation to data by a substantial amount.

As with Option 1, if wholesale caps were not reduced, it is anticipated that this approach would minimise the impact on incentives to invest in visited markets, and no impact on MVNO competition in visited markets would be anticipated. However, even if postpaid were treated differently from prepaid, operators could face an increase in the cost of providing data services (once again because of the disparity between domestic retail prices and the current wholesale data roaming cap), which could in turn result in an increase in domestic retail prices in home countries (including for non-roaming customers). The size of this effect would depend upon the level and structure of FULs, but would be expected to affect in particular the lower priced packages.

As in Option 1, this effect would be felt differently by different operators in different countries. Those who were able to internalise wholesale costs through being part of multi-territory groups would be able to serve domestic customers at a lower cost than those, typically challenger operators, who could not internalise wholesale costs in this way. Again, the size of this distortion would depend upon the level and structure of the FULs and could have a significant effect on the balance of competition in the domestic market. More restrictive FULs could mitigate, but not eliminate, this competitive distortion.

We note that the average data usage in the EEA is approximately 300 MB/month and growing rapidly. Therefore, for as long as wholesale charges (especially for data) remain as far as they are above retail prices, FULs would have to be very restrictive for some/all tariffs (to the point where they would not replicate the average domestic usage of customers from most EEA countries), in order to contain these risks. The long-term sustainability of such an approach would remain limited by the risk that rising data roaming usage could lead to growing distortions to domestic markets, under prevailing divergences between retail prices and wholesale roaming charges.

8 Conclusions

Our analysis shows that the removal of retail surcharges for international roaming services, even with a restrictive FUL, would involve significant trade-offs between the objectives of promoting competition and investment, preventing competitive distortions in national markets, and protecting the interests of European consumers, as discussed in section 7 above. In the short term, there are ways of reducing the retail price of international roaming, in line with the political decisions of the European Institutions. In particular it might be possible to pursue a combination of the approaches described above – i.e. the absence of a retail roaming surcharge up to a restrictive FUL (where the distortions will depend upon the level of the FUL and the difference between retail and wholesale prices), after which a fair per usage surcharge or daily/weekly flat fee could be levied). This could bring immediate reductions to average retail voice roaming prices and substantial reductions to average retail data roaming prices across Europe, compared to the current regulated Eurotariffs. But the sustainability of this approach in the medium term would remain limited by the prevailing differences between retail prices and wholesale roaming charges.

If the long-term objective remains the removal of retail roaming surcharges altogether (noting that the structural differences between national markets present significant challenges), then it would be necessary to consider the operation of the wholesale roaming market, in particular for data. Current wholesale roaming caps for data were set under Roaming III based on conservative estimates of maximum wholesale costs . Any further moves towards RLAH would require an in-depth review of the competitive situation of the retail and wholesale roaming markets, including to assess the extent to which retail competition might have emerged as a result of the introduction of FULs and/or new tariff models, and to assess the evolution of wholesale charges (especially for data). It is possible that such a review will conclude that wholesale caps should be reduced, or that a different approach to wholesale regulation is needed – e.g. a cost-reflective approach, or approaches that allow visited networks and home providers to set different options for quality[27]. Any approach to wholesale regulation should in any event be aligned with the objectives set out earlier in this document, i.e. ensuring cost recovery and minimising distortions to both home and visited country domestic markets. Even if wholesale caps were reduced, it is likely that FULs would still be required until there was greater convergence between retail prices and between wholesale costs across European markets.

[27] A wholesale market review might also consider setting wholesale caps at the national (vs EU) level (under a common European rule/common principles), though the potential impacts of such an approach would be extremely complex to analyse.

Annex 1

Table 1 Summary of assessment of options against objectives

	Protection of competition and investment incentives in visited markets	Protection of competition and investment incentives in home markets	Protection of domestic consumers in visited markets against distributional effects	Protection of domestic customers in home markets against distributional effects
Option 1. No retail surcharge for consumption abroad, subject to a restrictive fair use limit (FUL) and no change to wholesale caps.	Keeping wholesale caps unchanged would minimise the impact on incentives to invest in visited markets.	Risk of distortion to domestic competition in the home market. Risk of permanent roaming on prepaid which could limit home operators' ability to recover costs or lead to price increases (e.g. of low-price services).	No risk.	Risk of increase in prices for domestic services (including for non-roaming customers), depending on how restrictive the FULs are and on domestic retail prices.
Option 2. Variant of Option 1. No retail surcharge for consumption abroad, with less restrictive FUL and tighter wholesale roaming regulation.	Risk will depend upon the level of wholesale caps, and increase as the caps are lowered. Cost recovery should be protected, but current wholesale cap for data is higher than domestic retail prices in most countries, which suggests that data caps can be lowered somewhat before there are distortive effects. Risk of distortion to visited country domestic market in some Member States if the wholesale cap is reduced below commercial MVNO prices, the costs of providing domestic mobile services in the visited country, or the costs of providing roaming. If wholesale caps are too low, this could amount to de facto regulation of national wholesale markets and potentially undermine competition and investment incentives.	Risk of permanent roaming on prepaid which could limit home operators' ability to recover costs or lead to price increases of low-price services. This effects of this risk would be reduced as the wholesale caps are lowered, but would remain (e.g. for prepaid) in some Member States even with very low wholesale caps.	Risk of increase in prices for domestic customers in visited market increases as wholesale caps are lowered.	Risk of increase in prices for domestic services (including for non-roaming customers). The extent of this effect will depend on the level of the wholesale caps and on how restrictive the FULs are.

	Protection of competition and investment incentives in visited markets	Protection of competition and investment incentives in home markets	Protection of domestic consumers in visited markets against distributional effects	Protection of domestic customers in home markets against distributional effects
Option 3. Retail roaming prices subject to either a surcharge to domestic prices (up to the level of the current wholesale cap) or an additional daily or weekly flat fee	Risk will depend upon the level of wholesale caps. Keeping wholesale caps unchanged would minimise the impact on incentives to invest in visited markets.	Risk of distortion to domestic competition in the home market is likely to be smaller than under Options 1 and 2 as the impact on roaming volumes is likely to be smaller than under those options. The risk of permanent roaming would be minimised by the option to include a surcharge or a daily/weekly/monthly fee.	Risk of increase in prices for domestic customers in visited market. This risk would increase as wholesale caps are lowered.	Limited risk of price increases to domestic customers.
Combination of Options 1 or 2, and 3.	Keeping wholesale caps unchanged would minimise the impact on investment incentives in visited markets. Lowering wholesale caps would risk undermining competition and investment incentives in visited markets.	Risk of distortion to domestic competition in home market is lowered as wholesale caps are lowered. The risk of permanent roaming could be mitigated by the option to levy a surcharge or daily/weekly/monthly fee once a FUL has been reached.	Risk of increase in prices for domestic customers in visited market. This risk would increase as wholesale caps are lowered.	Risk of increase in prices for domestic services in home market, depending on how restrictive the FULs are and on domestic retail prices.

Annex 2

1 Domestic retail consumption (voice, SMS, data)

BEREC has collected data from NRAs on revenue, consumption, and subscription (based on their information/methodology). Most data are from 2013. Data from 2014 were not available at the time the analysis was carried out. BEREC would like to note that for voice and SMS we do not expect any big changes as volumes were stagnating in the last years. But for data services, BEREC expects further increases in volumes in 2014 compared to the data in Table 2. Table 2 shows country averages (total number of minutes, SMS or MB divided by the total number of subscribers including prepaid and postpaid) and the weighted European averages[28].

Country	Yearly average retail revenue per user (€/year)[29]	Average number of minutes per subscription (minutes/month)[30]	Average number of SMS per subscription (SMS/month)	Average number of MB per subscription (MB/ month)
Austria	167	140	37	722
Belgium	208	102	176	71
Bulgaria	45	99	6	52
Croatia	145	141	59	273
Cyprus	252	90	75	40
Czech	112	111	54	283
Denmark	247	126	98	731
Estonia	40	128	13	1019
Finland	158	141	40	1605
France	214	163	229	193
Germany	163	80	27	193
Greece	131	158	34	63
Hungary	100	129	27	19
Iceland	211	163	45	583
Ireland	285	166	144	652
Italy	127	135	65	302
Lithuania	41	130	119	247
Luxembourg	176	77	88	441
Netherlands	356	99	23	265

28 Weighted average means that the total volumes/revenues for all Member States are divided by total number of subscribers by Member State. In contrary to weighted averages, there are arithmetical averages, which is the sum of the country averages divided by the number of countries.

29 Data from NRAs to the BEREC questionnaire: total revenues from own customers (monthly fee, activation fee, charges per minute/SMS/GB, etc) divided by the number of total customers (including mobile broadband subscriptions). The definition of retail revenues: Revenues and volumes of retail domestic services for the year 2013

30 Subscribers: Number of total customers (including mobile broadband subscriptions)

Country	Yearly average retail revenue per user (€/year)[29]	Average number of minutes per subscription (minutes/month)[30]	Average number of SMS per subscription (SMS/month)	Average number of MB per subscription (MB/ month)
Norway	291	163	75	472
Poland	204	103	71	175
Portugal	148	142	172	77
Romania	45	224	60	133
Slovakia	146	128	27	140
Slovenia	173	146	79	218
Spain	193	115	6	234
Sweden	219	149	84	1663
UK	186	135	130	301
EU/EEA weighted[31] average (28 countries)	**171**	**125**	**76**	**292**
EU/EEA Median[32]	**170**	**133**	**63**	**256**

Table 2: Yearly average retail revenue per subscription and country. Monthly average retail consumption per subscription and country. Source: NRAs.

2 Number of days abroad

The average number of days abroad only considers the outbound trips within the Member States and does not take into consideration the trips of citizens who travel to third countries outside the Member States as those are out of the scope of the roaming regulation. These figures are obtained from the Eurostat statistics (number of outbound nights abroad)[33] combined with the percentages of the Eurobarometer[34] survey by adding the following two concepts:

- Overnight trips: Average number of days abroad to another Member States (without considering trips outside the Member States) when the duration of the trip is longer than one day[35].

31 The sum of every specific value multiplied by the number of subscriptions of each country is divided by the total number of subscriptions of all considered countries.

32 The median is the numerical value separating the higher half of each of the data sample from the lower half.

33 Eurostat: http://epp.eurostat.ec.europa.eu/portal/page/portal/tourism/data/database

34 E-Communications household survey and telecom single market survey, see http://ec.europa.eu/information_society/newsroom/cf/dae/document.cfm?doc_id=4484

35 The average number of nights abroad per country is obtained from Eurostat, statistics ‘Number of nights abroad by country, world region of destination’. The number of nights abroad within European Union (27 countries) and European Free Trade Association States (without taking into consideration the domestic trips) has been added.

For Norway and Sweden, statistics ‘Number of night, quarterly data’ has been used instead. For the ratio of nights within EEA the same as the neighbor country Finland has been used.

The additional day takes into account the day of arrival and/or departure of every trip and is obtained from the statistics ‘Number of trips abroad by country, world region of destination’. The number of trips abroad within European Union (27 countries) and European Free Trade Association States (without taking into consideration the domestic trips) has been added. For Norway, Sweden and Poland,

- Same day trips: BEREC estimated the average number of days abroad to another Member Sate (without considering trips outside the Member States) when the customer comes back to the home country the same day on the basis of Eurobarometer data. As there is no other information available, this approximation was made in order to get a more accurate picture of the number of days abroad. However, BEREC would like to note, that these estimates are an approximation and thus could be over/underestimated for some countries[36].

Figure 1 shows the average number of days a citizen of this Member State spends abroad in another Member State.

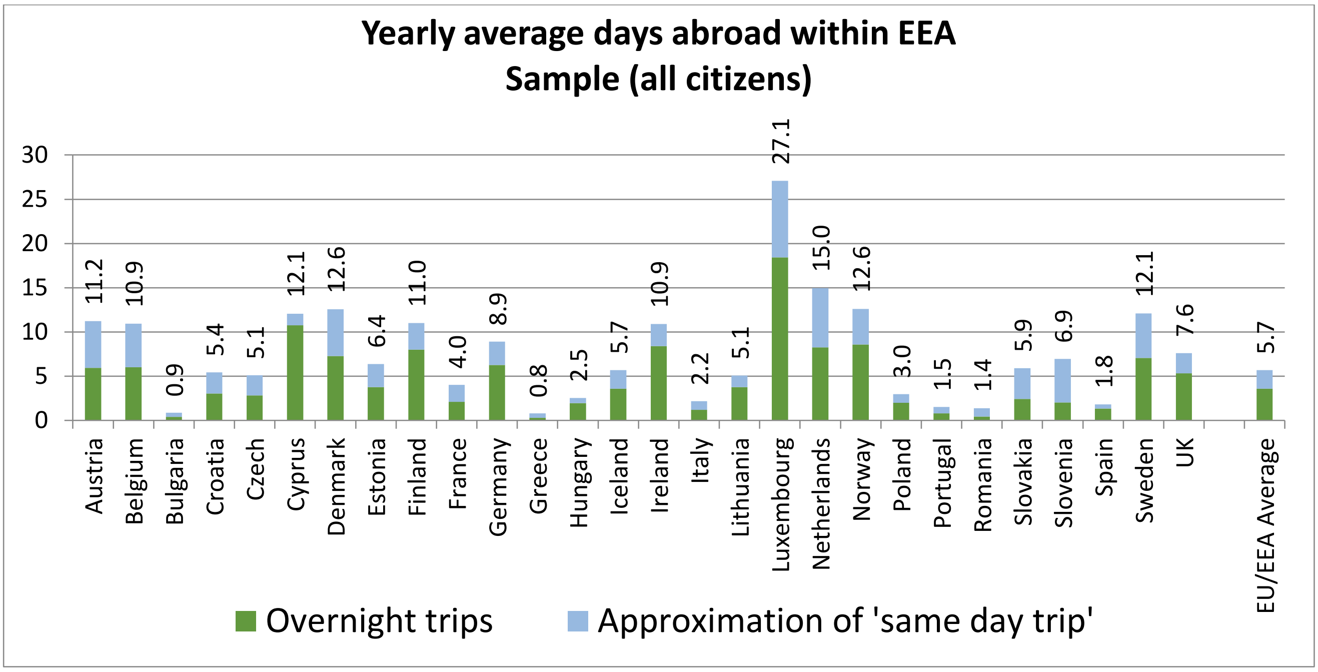

Figure 1: Average number of days abroad per year in another Member States. Because of the lack of data, the number of same day trips is an approximation done by BEREC. Source: BEREC estimates based on Eurostat and Eurobarometer survey.

The travel patterns between countries are significantly diverging, since in some countries a relevant part of the population never travels abroad while in others the majority travels at least once a year.

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statistics 'Number of trips - quarterly data' is used. For Poland, the weighting factor is obtained as the average of the neighbour countries Czech Republic, Germany, Lithuania and Slovenia.

36 The same day trips are more elusive to determine as there is only little data available. First, from the Eurobarometer survey, the percentage of citizens per country that travels more than once a year by means of adding the following three percentages is obtained: 1) citizens travel several times a month, 2) once a month and 3) less than once a month but at least once a year. Then, the aggregated sample of the population that travels at least once a year is assumed to be the proportion of the population that travel more frequently and are likely to make short trips abroad. Finally, it is assumed that this part of the population travel once a month (and spend one day abroad). All in all, the number of same day trips is obtained by multiplying the total percentage (people who travel more than once a year) by twelve.

Table 3 shows the average number of days abroad for: 1) all citizens (see Figure 1) and 2) citizens who travel at least once a year.

			Yearly average days abroad within the Member States	
Country	Citizens who never travel	Citizens who travel at least once a year[37]	All citizens	Citizens who travel at least once a year[38]
Austria	10%	66%	11.2	14.3
Belgium	19%	62%	10.9	14.6
Bulgaria	63%	11%	0.9	4.1
Croatia	33%	31%	5.4	12.2
Cyprus	15%	37%	12.1	30.4
Czech	23%	39%	5.1	9.5
Denmark	7%	68%	12.6	16.0
Estonia	27%	41%	6.4	11.8
Finland	14%	48%	11.0	19.7
France	37%	33%	4.0	8.3
Germany	18%	52%	8.9	14.7
Greece	63%	11%	0.8	3.2
Hungary	59%	13%	2.5	15.5
Iceland	36%	35%	5.7	12.4
Ireland	18%	51%	10.9	19.0
Italy	52%	16%	2.2	8.4
Lithuania	52%	22%	5.1	18.4
Luxembourg	4%	86%	27.1	30.1
Netherlands	7%	78%	15.0	17.3
Norway	10%	57%	12.6	19.2
Poland	52%	18%	3.0	12.0
Portugal	61%	14%	1.5	6.3
Romania	57%	17%	1.4	3.5
Slovakia	26%	48%	5.9	8.6
Slovenia	19%	60%	6.9	8.3
Spain	55%	16%	1.8	8.9
Sweden	6%	65%	12.1	15.9
UK	27%	40%	7.6	15.6
EEA Average	36%	35%	5.7	11.6

Table 3: Percentage of citizens who never travel in comparison to those who travel more frequently. Source: Eurobarometer survey[39]: Yearly average number of days abroad per country; BEREC based on Eurostat and Eurobarometer survey.

Some operators in their answer to the BEREC questionnaire sent in May 2014, have reported that around 50% of roamers are away between 1-3 days per month. The number of roamers who are away more than a week is small.

Reported annual averages show huge variance in the number of days roaming. At the low end, two operators reported that the average usage is only a few days per year. In the middle, a number of

[37] The second and third column do not add to 100%. The difference is the group of citizens that travel less than once a year.

[38] Calculated as the number of days abroad for overnight trips divided by the percentage of citizens who travel once a year or more and adding the one day trips.

[39] For Norway, Greece and Iceland data from the Eurobarometer survey is not available. For Norway the average of the neighbour countries Sweden and Finland has been taken, for Greece as a reference Bulgaria was taken and for Iceland, the EEA average

operators had annual averages of 1-2 weeks of roaming. At the high end, two operators reported annual usage of one month or more.

To sum up, according to input from operators, most roaming is done for short trips of 1-3 days. Usage that lasts more than a week is relatively less common. Only a few operators experience average roaming usage that extents to more than a month while the majority have usage for a week or two a year.