TVR/VIL/055
05 April 2013

Shri Manish Sinha
Advisor (F&EA)
Telecom Regulatory Authority of India
Mahanagar Door Sanchar Bhawan
Jawahar Lal Nehru Marg (Old Minto Road)
New Delhi-110002

Dear Sir,

Sub: Review of Tariff for National Roaming

Ref: Consultation Paper no 2/2013 dated 25th February 2013

In reference to the captioned, please find enclosed reponse of Vodafone India Ltd ("VIL"), to be read alongside our response to the pre-consultation dated 21 January 2013. We would like to mention that we are enclosing two versions of our response as follows:

1. **Confidential version (Annex-I)** – for TRAI's internal consumption
2. **Non-confidential version (Annex-II)** – for putting up **on TRAI website**

As regards VIL's response to the consultation paper, some of the key points are as under:

i. VIL believes that there is an abundance of evidence that shows that roaming services are subject to competition and innovation, thus the tariffs should be left under forbearance.

ii. The imposition of HPR is fraught with difficulties. Operators will not only lose money (as prices will be below costs) and enter into a vicious cycle of under recovery, but it will also lead to serious arbitrage issues. VIL estimates that potential revenue at risk from this behavior alone could be *six times* higher than TRAI's estimate of the impact on annual revenue.

iii. We appreciate TRAI's recognition that the cost associated with inbound calls when roaming needs to be recovered in some manner. However, charging the calling party would have adverse effect as callers are likely to be more price sensitive than the called. Also, it is technically extremely challenging to implement a CPP regime for national roaming. Further, alternates suggested by TRAI, like running an IVR announcement indicating the called party is roaming – are fraught with serious privacy and public safety issues.

iv. If TRAI, despite the compelling evidence against intervention, wishes the incoming calls to be made free when roaming, it should require operators to offer a plan voucher with free inbound calls wherein decision on how best to recover the cost of inbound calls be left to the operator.

v. TRAI is right to forbear from the regulation of video calls as the service is too nascent to consider any form of regulation. Furthermore, the authority should also forbear from the regulation of SMS and, instead, allow operators to use roaming vouchers to encourage the use of messaging (and all other services) when roaming

We hope that our submissions will merit your kind consideration and support.

Kind regards,

Sincerely yours,

T. V. Ramachandran
Resident Director
Regulatory Affairs & Government Relations

Enclosed:

(i) **Annexure-I – Confidential Version** of VIL's response on National Roaming
(ii) **Annexure-II – Non-confidential version** of VIL's response on National Roaming

Copy to : **Dr. Rahul Khullar, Chairman, TRAI**
: **Shri R. K. Arnold, Member, TRAI**
: **Dr. Vijayalakshmy K. Gupta, Member, TRAI**
: **Prof. H.S. Jamadagni, Member, TRAI**
: **Prof. Pankaj Chandra, Member, TRAI**
: **Shri Rajeev Agrawal, Secretary, TRAI**
: **Shri Sudhir Gupta, Pr. Advisor (NSL), TRAI**
: **Smt. Anuradha Mitra, Pr. Advisor (FA & IFA), TRAI**
: **Shri Raj Pal, Advisor (ER), TRAI**
: **Shri Arvid Kumar, Advisor (NSL), TRAI**
: **Shri Sanjeev Banzal (NSL), TRAI**

Annexure - II

Non-Confidential

Consultation Paper on Review of Tariff for National Roaming

Vodafone is pleased to respond to this consultation on the review of tariffs for national roaming. A comprehensive consultation process is important given that the home pricing option for national roaming was previously rejected by both industry and the Authority.

This submission should be read alongside our response to the pre-consultation dated 21 January 2013. We summarise our position below and then provide answers to the specific questions posed by the Authority.

Summary

Vodafone believes that TRAI should not contemplate further regulation of the charges for national roaming; there is no sign of a market failure in the supply of these services but there is ample evidence that prices are constrained by competition, and that the market is innovating. This is happening despite the imposition of regulation (the banning of special roaming vouchers) which restricts the ways in which operators can compete to offer national roaming services to existing and prospective customers.

The imposition of a Home Pricing Rule (HPR) would be a sledgehammer to crack a non-existent nut and is anyway fraught with fatal difficulties. It means that operators will lose money (prices will be below costs) on ***all*** types of roaming calls. Furthermore, these losses will mount up over time as customers learn how 'play-the-system' and save money through turning STD calls into local calls by giving their distant friends and family SIM cards purchased in their home market. The potential revenue at risk from this behavior alone is *six times* higher that TRAI's estimate of the total impact on annual revenue of the implementation of an HPR.

If operators increase home prices to stem the losses from roaming, it is the poorer non-roamer that will suffer from the consequences of regulation. Moreover, an HPR will have damaging *dynamic* consequences as operators become wary of future reductions in prices in their home markets for fear of exacerbating the losses incurred in providing national roaming. The net of all of these effects could be that the *total* volume of mobile calls is lower than it otherwise would have been without an HPR; it is difficult to square this risk with TRAI's objective of "ensuring continued orderly operation and growth of the telecom sector".

Vodafone welcomes TRAI's recognition that the cost associated with inbound calls when roaming needs to be recovered in some manner. However, charging the calling party may actually reduce the volume of calls made to roamers because the callers may be more price sensitive than the called. Importantly, it is technically extremely challenging to implement a calling-party-pays regime for national roaming. Operators will need to set up a centralised database to discover whether a customer of another network is roaming; and new wholesale arrangements will be required between operators to ensure that the receiving network is compensated for the additional carriage costs that it incurs on some calls.

In addition, there are important privacy and safety issues concerned with telling any and all callers that the called party is roaming in another part of the country. Indeed, it is possible to imagine that miscreants will use the recorded announcement to identify when women, the elderly and the vulnerable are alone at home. The called-party-pays arrangement for national roaming is well understood by roamers who, by and large, are willing to pay for the benefit of receiving calls; we see no good reason to change this regime.

TRAI has requested and collected costing data on national roaming from the industry, however its coyness in revealing any of this information in the consultation paper is puzzling. Vodafone's own analysis, submitted recently to TRAI, shows that there is no case for reducing the ceiling rates for national roaming below the current retail rates when all relevant costs are properly included.

The Authority suggests that, if inbound calls are made free, the ceiling charge for outbound calls could be adjusted upwards so that operators recover the costs of inbound calls. However, the quantum of the mark-up required to achieve this will not be determined by today's calling patterns, but by the traffic mix *after* inbound calls are made free. If this proposal is adopted, it is possible to envisage a kind of 'death spiral' for national roaming where the cost of outbound calls is hiked ever upwards to compensate for the higher costs of a greater volume of inbound calls, as roamers progressively turn outbound into inbound calls to save money. In short, we do not believe that this option can work in practice.

If TRAI, despite the compelling evidence against intervention, wishes the price of inbound calls to be free when roaming, it should require operators to offer a plan voucher with free inbound calls. It would be left to the operator to decide how to recover the cost of inbound calls; this would invariably be a mixture of outbound roaming prices, home prices and the plan's rental fee. Operators would experiment over time to find the mix of charges that recovers the costs incurred and stimulates usage. Furthermore, they would compete to offer the best plan to customers — as they do currently — and this competition would discipline the extent to which prices could be rebalanced. In short, TRAI would not be required to intervene further. Crucially, Vodafone's suggestion allows operators to offer the option of free inbound roaming to those who roam *without* punishing the non-roamer.

TRAI is right to forbear from the regulation of video calls; the service is too nascent to consider any form of regulation. Furthermore, the authority should also forbear from the regulation of SMS and, instead, allow operators to use roaming vouchers to encourage the use of messaging (and all other services) when roaming.

We re-iterate that there is no indication of any market failure in the provision of wholesale roaming to operators. Operators who buy wholesale roaming have a choice of multiple suppliers which they invariably play off against each other to achieve the best terms. There are no signs that regional players are at a disadvantage under the current regime, despite a different mix of on-net/off-net calls compared with national operators.

Q1: Is competition in national roaming service in India robust enough for leaving the tariff for national roaming service under forbearance? Please support your viewpoint with reasons.

There is an abundance of robust evidence to show that the sale of national roaming services is subject to competition and that the tariffs should be left under forbearance. Operators are pricing significantly below the set price ceilings; the headline rates have moved down over time; and operators continue to offer innovative pricing packages to customers who roam. All of this has happened despite a significant regulatory impediment to competition: the ban on roaming vouchers. TRAI's assertion that national roaming is uncompetitive because it is an "also-on-offer service" is neither persuasive nor consistent with the facts. We elaborate on these points below.

Headroom in the Price Ceilings

The data available in the market clearly shows that operators are pricing calls when roaming significantly below the ceilings imposed in 2007. The table below shows the relevant data for Vodafone:

	Outgoing Local (Rs.)	Outgoing STD (Rs.)	Inbound (Rs.)
Ceiling Price	1.40	2.40	1.75
Vodafone Charge	1.00	1.50	1.00
% difference	**28%**	**38%**	**43%**

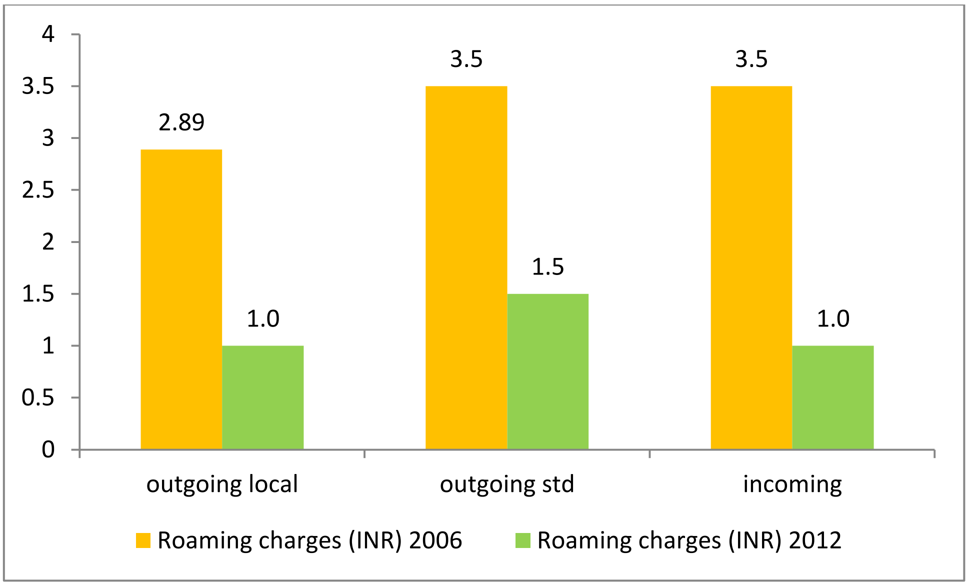
On average, Vodafone is pricing its roaming services at *36% below* the current caps; similar charges are levied by all of Vodafone's competitors. This is clear evidence that competition is effective in national roaming services. If this were not the case, the best strategy for the operators would be to use up some of the headroom available in the ceilings to push up prices *and* increase profits. That this has not been done shows that it would be an unprofitable strategy for operators: customers would reduce the number of calls that they make and receive when roaming, or switch to other providers. Put simply, competition has been effective is keeping tariffs below the current ceiling. When competition is effective, regulators should forbear from intervention.

The fact that national roaming prices are above those in the home markets is not evidence of the absence of competitive constraints; it merely reflects the fact that the costs of providing national roaming are higher than the comparable home call, and that operators have chosen to recover a higher proportion of their fixed and common costs from the national roaming service. This is typical of any multi-product market where individual services have different demand elasticities and it does not point to the absence of competition.

Prices over time

Further evidence of competition is provided by the path of roaming prices over time (see the table below). On average, prices have fallen by 16% per annum between 2006 and 2012. Although this reflects, in part, the imposition of ceiling charges in 2007 it is clear that the charges have been reduced further *after* regulation. However, even these headline rates disguise the fact that there are options for both consumer and enterprise customers to reduce the cost of roaming. Since 2009 Vodafone has offered a 'Ticket Plan'[1] where customers pay an enrollment fee of Rs. 36 for 90 days and get a national roaming rate of 70p per minute for all call types when roaming on a Vodafone network. For enterprise customers national roaming plans are available at 60p for local, STD and incoming calls.

National Roaming Charges 2006-2012



Source: COAI, HSBC

The fact that the price of roaming services has not followed a similar path as home services is not evidence — as the TRAI seems to imply — that the former is not subject to competition. One of the reasons why the price of national roaming services may not have been as dynamic as home prices is that competition has been muted by regulation because TRAI has prevented the use of vouchers for roaming (see below). Furthermore, in a market where penetration is still increasing, tariff changes are directed at individuals who do not own a mobile phone, and these prospective

[1] https://www.vodafone.in/prepaid/roaming/pages/roamingplan_upe.aspx?cid=upe

customers are less likely to roam than existing customers. Therefore we would expect greater downward pressure on non-roaming prices than on roaming prices.

Innovation

There is important evidence of innovation in the tariffing of national roaming.

There are a number of 'roaming corridors' or combinations of circles where a roaming premium is not applied to customers of either circle — Mumbai/Maharashtra[2], UPE/UPW, Rest of Bengal/Kolkata, Chennai/TN — these combinations comprise [confidential]% of 'roamed' minutes use. These corridors have been in place since 2007.

In addition there has been some recent tariffing activity focused on the cost of inbound calls:

- Vodafone: customers buy a plan voucher for Rs. 24 with free incoming calls in Bihar. Home and roaming calls are charged at 1.5 paisa per second;

- Airtel: customers buy a plan voucher of Rs. 21 with incoming calls at 0.5 paisa per second in Bihar, UP East, UP West and West Bengal. Home and roaming calls are charged at 1.5 paisa per second;

- Aircel: customers buy a plan voucher for Rs. 21–59 (depending on the circle) with free inbound calls. Home and roaming calls are charged at 1 paisa per second;

- Uninor: subscribers from Maharashtra and Goa will pay no roaming charges while in Mumbai;

- Videocon has announced that it has made incoming calls free by default for its customers roaming on its own networks.

- Idea: customers buy a plan for Rs. 14 with all incoming calls free in UP, Bihar, Uttarakhand & Jharkhand and outgoing roaming charged at 1.5 paisa per second.

Vodafone has a team of people who are dedicated to the marketing of its roaming services and whose job it is to come up with innovative tariff plans to encourage usage when roaming. As an example, customers who roam and who increase their usage over time are rewarded with an award of on-net minutes in their home circle. Our recent offer for Delhi to Bihar roamers (see

[2] For Mumbai/Maharashtra inbound calls are not charged, outbound calls are charged at the roaming rate

above) is designed to test the elasticity of inbound and outbound roaming calls when prices fall. [confidential]

Vouchers

The table below compares Vodafone's home base tariffs for a service area in each of the four circle categories with the average rate charged after allowing for the effect of special vouchers; it is clear that our customers are able to reduce significantly their calling costs by purchasing vouchers by, on average, 28% per minute. HSBC Global Research reports that, across the market as a whole, "c70 percent of outgoing calls are routed via special tariff vouchers".[3] We expect that a similar situation would have arisen had this form of competition been allowed for national roaming.

	Metro	A circle	B circle	C circle	All India
Base Tariff (per Minute)	81	87	78	69	81
Average Tariff paid (RPM)	68	60	58	39	59
Difference (%)	**16%**	**31%**	**26%**	**39%**	**28%**

These data demonstrate that comparing the path of home market prices (where vouchers are permitted) with national roaming prices (where these types of voucher are banned) is not a fair like-for-like comparison, and it cannot therefore be used to conclude that there is a 'problem' with competition in providing national roaming services.

TRAI's Analysis

In the consultation paper TRAI takes "a close look at the competitive landscape". It lists (but does not refer to any particular evidence) the factors that customers consider when choosing their provider and asserts that the national roaming service is an "also-on-offer service" rather than a "flag-ship service". Vodafone respectfully suggests that this analysis is incomplete. TRAI should consider the factors that are important for those *customers who roam*.

The majority of customers (over 85%) do not roam, so it is no surprise that, on average, the price of national roaming is relatively low down on the priority list. However, the effects of competition are not determined by the behavior of the average customer, they are decided by the conduct of the marginal customer i.e., those customers who are *just* willing to pay for a service. The evidence is that there are a sufficient number of marginal customers whose calling patterns would change if the price of national roaming were to increase to ensure that this has not happened. Moreover, because those customers who roam are 'high value' — roamers have more than [confidential] the monthly revenue of those who do not — operators are extra careful not to price roaming services at a level which causes them to switch provider.

[3] HSBC Global Research: Indian Telecoms – It is not only about roaming, 12 March 2013.

TRAI cites the NTP-12 in support of its review of national roaming tariffs: "[a]spiration for removal of roaming tariffs is an aspect of the overall policy thrust towards removal of geographic barriers in licensing and telecom operators to promote free mobility for usage of communications facilities in the country." This appears to be putting the cart before the horse. We see little prospect that Service Area based structure of the Indian market will change in the foreseeable future whilst the allocation of spectrum and numbering plans continue to have geographic significance and not all operators have a pan Indian presence.

If, at some point in the future, spectrum is allocated nationally then the concept of national roaming will cease to have meaning and operators will have to consider how to market their services. However, this point is a long way off and, in the meantime, operators should be left to continue to support the single biggest factor that has contributed to the vision of a 'unified nation': the increase in tele-density from 0.8% in 1994 to around 74% today.

Q2: Would it be appropriate to implement the home price rule (HPR) in national roaming service? What is the likely impact of such a regime on fair competition in telecom sector? Please support your viewpoint with reasons.

There is no competition problem in the supply of national roaming and such an intrusive and ill-defined intervention as an HPR should not be contemplated. We know of no other regulator which has taken such steps.

HPR is fraught with fatal difficulties. It means that operators will lose money (prices will be below costs) on *all* types of roaming calls. These losses will mount up over time as customers learn how 'play-the-system' and save money by turning STD calls into local calls. TRAI's revenue impact analysis misses this effects and significantly underestimates the potential revenue at risk from an HPR.

If operators rebalance home prices to stem the losses from roaming, it is the poorer non-roamer who will suffer from the consequences of regulation. Moreover, an HPR will have damaging *dynamic* consequences as operators become wary of future reductions in prices in their home markets for fear of exacerbating the losses incurred in providing national roaming. The net of all of these effects could be that the *total* volume of mobile calls is lower than it otherwise would have been without an HPR.

We elaborate on these points below:

Definitional Problems

TRAI has not provided a definition of its HPR. Is the HPR the default SIM rate or the customer's actual rate including any applicable special or combo vouchers? Alternatively, would TRAI set a standard HPR for the whole country (72p local, 90p national)? If so, how would this rate be set and how would it be adjusted over time? Would charges be per second or would operators be allowed to round up? Is TRAI instead referring to the home circle charges so that roamers would pay a rate equivalent to customers residing in the visited circle? If so, how would this be set? There are a multitude of practical issues left unaddressed in the consultation.

The Impact of an HPR

Unfortunately, in whatever guise an HPR rule is imposed, Vodafone believes that it would be fraught with difficulties and should not be contemplated:

- Under an HPR an operator would not cover its costs on either the outbound or inbound leg of the call (see our answer to question 4 below). We know of no other instance in which the regulator has obliged an operator to implement this kind of cross-subsidy and make a loss in providing a particular service.

- Faced with providing an unprofitable service an operator will seek to recover the lost revenue from outbound home calling since, by definition, it cannot be made up from the national roaming service. As HSBC[4] notes, eliminating roaming charges will: "…..be counterproductive and instead lead to tariff hikes". An HPR would therefore be introduced at the cost of the more than 85% of customers who do not roam and, probably, never will. Moreover, it is possible that, because of the different relative call elasticities of the different groups of customers — we would expect non-roamers to be more price sensitive than roamers — the net effect of an HPR and tariff rebalancing could be to *reduce* the total volume of mobile originated and terminated calls within India below what they would have been in the absence of regulation. It is difficult to see how this effect is consistent with the "orderly….growth in the sector" or the policy desire to "create a unified nation" (paragraph 2.3).

- An HPR will cause an additional, dynamic, effect: it will dampen competition in the home market where operators will be discouraged from future reductions in prices because they will merely exacerbate the losses incurred in providing national roaming. The intrusive regulation of national roaming therefore contaminates competition in the home market, again at the expense of the non-roamer. We note that this is the *opposite* of the effect that TRAI is anticipating: "[a]s roaming tariff merges with the home tariff regime, it will automatically move to the same competitive market that has been recognized by TRAI while placing the call tariffs under forbearance." (see paragraph 2.46)

- An HPR will create attractive arbitrage opportunities for customers; it will cause an uplift in the number of inter-circle calls to SIMs which are roaming (i.e., *over and above the effect of roamers being more willing to accept calls when they are roaming*). This will occur, as TRAI notes, because, for example, a migrant worker in one circle who habitually

[4] HSBC Global Research op cit

makes STD calls to his family at his home (another circle) will purchase a SIM card from the circle in which he works (with a 'local' service area specific number) and give it to his family. Put simply, the number of SIM cards which are (permanently) roaming will increase. The calling party will save money by paying for a local call (instead of an STD call) and, under an HPR, the called party will not pay to receive the call.

- These arbitrage effects will exacerbate the costs of regulation for the home network because it will be not recover the costs of carriage on an inflated number of inbound calls. Consequently, it will need to recoup these costs from other services; both increasing the magnitude of cross-subsidy —from home to roamed calls — noted above and the potential negative impact on total call volumes.

  In the table below, using data sourced from TRAI, we estimate total maximum 'value at risk' to the whole of the industry from a widespread conversion of STD into local calls. This analysis shows that between 5-6% of the total industry revenue is at risk from this arbitrage effect; this is equivalent to 30% of the industry's profits. The value at risk will vary between operators and the exposure will be particular high for operators such as MTNL whose presence is in the major metros where nearly 50% of outbound calls are STD calls.

Total Volume of Industry minutes	4.2 trillion per annum
Total volume of outbound minutes assuming a 48:52 outgoing to incoming mix	2 trillion per annum
Total volume of NLD minutes (20% of total)	400 billion per annum
Maximum revenue loss from conversion to local calls (assuming a 30p differential in the price of STD versus local calls)	Rs. 12,000 Crores per annum (5-6% of industry revenues)

- Of course, operators can mitigate this effect by rebalancing tariffs to reduce or eliminate the differential between local and STD calls however this will advantage the minority at the expense of the majority. As HSBC[5] notes: "[w]e believe that a potential move by the government to abolish roaming tariffs and in particular making incoming calls free will likely result in a shift towards nationwide pricing (gradual elimination of differences between local tariffs and national tariffs and a sharp reduction in discounted offerings)".

TRAI's Revenue Impact Analysis

TRAI provides an analysis of the impact on revenue of an HPR regime. The analysis has important shortcomings: first it ignores the impact of an HPR on margin, and second it does not take account of the arbitrage effect noted above. A stylised example illustrates these points in the

[5] HSBC Global Research op. cit

table below, where, purely for illustrative purposes, we have included cost data which is below the level that we deem appropriate:

Table 1		Outbound	Inbound	Totals
	Volume	70.0	30.0	100.0
	Price per minute	1.2	1.0	
	Cost per minute	0.8	0.6	
	Margin per minute	0.4	0.4	
	Total Revenue	84.0	30.0	114.0
	Total Margin	28.0	12.0	40.0

Table 2		Outbound	Inbound	Totals
	Volume	93.1	45.0	138.1
	Price per minute	0.6	0.0	
	Cost per minute	0.8	0.6	
	Margin per minute	-0.2	-0.6	
	Total Revenue	55.9	0.0	55.9
	Total Margin	-18.6	-27.0	-45.6

Table 3		Outbound	Inbound	Totals
	Volume	93.1	58.5	151.6
	Price per minute	0.6	0.0	
	Cost per minute	0.8	0.6	
	Margin per minute	-0.2	-0.6	
	Total Revenue	55.9	0.0	55.9
	Total Margin	-18.6	-35.1	-53.7

Table 1 shows the volume, revenue and margin data for the pre-regulation situation (outbound local and STD prices have been averaged). Post the imposition of an HPR (Table 2), using TRAI's estimates of elasticity, revenue falls by 53 (from 114 to 61) but margin falls by 69 (from 40 to minus 29). If the arbitrage effect noted above occurs and the total volume of inbound roaming calls increases by 30% (i.e., 45 + 13.5), the margin decline increases to 77 (from 40 to minus 37) — see table 3. In other words, the decline in margin (77) is over 45% *greater* than the decline in revenues (53). This is an impact which TRAI ignores in its analysis.

International Evidence

TRAI cites international evidence from the US and the UK in the consultation, however neither example supports the case for an HPR. In the US, national roaming is relatively rare and, in Europe — despite lofty objectives — the Commission has chosen to regulate *international* roaming by imposing a ceiling price which is still significantly above the domestic (home) tariffs, and allowed operators to charge for receiving calls when roaming. The regulation has permitted operators to continue to provide innovative roaming propositions. For example, Vodafone provides its Passport service which allows post-paid customers to pay a fixed fee per originated and received call, irrespective of its duration.

The table below shows the current and future retail price caps for international roaming within the European Units (1€ = 70 rupees).

	1 July 2012	**1 July 2013**	**1 July 2014**
Voice-calls made (Rs. per minute)	22.4	19.6	16.8
Voice-calls received (Rs. per minute)	7.7	7.0	7.0
SMS (Rs. per SMS)	7.0	7.0	7.0

Source: http://europa.eu/rapid/press-release_MEMO-11-485_en.htm?locale=en,

Q3: Would it be appropriate to implement Home Price Rule (HPR) in national roaming service with the provision of recovery of carriage charge on account of incoming call from the calling party? Please support your viewpoint with reasons.

Vodafone is encouraged that TRAI recognises that there costs involved in the carriage of inbound calls to roamers which cannot be wished away by HPR type regulation. In paragraph 2.3, TRAI notes that "[i]n this exercise, an attempt is being made to evolve a structure for national roaming tariff such that the aspirations of the policy are met while fully recognizing the cost base of the national roaming service…". However, we believe that there are important reasons not to recover inbound call costs from the calling party.

Impact on Call Volumes

For a number of years these carriage costs have been recovered from the called party. This practice is well established in the minds of customers who, on average, enjoy a benefit from receiving calls when roaming (and are therefore willing to accept them). There would appear to be no compelling reason — and TRAI has not attempted to provide one — to alter the manner in which the costs associated with incoming call while roaming are recovered. Recouping the costs of carriage from the calling party may well lead to a reduction in the number of calls to roamers, because the callers are more price sensitive than the called. Again, it is difficult to square the risk of this kind of effect with TRAI ambition of "ensuring continued orderly operation and growth of the sector".

Technical Challenges

There are significant technical difficulties in charging the calling party extra for calling a roamer.

In order to play a recorded announcement to the calling party Vodafone will need to know the location — rather than just the number — of the called party on a call-by-call basis. This capability is currently not available because charging depends on the B party's *number* rather than their *location*. Furthermore, if the A party is calling from another network, this information will need to be passed to that network. Currently, the roaming location of Vodafone subscriber cannot be passed over the existing inter-network signaling links. The only practical way to enable this would be to set up a centralised database where the location of every customer is stored and updated frequently.

To make the recorded announcement interactive (i.e., such that the customer is required to affirm his acceptance of the call charges by pressing a key(s)) it is necessary to establish a speech path through the networks from the calling to the called party; this will mean that the calling party is charged for the duration of the recorded announcement, irrespective of whether he continues with the call or not. TRAI should be aware that the interactive announcement capability is not built into any of the existing network elements and it will require either customisation of the MSC/HLR or the introduction of new 'boxes'.

Operators will also need to establish new wholesale arrangements to support the calling-party-pays regime. The A network will need to pay the B network's additional costs if the latters' customers are roaming outside of their home circle. Would these charges be regulated? Would they be based on the actual costs incurred by the B party and therefore vary between operators, or tied to the mark-up allowed on outbound calls? How will this work if the mark-up is spread over all outbound roaming calls? These are very significant technical challenges.

The originating network will also face a number of challenges in recovering the higher charges from the customers. A few problematic examples could be:

- Calls from PCO coin boxes
- Calls from tele-calling agencies e.g., promotional campaigns from banks, etc
- Calling card service charging

Customers' Privacy

In addition to the above, customers may well object to the fact that callers to their number will be informed that they have travelled to another part of the country. Indeed, it is possible to imagine those with criminal intent using the recorded announcement to identify when women, the elderly and the vulnerable are alone at home.

Q4: Would it be appropriate to rationalize the tariff for national roaming service on the basis of present costs? Please support your view with reasons.

It is not clear to Vodafone what is meant by 'rationalize' in this question. We take it to mean that TRAI is asking whether the current tariff ceilings should to be reset to reflect updated cost data.

In our previous submission, at the pre-consultation stage, we included a cost stack for all of the call types when roaming. In our analysis we sought to capture *all* of the costs relevant to national roaming; these include a proportion of acquisition and marketing costs to be recovered in call origination[6] and an estimate of the impact of higher spectrum charges on costs, together with our view of the cost of network termination.[7]

Vodafone accepts that individual elements of the cost stack can be queried. However, we submit that our analysis shows that there is no case for setting the ceiling charges below the current tariff levels — this holds true even if we take an average of the carriage charges quoted by TRAI: Rs. 0.32.

We note that TRAI has asked for incremental cost data for all of the operators but it has not chosen to analyse, summarise or even produce that data for comment. If TRAI subsequently chooses to rely on that data in its decision making then, in the interests of transparency, it must be made available for comment and scrutiny by the affected parties.

Cost Stacks for calls made and received when roaming

Cost component	Incoming (Rs./minute)	Outgoing local (Rs./minute)	Outgoing STD (Rs./minute)
Origination charge*	-	[confidential]	[confidential][8]
Carriage	0.65	-	0.65
Termination*	0.37	0.37	0.37
Average Incremental Cost of Roaming (incl.	[confidential]	[confidential]	[confidential]

[6] If marketing and customer acquisition costs cannot be recovered from outbound calls then from which service(s) can they be recovered?
[7] This matter is currently with the Supreme Court
[8] This figure has been corrected in this table – the total cost number remains unchanged.

license fees)**			
Average additional Spectrum Costs (OTF plus Extension)	0.14	0.14	0.14
Total	[confidential]	**1.34**	**1.92**
Prevailing Average Tariffs	**1.00**	**1.00**	**1.50**

Source: ASR 2011-12, Cost details submitted to TRAI recently for this paper.

* We have used a cost of 37 paisa for origination and termination. This is consistent with our response during the 2011 review and includes CAPEX. We have allocated a portion of retail costs to outbound roaming calls.

** The incremental cost numbers are based on our previous submission. We have included an estimate of the higher per minute license fee cost paid on roaming minutes. Other incremental costs e.g., additional network investments at airports and pilgrimage sites has not been included. We reserve the right to make further submissions on these cost elements.

Our estimates show indicative figures at the prevailing reserve prices; the final impact may change with the outcome of the auction. We have not taken into account the prospective costs of 4G spectrum and, for simplicity, we have assumed that 2G spectrum is used for voice and 3G spectrum is used for data.

Q5: Would it be appropriate to revise ceiling tariff for national roaming service in such a manner that incoming calls while roaming are made free of charge while the cost of incoming calls is recovered through outgoing roaming calls?

Although this solution appears to be superficially attractive, we believe that it will prove to be unworkable. Instead, although we strongly favour forbearance, we suggest one potential way forward which requires minimal intervention on the part of the Authority.

'Death Spiral'

Under TRAI's proposal the quantum of any mark-up will have to be set so that operators recover all of the costs associated with inbound calls for a future, unknowable, mix and volume of calls. Increasing the cost of outbound roaming and eliminating the cost of inbound roaming will prompt roamers to change their calling patterns. Instead of making outbound calls, the roamer will request the called party to call him or her back (possibly by just leaving a missed call notification). This will inflate the cost to the operator of making inbound roaming free of charge and therefore the mark-up required on outbound calls to recover that cost. As the cost of outbound calling rises more outbound calls will be substituted for inbound calls and the national roaming service could enter a 'death spiral' of ever increasing prices and fewer outbound calls. The only way out of this cul-de-sac would be for operators to charge for missed calls from customers who are roaming.

In the table below we illustrate this effect (using the same demand elasticities as the Authority quotes in the consultation[9]) by imagining an operator setting outbound prices *dynamically* to recover the cost of free inbound calls in each period. We assume that as the price of outbound roaming calls increases — to recover the carriage costs of inbound calls — their volume falls, but they are converted into inbound calls (i.e., as outbound roamers face higher costs they persuade the called party to initiate the call). This further inflates the total cost of handling inbound calls which again results in higher outbound prices (and lower volumes in the next period). It takes only five time periods in this exercise for the price of outbound calls to nearly treble (from Rs.1.2 per minute to Rs. 3.5 per minute), despite the fact that the post-regulation volume of total calls remains largely unchanged.

		Outbound	Inbound	Totals
Period 1	**Volume**	70	30	100
	Price per minute	1.2	1	
	Cost per minute		0.6	
Period 2	**Volume**	62.6	45.0	108
	Price per minute	1.6	0	
	Cost of Inbound	-	27.0	
Period 3	**Volume**	56.0	52.4	108
	Price per minute	2.1	0	
	Cost of Inbound	-	31.5	
Period 4	**Volume**	50.4	59.0	109
	Price per minute	2.7	0	
	Cost of Inbound	-	35.4	
Period 5	**Volume**	45.7	64.6	110
	Price per minute	3.5	0	
	Cost of Inbound	-	38.7	

[9] For simplicity we ignore the arbitrage effects identified in our answer to question 2.

Vodafone's Proposal

If, despite all evidence to the contrary, TRAI wants inbound roaming calls to be free, Vodafone suggests that it requires all operators to offer at least one plan which includes this tariff, available for 180 days. Operators can decide how they recover the costs of carriage on inbound calls; each will experiment to optimise the mix of rental, outgoing home and outgoing roaming tariffs to recover its costs, discourage call-back and stimulate usage. In the case of Vodafone's Delhi-Bihar offer[10], inbound roaming is free, the cost of outbound roaming is reduced to Rs. 0.90 per minute but the customer pays Rs.24 per month for free inbound calls when roaming, together with higher outbound call charges in the home area. [confidential] Importantly, operators compete to offer the best package to the customer and competition disciplines the price of different elements of the package.

Vodafone's proposal would stand in place of any other form of regulatory intervention. Crucially, it allows operators to offer the option of free inbound calls to those that roam *and* the freedom to set other charges such that the costs of doing so are recovered, but *without* imposing higher costs (or inconvenience) on those who do not roam. Provided operators are allowed to manage the other elements of the package, our proposal requires neither charging callers extra for calling a roamer nor a narrowing (or eradication) of the local / STD price differential.

The Authority should not *mandate* that operators offer a special roaming voucher with no charge for inbound calls when roaming. This would leave operators with insufficient degrees of freedom to be able to ensure that they can recover (from the voucher user) the additional costs associated with a greater number of inbound roaming calls i.e., without punishing the non-roamer. Operators would, of course, be free to offer roaming vouchers if they wish (see our answer to question 11 below).

Q6: In case your response to Q5 is in the affirmative, which of the following approaches would be more appropriate?

(i) With Immediate Effect: viz. by fixing zero tariff for incoming calls and ceilings for outgoing calls while on national roaming allowing recovery of additional cost on account of free incoming calls, from the outgoing calls while on national roaming

(ii) Through a Glide Path: viz. approaching zero tariff for incoming calls in a phased manner (over a period of say three years) and fixing year-wise tariff ceilings for outgoing calls while on national roaming allowing recovery of additional costs on account of progressively cheaper incoming calls, from the outgoing calls while on national roaming

[10] See our answer to question 1.

Vodafone does not believe that the ceiling price should be adjusted upwards to allow for the recovery of inbound calls. Introducing this ceiling over three years would lead to the same type of problems as those identified above in our answer to Q5.

Q7: Do you agree that there is no need to prescribe a tariff for video calls while on national roaming?

Yes. TRAI should forbear from regulated such a small and nascent service.

Q8: In case your response to Q7 is in the negative, please support your viewpoint with a detailed methodology to determine the tariff for video calls.

See our answer to question 7 above.

Q9: In case the tariff for national roaming service is set, would it be appropriate to prescribe that the tariff for an outgoing SMS while national roaming should not be more than that for an outgoing SMS from home service area?

TRAI should not regulate the price of SMS while roaming. To do so will lead to type of spillover effects identified above where operators will refrain from, or delay, reducing the price of SMS in their home market because of the consequential impact that it has on the price of a roaming SMS. Instead, TRAI should allow operators to offer special roaming vouchers which can be used to provide innovative SMS tariffing whilst roaming.

Q10: In case your response to Q9 is in the negative, please support your viewpoint with reasons. In case you favour prescribing separate ceiling tariff for outgoing SMS while on national roaming, please support your viewpoint with a detailed costing methodology.

See our answer above — TRAI should remove the restrictions on national roaming tariffing and allow competition to operate unrestrained.

Q11: Should Special Tariff Vouchers (STVs) with roaming benefits be allowed? Please support your viewpoint with reasons.

Yes, all of the evidence to date (see above) indicates that customers can benefit from the use of special vouchers which are applied to specific call types. We see no good reason to believe that the same would not happen if vouchers with specific roaming benefits are permitted.

Vodafone believes strongly that national roaming special vouchers should *not* be mandated. Operators should be free to decide whether offer, and how to price, such vouchers.

Furthermore, we believe that if the HPR rule is implemented, operators would cease to provide STVs in some home markets for fear that the associated SIM cards would be exported to other circles, thereby making the offer of STVs uneconomic. HPR type regulation will therefore dampen competition in many service areas because operators will be wary about introducing STV deals which would otherwise have benefited the customers.

Q12: In case your response to Q11 is in the affirmative, what regulatory restrictions should be imposed on such STVs?

Operators should be free to decide whether roaming vouchers can be 'stacked' on top of plan vouchers. In the case of both special roaming vouchers and any required plan voucher with free inbound calls, operators should have the flexibility to introduce a fair usage policy to prevent take-up by those who would seek to abuse the available plans.

Q13: Is there any other relevant issue which should be considered in the present exercise of review of the tariff for national roaming

Vodafone wishes to re-iterate its view that there is no sign of any market failure in the provision of wholesale roaming to operators. Indeed, operators who buy wholesale roaming have a choice of multiple suppliers which they invariably play off against each other to achieve the best terms. The bargaining power lies with the buyer (who has a variety of suppliers to choose from) and, in fact, Vodafone recently 'lost' one of the new operator's roaming traffic to another supplier. There is no evidence that regional players are at a disadvantage under the current regime where wholesale roaming charges are commercially negotiated and, by definition, both buyer and seller benefit from the deal. We note that Uninor has offered its subscribers from Maharashtra and Goa free roaming when in Mumbai via a tie up with Tata DoCoMo. The fact that traffic flows are asymmetrical between service providers does not matter as long as operators can charge to cover their costs (if operators want to change their traffic flows they can always buy spectrum in a service area and build and run a network – see below).

The competitive provision of wholesale roaming will continue in place if the difference in the tariff while roaming is eliminated. The latter is a regulation at the retail level which has no linkage with what happens at the wholesale level. Operators will continue to compete to supply national roaming at rates which cover their costs.

Vodafone India

05 April 2013