Consultation Paper No. 2/2013

Telecom Regulatory Authority of India

सत्यमेव जयते

Consultation Paper on
Review of Tariff for National Roaming

New Delhi, the 25th February, 2013

Mahanagar Door Sanchar Bhawan, Jawahar Lal Nehru Marg,
New Delhi - 110002

Index

Stakeholders are requested to furnish their written comments by 18th March, 2013 and counter-comments by 25th March, 2013 to the Advisor (F&EA), TRAI. The comments may also be sent by e-mail to manishsinha@trai.gov.in. Comments would be posted on TRAI's website www.trai.gov.in. For any clarification/ information, Shri Manish Sinha, Advisor (F&EA) may be contacted at Tel. No. +91-11-23221509 Fax: +91-11-23236650.

Chapter - I
Introduction and Background

A- National Roaming

1.1. The GSM World Association has defined roaming *"as the ability for a cellular customer to automatically make & receive voice calls, send & receive data, or access other services when traveling outside the geographical coverage area of the home network, by means of using a visited network".* If the visited network is in the same country as the home network, it is known as national roaming service.

1.2. As per the prevailing licensing regime in India, the geographic area covering a telecom circle (generally co-terminus with a State) is the licensed service area (LSA) of telecom access service providers. The national roaming service allows a mobile subscriber travelling outside the LSA of his wireless access service provider (mobile operator) to use his mobile connection on the networks of other wireless access service providers.

B- How National Roaming Service Works

1.3. While roaming, a subscriber logs on to the network of a mobile operator in the visited service area with whom the home mobile operator of the roaming subscriber has a 'roaming agreement'. A roaming agreement is a commercial agreement between the home mobile operator and a roaming partner mobile operator that allows subscribers of home mobile operator to access the roaming partner's network. When a roaming subscriber switches on his mobile device in the geographical area outside the service area of his mobile operator, the mobile device picks up the radio signals of one of the operators in the visited service area with whom the roaming subscriber's home mobile operator has a roaming agreement. This local operator (in the visited area) will then 'authenticate' the mobile number of the user with the home operator i.e. it will check whether the user is a valid subscriber and is allowed to roam outside. Once the authentication is received, the user can make and receive calls.

1.4. The differentiation between home network and visited network is technically given by the type of subscriber entry in a specific network. If a subscriber has no entry in the Home Location Register (HLR) of the network, the required subscriber data must first be requested by the visited network from the subscriber's home network so that the subscriber can be authenticated and any authorization for using the network services can be checked. The 'visiting' subscriber acquires an entry in the Visited Location Register (VLR) of the visited network and the authorized network services are enabled.

1.5. The usage by a subscriber in a visited network is captured in a Transferred Account Procedure (TAP) or Cellular Intercarrier Billing Exchange Record (CIBER) file[1] and is transferred to the home network. A TAP/CIBER file contains details of the calls made by the subscriber viz. location, calling party, called party, time of call and duration, data usage and Short Message Service (SMS) etc. The TAP/CIBER files are rated as per the commercial agreement between the home mobile operator and the visited mobile operator. However, the home operator bills these calls to its subscribers as per the applicable roaming rates offered in the tariff plans of the subscribers.

1.6. In general, the roaming process consists of the following:

(i) When the mobile device is turned on or is transferred via a handover to the network, this new 'visited' network sees the device, notices that it is not registered with its own system, and attempts to identify its home network. If there is no roaming agreement between the two networks, roaming service is denied by the visited network.

(ii) In case the visited network has a roaming agreement with the home network, the visited network contacts the home network and requests service information about the roaming device including whether or not the mobile device should be allowed to roam.

[1] TAP/ CIBER File: In case of GSM network, the file is called TAP (Transferred Account Procedure) while in case of CDMA, it is called CIBER (Cellular Intercarrier Billing Exchange Record).

(iii) If successful, the visited network begins to maintain a temporary subscriber record for the device. Likewise, the home network updates its information to indicate that the mobile subscriber is in the visited network so that any information viz. incoming voice call, SMS sent to that device can be correctly routed.

1.7. The manner in which the calls are routed while on national roaming is described below:

(1) Incoming Calls to the Roamer

1.8. When a call is made to a roaming subscriber, the call first goes to his home network. Since the home network possesses information about its user, it will forward the call to the visited network. The visited network will then connect the call to the roaming subscriber.

1.9. The Diagram-1.1 below depicts routing of an incoming call to a roaming subscriber from the visited service area. It suggests that all incoming local calls are routed through the home network. However, the call is not terminated in the home service area; instead it is forwarded by the home network to the visited network through a national long distance operator (NLDO). The call is terminated in the visited network.

1.10. Keeping in view the 'work done' in respect of an incoming call to a roaming subscriber from the visited service area, the total cost of providing this service which enables the roamer in the visiting network to receive an incoming local call, comprises of the following components of cost:

(i) Carriage charge

(ii) Termination charge

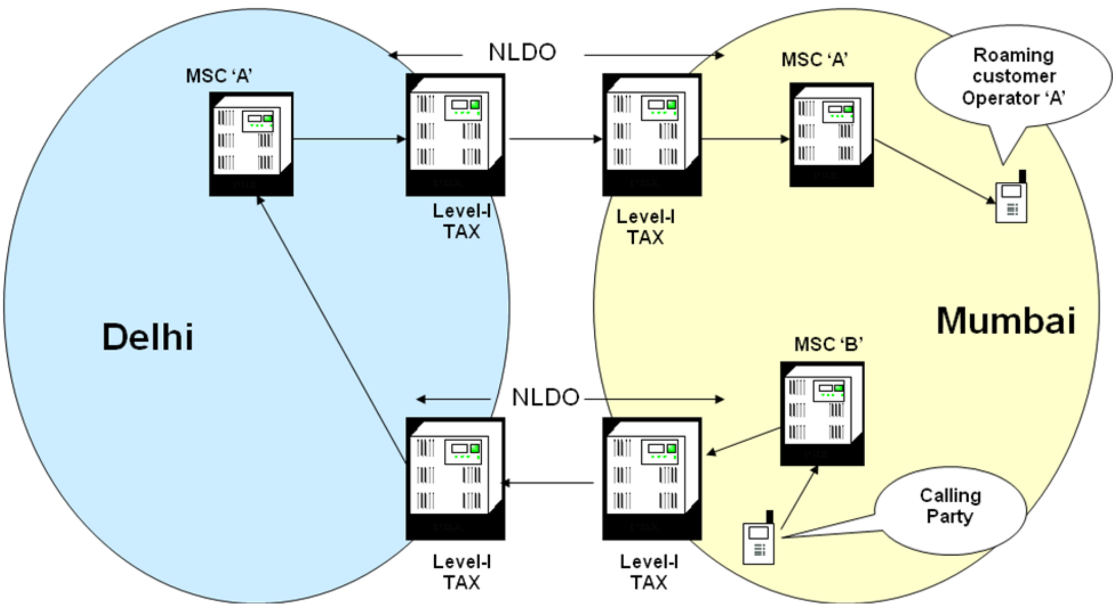
(iii) Incremental cost for roaming services

1.11. In accordance with the Interconnect Usage Charge (IUC) regime in the country, termination charge is payable to the home mobile operator of the roamer for this incoming call. Thus the following cost components remain to be recovered by the home mobile operator for this incoming call:

(i) Carriage charge

(ii) Incremental cost for roaming services

Diagram 1.1
Incoming Call While Roaming – From the Visited Service Area (Prepaid and Postpaid)

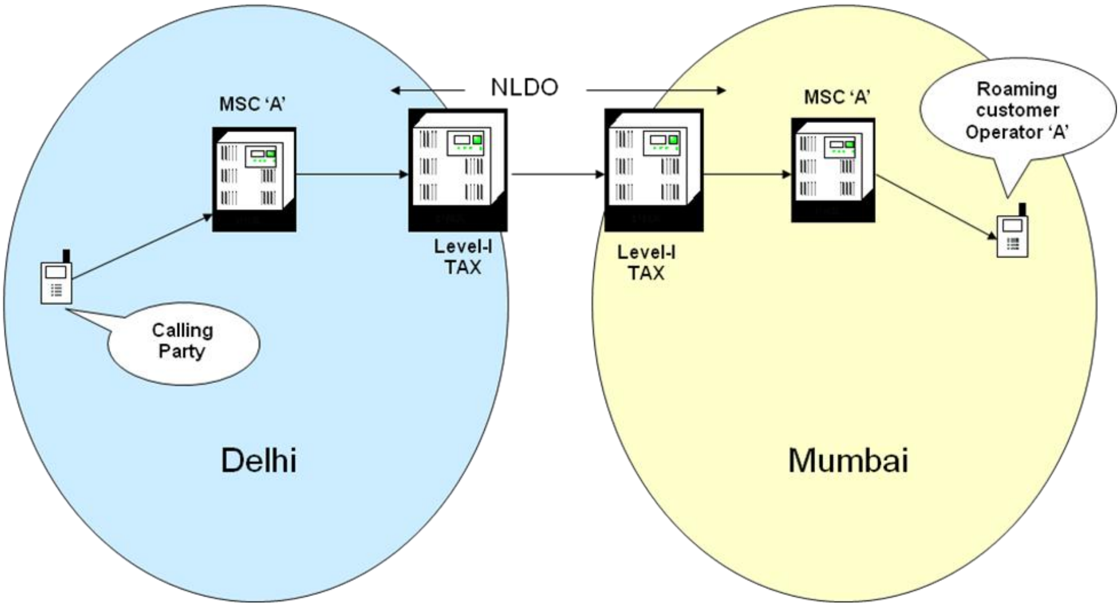


1.12. The Diagram-1.2 below depicts the routing of a long distance incoming call while roaming. The incoming call might have originated either in the home network or in a third network other than the home and visiting network. Nevertheless, work done in this scenario is the same as the work done in the scenario depicted through Diagram-1.1 above and therefore the underlying cost of the services to enable the roamer to receive the incoming call is covered by the carriage charge, termination charge and incremental roaming cost. In this case also, the following cost components remain to be recovered by the home mobile operator for the incoming call:

(i) Carriage Charge

(ii) Incremental cost for roaming services.

Diagram 1.2
Incoming Call While Roaming – Inter-circle (Prepaid and Postpaid)



(2) Outgoing Calls by the Roamer

1.13. When a roaming subscriber makes an outgoing call, the visited network analyses the dialed number and decides how best to route the call. If it is a local call, the visited mobile operator will hand-over the call to a local operator. In case of an STD call, the visited mobile operator passes the call via national long distance operator (NLDO) to the called party's operator.

1.14. The Diagrams – 1.3 and 1.4 below depict the routing of the local outgoing call while roaming. This call scenario does not involve usage of trunk resources. Thus the cost of provision of the local call while roaming involves the following cost elements:

(i) Origination charge

(ii) Termination charge

(iii) Incremental cost for roaming services

Diagram 1.3
Outgoing Call While Roaming – Local (Prepaid)

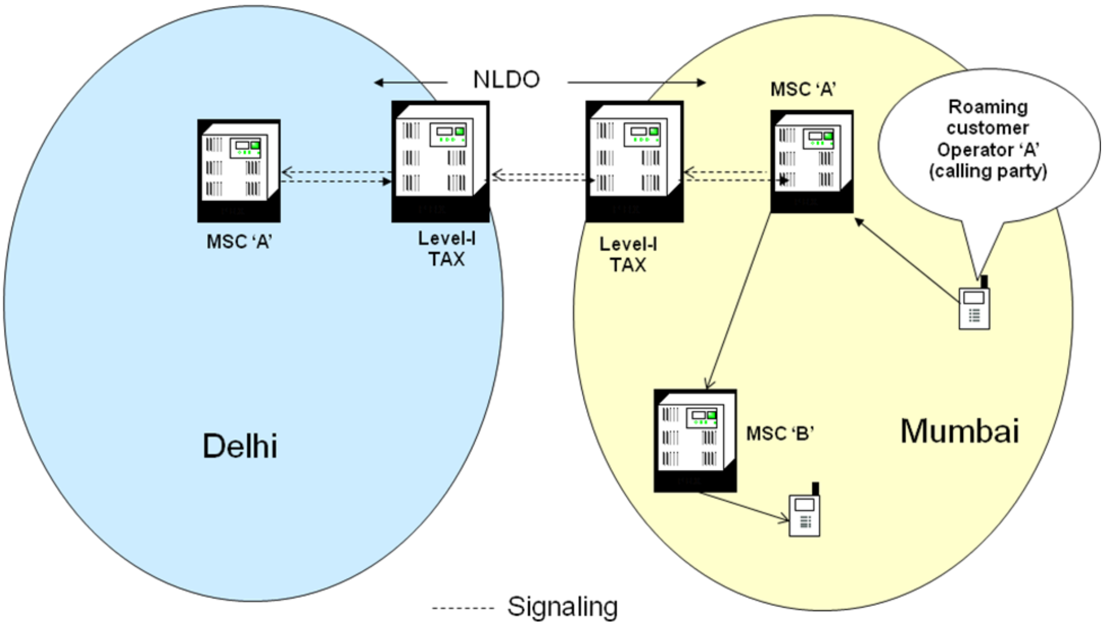
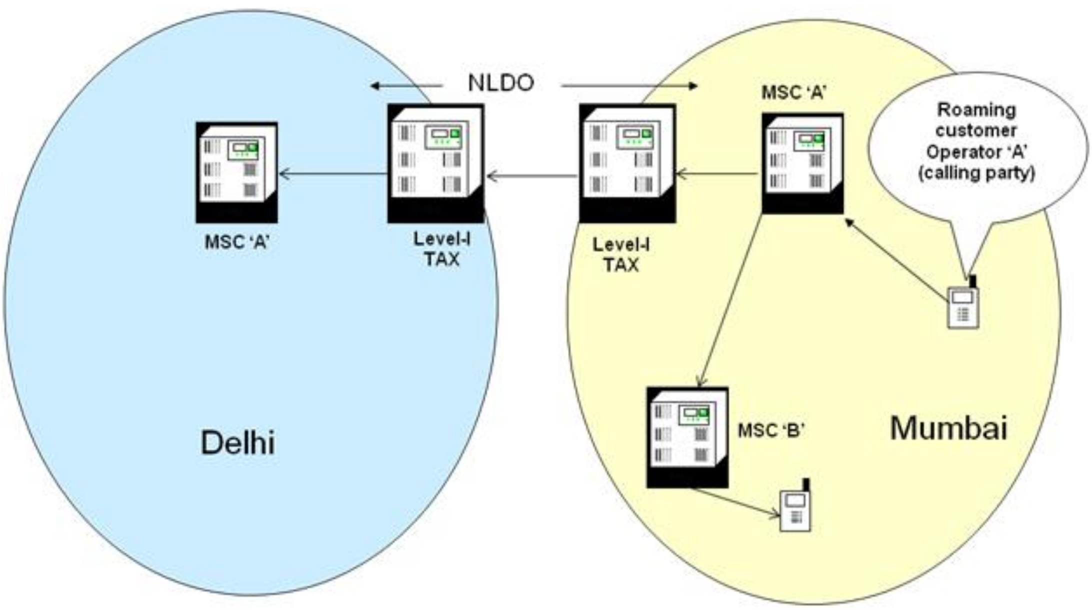


Diagram 1.4
Outgoing Call While Roaming – Local (Postpaid)



1.15. As can be seen from the Diagrams 1.3 and 1.4 above, the work done for an outgoing local call while roaming is the same for both pre-paid and post-paid scenarios except for the flow of additional signaling messages for balance enquiry in case of the pre-paid scenario.

1.16. The Diagrams – 1.5 & 1.6 below depict the routing of the outgoing STD call while roaming. The outgoing STD call while roaming may be to the home network or to any third network. The underlying cost of services incurred by the service providers to enable the roamer to make an outgoing STD call involves the following cost elements:

(i) Origination charge
(ii) Carriage charge
(iii) Termination charge
(iv) Incremental cost for roaming services

Diagram 1.5
Outgoing Call While Roaming – STD Call (Prepaid)

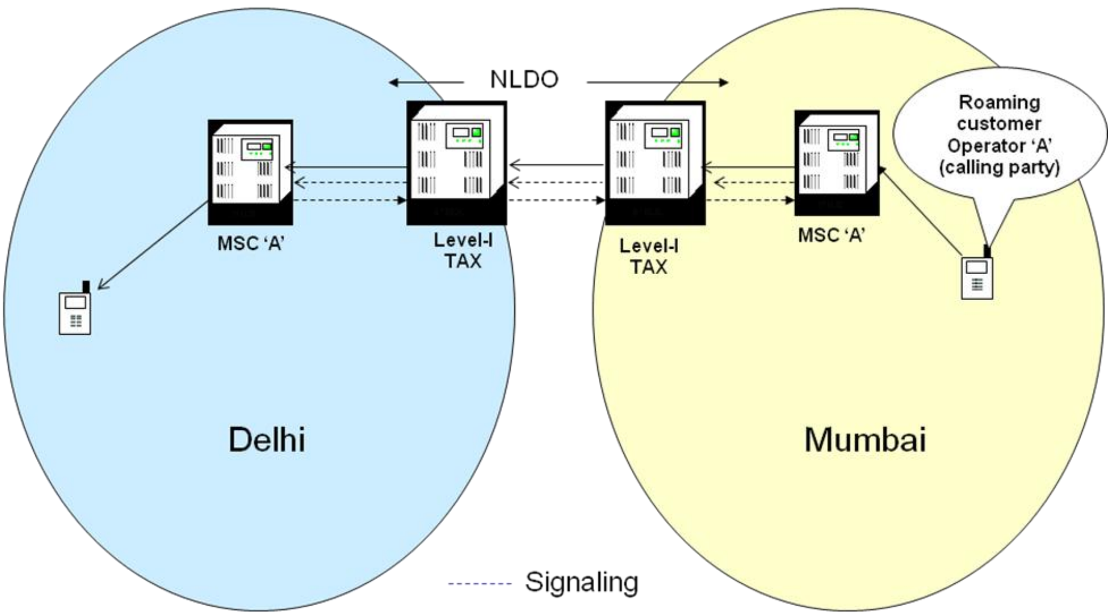
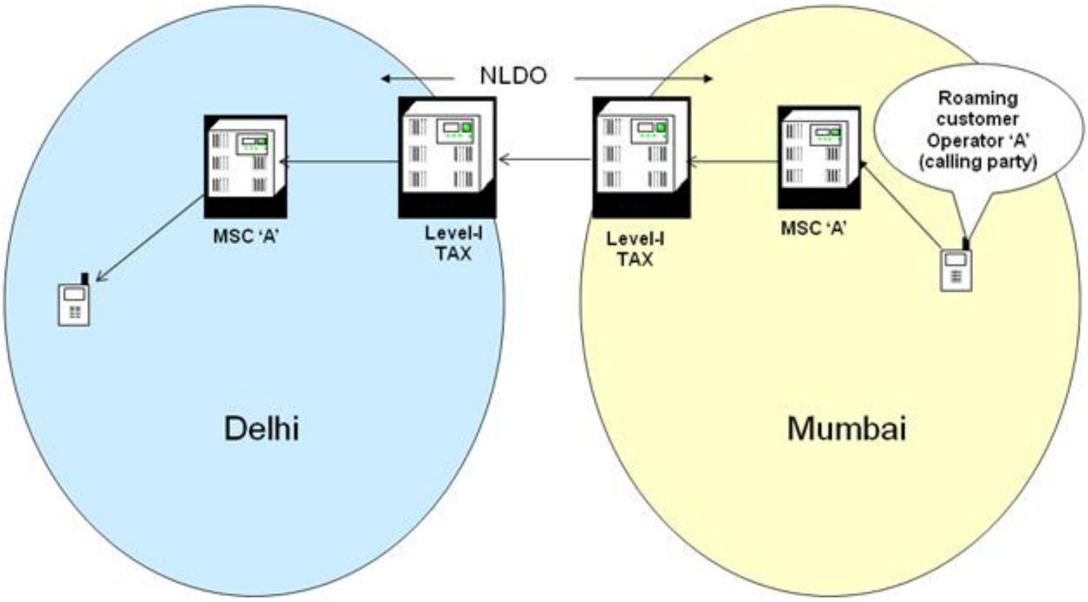


Diagram 1.6
Outgoing Call While Roaming – STD Call (Postpaid)



C- National Roaming Service in India

1.17. As per the existing terms and conditions of the license for access services, it is not mandatory for the mobile operators to enter into roaming arrangements with other mobile operators. As a matter of fact, some of the mobile operators do not have roaming arrangements with other mobile operators. Selection of a different network by the subscriber while roaming will be limited to those mobile operators with whom his home mobile operator has a roaming agreement.

D- Regulatory Regime for Tariff for National Roaming in India

1.18. Section 11(2) of the Telecom Regulatory Authority of India Act, 1997 empowers TRAI to notify rates for various telecommunication services. In exercise of these powers, TRAI has been notifying tariff for telecommunication services including national roaming services.

1.19. The Telecommunication Tariff Order (TTO) notified by TRAI initially in March, 1999 did not prescribe any tariff for national roaming services. This remained under forbearance along with tariff for supplementary telecommunication services and other value added services (VAS).

1.20. In view of the flexibility given to the mobile operators to determine roaming charges, a wide variety of charging patterns were observed by TRAI. It was found that the fixed charges as well as the variable charges levied by the service providers were not uniform and were also substantially high. Comparison of home network tariff and the national roaming tariff revealed that while the charges in home network had declined since notification of TTO in 1999, roaming airtime charges remained at Rs. 10 per minute. With a view to bring down such high roaming tariff as well as to bring in some uniformity, TRAI decided to determine the tariff for national roaming services. Through the Telecommunication Tariff Order (18th Amendment), notified on 30.01.2002, TRAI prescribed ceiling tariff for national roaming. The main features of the TTO (18th Amendment) are given below:

Table 1.1
Main Features of TTO (18th Amendment), 2002

Item	Tariff
Monthly Access Charge	Rs.100 as ceiling
Airtime charge	Rs.3 per minute as ceiling
PSTN charge	As applicable from time to time to the fixed network.
Surcharge	15% as ceiling on airtime component.
Other matters related for Roaming	Forbearance

1.21. The approach of TRAI for regulating the tariff for national roaming service has been to prescribe a ceiling tariff below which the wireless service providers are allowed to charge from their subscribers. These ceilings are arrived at by factoring in various cost-components for providing national roaming service.

1.22. Upon implementation of the regime governing Interconnect Usage Charge (IUC) consisting of termination charge, carriage charge and access deficit charge (ADC) on 29.10.2003, the cost components of national roaming services could be clearly demarcated as below:

(i) **Outgoing Local Call by the Roamer**: Origination charge, termination charge, access deficit charge and incremental cost for provisioning roaming service
(ii) **Outgoing STD Call by the Roamer:** Origination charge, carriage charge, termination charge, access deficit charge and incremental cost for provisioning roaming service
(iii) **Incoming Call to the Roamer:** Carriage charge, termination charge, access deficit charge and incremental cost for provisioning roaming service

1.23. In the year 2006-07, TRAI found that despite intense competition in mobile voice telephony in general, competition did not help in bringing down the roaming tariff. TRAI also took note of the following developments that had taken place during four years since roaming tariffs were fixed in 2002:

(i) Fixation of cost based Interconnection Usage Charges (IUC),
(ii) Periodical review of that regime resulting in reduction of carriage charges
(iii) Change in regime governing Access Deficit Charges (ADC),
(iv) Reduction in the applicable license fee payable by the operators on the Adjusted Gross Revenue (AGR),
(v) Explosive growth of subscriber base and
(vi) Resultant growth in minutes of usage

1.24. The above factors had implications on tariffs for roaming services. In this background, TRAI decided to review the ceiling tariff for roaming services after undertaking a consultation process. Accordingly, roaming tariffs were further revised and restructured through the telecommunication Tariff Order (TTO) - 44th Amendment notified on 24.01.2007. As on date the ceiling tariff for national roaming service prescribed through the TTO (44th Amendment) is in operation. The mobile operators are currently offering tariff for national roaming within the prescribed ceilings. The main features of TTO (44th Amendment) are tabulated below:

Table 1.2
Main Features of TTO (44th Amendment), 2007

Item	Tariff
Monthly Access Charge	Nil
Outgoing local charge	Ceiling of Rs.1.40 per minute
Outgoing STD charge	Ceiling of Rs.2.40 per minute
Incoming calls	Ceiling of Rs.1.75 per minute
Incoming SMS charge	Nil
Other matters related to Roaming	Forbearance

1.25. Cost orientation to the tariff structure, transparency, simplicity and flexibility to mobile operators were the underlying principles that guided TRAI in evolving the framework for roaming tariff mandated through the TTO (44th Amendment). Flexibility was facilitated by continuing to keep the roaming tariffs as a ceiling. The service providers were given the freedom to offer different rates for different slabs of distances and also differential tariffs for roaming in the on-network and off-network i.e. networks of other service providers within the overall ceiling fixed. In this Order, TRAI moved away from the two part charging regime i.e. a monthly fixed charge for access to the roaming facility and airtime charge that depend on usage, to a usage based composite roaming tariff. The determination of ceilings for roaming tariff took into account the following cost components:

(i) All the incremental costs arising out of roaming services covering capital expenditure (CAPEX)

(ii) All the incremental costs arising out of roaming services covering operating expenditure (OPEX) and

(iii) Access Deficit Charges and applicable Interconnect Usage Charges (IUC) i.e. origination charge ,carriage charge and termination charge

1.26. The following objectives were sought to be achieved through TTO (44th Amendment):

(i) Reducing the level of ceiling tariff: The reduction was to the extent of up to 56% of the then prevailing tariff.

(ii) Bringing in simplicity and transparency in charging: This was to be achieved through removal of fixed charges, Public Switched Telephony Network (PSTN) charges and surcharges. The tariff order envisaged a single composite charge which was easy for the subscriber to understand.

1.27. Determination of tariff for roaming services was closely interlinked with the IUC components prescribed by TRAI separately through regulations. While prescribing the ceiling tariff for roaming through the TTO (44th Amendment), the costing components taken into account by TRAI are given in the following Table:

Table 1.3
Cost Components for Fixing Ceiling Tariff
Through TTO (44th Amendment)

Cost Component	Incoming Call (per min.) (in Rs.)	Outgoing Local Call (per min.) (in Rs.)	Outgoing STD Call (per min.) (in Rs.)
Origination Charge	-	0.30	0.30
Carriage Charge	0.65	-	0.65
Termination Charge	0.30	0.30	0.30
ADC	0.05	0.05	0.05
Incremental Cost for Roaming	0.75	0.75	0.75
Total	**1.75**	**1.40**	**2.05**
Ceiling fixed	**1.75**	**1.40**	**2.40***

**Note: Higher ceiling of Rs.2.40 was fixed keeping in view the range of prevalent tariff applicable for the long distance calls from home network. STD charges of Rs.2.40 per minute were prevalent at that time.*

E- Prevailing Tariff for National Roaming Services in the Country

1.28. At present, the rates for national roaming service offered by all mobile operators are below the ceiling tariff specified through the TTO (44th Amendment). The charges levied from roaming subscribers vary from operator to operator and also for different plans offered by the same operator. A brief description of prevailing tariff for national roaming for various call types is given below:

(1) Call Charges while on National Roaming

1.29. Some mobile operators levy different call charges depending on whether the subscriber logs on to their (i.e. the home operator's) own network while roaming or to some other operator's network. In such cases, the charges for own network roaming are comparatively low. The generally prevailing rates currently levied by the operators for national roaming calls in their own network are Re.1 for outgoing local call, Rs.1.50 for outgoing STD call and Re.1 for incoming call. There are other options made available to subscribers where lower national roaming rates are available depending on the plan the subscriber chooses. As regards national roaming in other networks, a few mobile operators have prescribed higher call charges but well within the prescribed ceilings. Such higher rates are attributed to the commercial terms and conditions agreed to by the roaming partners.

1.30. Subscribers widely use special tariff vouchers (STVs) to avail free usage or concessional tariff in their home service areas. However, they cannot avail of such vouchers while on national roaming as the present tariff regime disallows STVs involving an upfront fixed charge for national roaming service.

(2) SMS Charge

1.31. Regarding the prevailing rates for SMS while on national roaming, there is a distinction made by most of the mobile operators in the rates depending on whether the subscriber roams in own network or in the network of other operators. The generally prevailing rates, however, are Rs.1.50 for local and national SMS and Rs.5 for international SMS. There are some mobile operators who levy Rs.3.45 for outgoing local/ national SMS while on national roaming. It is worth mentioning that the TTO (44^{th} Amendment) has not prescribed any ceiling as far as SMS charges are concerned except that the incoming SMS while roaming shall be free.

F- Revenue from Roaming Services in India

1.32. As per the revenue and usage reports received from the service providers for full mobility services (GSM and CDMA) for the quarter ending September, 2012, the roaming revenue (including revenue for outgoing voice calls, incoming calls, SMS and other VAS apart from international roaming) was Rs. 2073.85 crore which constitutes 8.21% of the total revenue from subscribers. As per the information submitted by the telecom service providers to TRAI, about 13% mobile subscribers availed national roaming service during the quarter ending March 2012.

G- International Experience

1.33. National roaming in India has some unique features which distinguish it from other telecom markets. The primary difference is in the geographical division of licensed areas and the multiplicity of operators (different in each licensed area). It is therefore difficult to compare the developments in regulation or changes in roaming tariffs in these markets with the conditions in India. In this section, we would describe the market in the United States of America (USA) and the international roaming regulation in the European Union (EU) to give a sense of the direction in which roaming policies are evolving and how free competition is being ensured. The market regulations in USA protect the interest of the small operators and even the late entrants through roaming regulations. The EU regulatory situation has similarities to the extent that the European nations are also trying to balance international roaming tariff in a multi-operator and multi-licensed area situation.

(1) United States of America (USA)

1.34. In USA, national roaming refers to the ability for a mobile subscriber to move from one mobile operator to another in the same country. For example, a subscriber of T-Mobile USA who is allowed to roam on AT&T Mobility's service would have national roaming rights. For commercial and license reasons, this type of roaming is not allowed unless under very specific circumstances and under regulatory scrutiny. This has often taken place when a new company is assigned a mobile telephony license, to create a more competitive market by allowing the new entrant to offer coverage comparable to that of established operators (by requiring the existing operators to allow roaming while the new entrant has time to build up its own network). Following the merger of Orange UK and T-Mobile UK on 01.07.2010, national roaming has been possible between these two networks since 05.10.2010 at no additional cost pending the technical merging of the two networks[2].

(2) European Union – International Roaming

1.35. The European Union experience involves almost 30 member nation states which are trying to evolve a rationalized roaming tariff structure across Europe. Though the service in consideration is international roaming, there is a lot of similarity with the Indian situation since regulations for a multiple operator, multiple licensing area environment are being designed. The regulations seek to create a social, educational and cultural area based on the mobility of individuals that facilitates communication between people. It also recognizes the need of a rational roaming tariff policy to help develop the internal market. The need of enhanced competition for ensuring consumer protection has been the driving force behind the regulations on roaming in Europe.

[2] http://en.wikipedia.org/wiki/Roaming

1.36. In the year 2006-07, the European Commission examined issues of inadvertent roaming, the effect of the roaming rules on small operators and domestic prices and also the need to extend the rule to SMS and data charges. The Commission's regulations have fixed maximum wholesale charges that apply between any two operators and also the retail charges.

1.37. There have been concerns in Europe on roaming charges for SMS and also 'bill shocks' from exorbitant data charges. As a result of the renewed consultation process in 2008, the maximum price limits were set for SMS on roaming and later, on 01.07.2012, a fresh price cap for end users for Internet roaming was introduced.

1.38. The overall objective in the period 2007-10 included ensuring that the difference between the roaming prices and home tariffs should approach zero by 2015. However, there has not been a consensus on the achievement of this objective and the consultation done in 2010-11 have led to suggestions to the Commission for extending the caps on retail and wholesale prices up to 2016 and 2022 respectively. The European Commission is also considering making structural changes like separation of the service providers for domestic and roaming services to achieve greater choice for the customers from July 2014.

1.39. In this background, the following chapter describes the need of reviewing tariff for national roaming service and attempts to devise a framework for the tariff for national roaming service in a consultative manner.

Chapter – II

Review of Tariff for National Roaming

A- Need for Review of Tariff for National Roaming

2.1. The Telecom Tariff order, 1999 did not prescribe any tariff for national roaming service. The retail tariff for national roaming service charges, then, included a security deposit, one-time charge, airtime charge, PSTN charge and a surcharge. However, in 2002, it was decided to prescribe ceilings on national roaming tariff keeping in view that national roaming tariff was not competitive enough. The regulation of 2002 defined cost based ceilings for tariff on national roaming while some charges were placed under forbearance. Subsequently, the introduction of calling-party-pays (CPP) regime and Interconnect Usage Charge (IUC) regime through the Telecommunication Interconnection Usage Charges Regulations, 2003 made it possible to identify most of the cost elements involved in providing roaming services. Accordingly, the review of tariff for national roaming service carried out in 2006-07 defined reduced ceilings based on revised IUC charges and incremental CAPEX and OPEX for provisioning roaming services.

2.2. Subsequent to issue of the Telecom Tariff (Forty Fourth Amendment) Order, 2007 dated 24th January 2007 prescribing the tariff for national roaming services, the regimes governing some of the cost components which form a part of the national roaming charges have undergone changes. Notably, the Access Deficit Charges (ADC) regime has been phased out through 'The Telecommunication Interconnection Usage Charges (Ninth Amendment) Regulations, 2008' dated the 27th March 2008. Further, the termination charges for local and national long distance voice calls were lowered from Re. 0.30 to Re. 0.20 per minute through the Telecommunication Interconnection Usage Charges (Tenth Amendment) Regulations, 2009. Also, while conducting cost exercises for determination of IUC charges, it has been noticed that the costs of the network elements deployed by the service providers are steadily declining with the passage of time and advancement of technology. The number of subscribers and the minutes of usage have grown exponentially in the last few years. This suggests that the current incremental cost for roaming is likely to be lower than the incremental cost for roaming prevailing in the year 2006-07. In sum, many of the cost components have seen a reduction since 2007 when ceilings for call charges for national roaming services were last prescribed.

2.3. In the light of the above, it is deemed necessary to undertake an exercise to review the framework for tariffs for national roaming. An additional consideration for carrying out this review is to address the objective of 'working towards One Nation - Free Roaming' stated in the National Telecom Policy (NTP)-2012. Aspiration for removal of roaming charges is an aspect of the overall policy thrust towards removal of geographic barriers in licensing and telecom operations to promote free mobility for usage of communications facilities in the country. In 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 and assessing the impacts of any regulatory policy change with a view to ensuring continued orderly operation and growth of the telecom sector.

B- Present Review Exercise

2.4. As a prelude to the review exercise, TRAI, on 26.10.2012, had asked the service providers to provide information on usage, revenue and cost in respect of national roaming service. TRAI's letter in this regard is placed as **Annexure**. Prior to issuing a comprehensive Consultation Paper on review of tariff for national roaming, TRAI sought inputs from stakeholders on the broad framework of tariff for national roaming through a 'Pre-consultation Paper on Review of Tariff for National Roaming' dated 20.12.2012.

C- Issues Raised in the Pre-Consultation Paper

2.5. The issues raised in the Pre-Consultation Paper for the comments the stakeholders were as below:

(i) Should the present cost based approach for determining tariffs for national roaming continue?

(ii) In case your response to issue (i) is in the affirmative, what cost components should be included in the determination of such charges? You may also comment on the information sought by TRAI from the service providers in the proforma placed at Annexure.

(iii) In case your response to issue (i) is in the negative, what should be the alternative approach for determining tariff for national roaming? Please support your view with a detailed methodology.

(iv) In your opinion, should the burden of the cost for the incoming call be removed from the roaming subscriber? If yes, how should this cost be recovered? Would removal of the burden of the cost for the incoming call while roaming lead to an increase in overall call traffic across the country?

(v) In your opinion, if the difference between the tariff while roaming and the tariff in the home network is done away with, how would such an arrangement operate within the framework of the present licensing regime? What are the likely issues that may arise upon its implementation?

(vi) In your opinion, is there a need to prescribe a tariff for video calls while roaming? If your answer is in the affirmative, what methodology should be adopted for calculation of such tariff? In case cost based tariffs are to prescribed, the service providers may kindly provide the cost data and costing methodology to be used.

(vii) In your opinion, should TRAI also prescribe a tariff for SMS while roaming? If your response is in the affirmative, what method of calculation for such tariff should be adopted? In case cost based tariffs are to be prescribed, the service providers may kindly provide the cost data and costing methodology to be adopted.

(viii) In your opinion, would it be appropriate to allow special tariff vouchers for roaming subscribers?

(ix) Is there any other relevant issue related to 'tariff for national roaming' which the Authority should keep in mind while carrying out the proposed comprehensive review of the framework for tariff of national roaming services?

D- Summary of the Comments of Stakeholders on the Pre-Consultation Paper

2.6. On analyzing the comments received from the stakeholders, it appears that there are a variety of views on the major issues. A summary of the comments of the stakeholders is placed below:

(1) Response to Issues (i), (ii) & (iii)

2.7. Many stakeholders have opined that the present cost based approach should continue. On the other hand, some stakeholders have expressed that tariff for roaming services should be kept under forbearance as the market forces are working pretty well in the country; however, if roaming tariffs are to be regulated, the methodology to be adopted by TRAI should ensure a full cost recovery i.e. SMS termination charges, carriage charges for national SMS for receiving SMS while roaming, cost of all involved network elements, increased regulatory cost burden on account of EMF, UCC, MNP etc., CAPEX and OPEX of all network components and IT infrastructure should also be considered in addition to the IUC cost.

2.8. A few stakeholders have suggested that the differential tariff for national roaming services should be eliminated altogether as without free roaming it would not be possible to create a unified nation which transcends artificial boundaries created in telecom licenses.

(2) Response to Issue (iv)

2.9. Many stakeholders have commented that the charge for the incoming call should not be removed; any attempt to remove the same would have serious cost implications and aberrations in the tariff regime as the operators would be forced to re-balance tariffs, which would not be a consumer friendly approach as all subscribers, especially the marginal and rural subscribers, would be impacted; further, it would also have an adverse impact on the relatively smaller operators who do not have a pan-India footprint and are using the roaming services provided by other operators. Some stakeholders have commented that in case the incoming calls while roaming become free, it is likely that a customer of one service area would carry the SIM cards to the other service areas to avoid STD charges and to take advantage of the arbitrage created due to the difference in roaming charge and STD Charge; such a situation may also pose a potential security risk.

2.10. On the other hand, a few stakeholders have commented that the charges for incoming calls while roaming should be abolished as abolition of roaming charges will lead to an increase in the minutes of usage (MOU) and, therefore, the telecom service providers (TSPs) will not feel any adverse revenue impact. One stakeholder has stated that in case free incoming tariff while roaming is implemented, there may be an increase in call rates in the beginning which will normalize subsequently due to competition.

2.11. One stakeholder has commented that the TSPs with pan-India presence should make on-net incoming calls while roaming as free with immediate effect as they do not bear any interconnect fees. For off-net incoming calls and in case of an operator not having spectrum in the roaming area, the calls could be charged based on the cost structure.

(3) Response to Issue (v)

2.12. Many stakeholders have submitted that in case the difference between the tariff while roaming and the tariff in the home network is done away with, the TSPs would be required to spread the cost of roaming over the entire customer base which would result in the ordinary customer who does not roam, paying for the more affluent roaming customers.

2.13. One of the stakeholders has commented that non-pan India operators will be at a further competitive disadvantage and continue to lose market share and in the long term they would have to exit from the market. Another stakeholder has stated that according to the existing terms and conditions of license, it is not mandatory for a telecom service provider to enter into roaming arrangements with other telecom service providers. In the proposed scenario, roaming agreements would become mandatory which would be unfair for the TSPs who do not have all India presence.

2.14. On the other hand, one of the stakeholders has expressed that abolition of roaming charges would actually lead to increase in Minutes of Usage and therefore there would be no adverse impact on the revenue of telecom service providers.

(4) Response to Issue (vi)

2.15. Most of the stakeholders have submitted that the tariff for video calls while roaming should be left for the market forces to decide. They have stated that the adoption rate of 3G Services in India has been slow leading to low levels of network utilization for 3G Services. Thus, the TSPs should be allowed the flexibility (through forbearance) to recover the huge investments made to acquire 3G spectrum while simultaneously ensuring (through market forces) that these services are priced optimally to drive traffic and usage. However, a few stakeholders expressed that a ceiling for the tariff of video calls while roaming should also be set.

(5) Response to Issue (vii)

2.16. Most of the stakeholders have submitted that the tariff for SMS originated/received while roaming should not be regulated. They have further submitted that since the visiting network is not realizing any fixed charges like rental etc. from the temporary subscribers roaming in its network, the usage charges have necessarily to be higher as compared to the charges for the SMS originated in the home network. However, some stakeholders have expressed that there is a need to have a ceiling on tariffs for outgoing SMSs while roaming as the current tariffs on offer by most of the service providers are considerably higher than the marginal cost for providing the service and, therefore, an appropriate ceiling on the tariff for SMS while roaming should be set on the basis of marginal cost.

(6) Response to Issue (viii)

2.17. Many stakeholders have submitted that the TSPs should be allowed to offer special tariff vouchers (STVs) and combo vouchers (CVs) with roaming benefits to their subscribers. However, a few stakeholders have expressed that STVs with roaming benefits should not be permitted as it would further add to on-net/off-net tariff imbalance. A few stakeholders have stated that in case the national roaming tariff is further regulated so that the roaming tariff becomes equivalent to the home tariff, such roaming STVs would cease to have any meaning.

(7) Response to Issue (ix)

2.18. A few of the stakeholders have submitted that a comprehensive review of licensing, legal, technical and routing issues, as well as financial/ cost impact on the operators should be carried out prior to reviewing tariff for national roaming. A few stakeholders have expressed that completely removing the differential between roaming tariffs and home tariffs may have a significant impact on the profitability of new telecom service providers. A stakeholder has submitted that completely doing away with the roaming tariff will not be in the interests of the consumers as it may lead to price rise of services by TSPs.

E- Possible Approaches for Setting Tariff of National Roaming Service

2.19. The primary objective of the Pre-Consultation Paper was to sense the opinion of the stakeholders on the broad framework of tariff for national roaming.

One may clearly visualize the following approaches on tariff for national roaming emerging upon analysis of the comments of the stakeholders,:

(i) Tariff for national roaming service should be under forbearance.

(ii) The tariff for national roaming service should be the same as that in the home service area.

(iii) The ceiling tariff for national roaming service should be reduced in line with the current costs.

(iv) The tariff for incoming calls while on national roaming should be made zero and the costs should be recovered from the tariff of outgoing calls while national roaming.

2.20. The afore-mentioned approaches are examined in the following discussion.

F- 1st Approach: Leaving Tariff for National Roaming Service Under Forbearance

2.21. It is widely acknowledged that a key factor in the growth of the telecom sector in India during the last 13 years has been the policy of forbearance adopted by TRAI in tariff setting. TRAI has generally tried to gauge the extent of competition in the market while deciding whether or not to forbear from setting tariff. Going by this standard, TRAI could consider leaving the tariff for national roaming under forbearance only in case there is evidence that there is sufficient competition in the market for national roaming service in India. This requires a close look at the competitive landscape for the various wireless access services and products.

2.22. It has been observed that the primary factors which an individual mobile subscriber takes into consideration while choosing to subscribe to a particular tariff plan or a particular telecom service provider are:

(i) Tariff offered for calls and SMS in the home service area

(ii) Monthly rental and free minutes/ SMSs etc. (in case of post-paid)

(iii) Reliability of the service

(iv) Customer support

2.23. The monthly expenditure of an individual mobile subscriber is largely determined by the tariff for voice calls and SMS in the home service area as these two services constitute a major portion of his consumption basket. To support this argument, we may look at the composition of revenue earned by GSM access service providers for the quarter ending September 2012:

Table 2.1
Composition of Revenue (%) - GSM Service

Item	% Contribution in Revenue
Rental Revenue	18.96%
Revenue from Calls	51.49%
Revenue from SMS	6.82%
Revenue from Roaming	8.57%
Other Revenues *	14.15%

* Other revenue includes revenue from other value added services, installation etc.

Source: Indian Telecom Services Performance Indicators Report for July - September, 2012 published by TRAI

2.24. It may be seen from the above table that the revenue from calls and SMS made in the home service area constituted 58.31% of the total revenue. On the other hand, revenue from roaming service, which includes both national and international roaming service, constituted only 8.57% of the total revenue. One may assume that the consumption profile of an individual mobile subscriber is likely to be similar to the composition of revenue from GSM service.

2.25. The afore-mentioned illustration supports the anecdotal evidence that tariff for calls and SMS in the home service area are amongst the most important factors that influence an individual mobile subscriber while choosing a tariff plan or a service provider. It may also be inferred that not many mobile subscribers would have national roaming charges foremost in their minds while choosing a service provider.

2.26. Wireless access service can therefore be seen as a bouquet of offerings of services and products which can be classified in the following two broad categories:

(i) **Flagship services**: viz. voice calls and SMSs in the home service area

(ii) **Also-on-offer services**: viz. national roaming service, international roaming service and other value added services

2.27. An individual mobile subscriber carefully examines the tariff offered by various service providers for flagship services before choosing a particular service provider. As a result, the market for flagship services is highly competitive. The same is not equally true for the 'also-on-offer' services which the subscriber receives as a part of the bouquet. Consumers have represented to TRAI in various forums about lack of effective competition in the national roaming services. The empirical evidence also suggests that while the tariff for flagship service has responded actively to the changes in the number of players in the wireless market, the tariff for 'also-on-offer' services has remained relatively unaffected by such changes. Thus there appears to be inadequate competition in national roaming service.

2.28. Another view could be that competition in national roaming service is sufficient in view of the fact that the tariff for national roaming is well below the ceiling tariff prescribed by TRAI. However, one may contend that the tariff for outgoing SMS which was kept under forbearance in TTO (44^{th} Amendment) has not come down to a reasonable level. At present, some service providers charge outgoing local/ national SMS while on national roaming at Rs. 3.45 per SMS.

Issue for Consultation:

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.

G- 2nd Approach: Implementation of Home Price Rule (HPR) in National Roaming Service

2.29. Implementation of Home Price Rule (HPR) in national roaming service implies that the service providers would levy the same tariff for national roaming calls as that applicable in the home service area. As a result, while on national roaming, the incoming calls would become free of charge while the outgoing calls would be charged at the same tariff as that for the outgoing calls made from the home service area. While there are a multiplicity of plans and offers available in the market, the tariff generally prevailing in the home service area is as below:

Table 2.2
Generally Prevailing Tariff in the Home Service Area

S. No.	Call Type	Prevailing Tariff in Home Service Area
1	Outgoing local call	1.2 paisa per second
2	Outgoing STD call	1.5 paisa per second
3	Incoming call	0
4	Outgoing local SMS	Re. 1 per SMS
5	Outgoing national SMS	Rs. 1.50 per SMS

2.30. At present, tariff for national roaming service is regulated through the Telecommunication Tariff Order (TTO) - 44th Amendment, through which the ceilings of tariff for various call types were prescribed on 24.01.2007. However, the prevailing tariff for national roaming service is generally lower than the prescribed ceiling tariff. The following table presents the ceiling tariff for national roaming service prescribed through TTO (44th Amendment) and the tariff generally prevailing for national roaming service:

Table 2.3
Ceiling Tariff Prescribed through TTO (44th Amendment) and Generally Prevailing Tariff for National Roaming Service

S. No.	Call Type	Ceiling Tariff for National Roaming Service Prescribed through TTO (44th Amendment)	Prevailing Tariff for National Roaming Service
1	Outgoing local call	Rs. 1.40 per minute	Re. 1 per minute
2	Outgoing STD call	Rs. 2.40 per minute	Rs. 1.50 per minute
3	Incoming call	Rs. 1.75 per minute	Rs. 1.00 per minute
5	Incoming SMS	Nil	Nil
4	Outgoing SMS	Forbearance	Rs. 1.50 per SMS

2.31. Comparing the two sets of data indicated above, it is evident that there would be a significant decrease in tariff from the present tariff levels if the proposed HPR regime is implemented in the national roaming service. The following table presents the percentage change in tariff in case HPR is implemented in national roaming service:

Table 2.4
Percentage Change in Tariff upon Implementation of HPR w.r.t. the Prevailing Tariff in National Roaming Service

Call Type	Prevailing Tariff for National Roaming Service	Tariff for National Roaming Service in the Proposed HPR Regime	% Decrease in Tariff upon Implementation of HPR Regime
	(a)	(b)	(c)= 100*(a-b)/a
Outgoing local call	Re. 1.00	Re. 0.72 per minute*	28%
Outgoing STD call	Rs. 1.50	Re. 0.90 per minute*	40%
Incoming call	Re. 1.00	0	100%
Outgoing local SMS	Rs. 1.50	Rs. 1.00	33.3%
Outgoing national SMS	Rs. 1.50#	Rs. 1.50	0%

* Tariff in paisa per second as indicated in Table 2.3 above has been converted into Re. per minute.

Tariff for outgoing national SMS varies from Rs. 1.50 to Rs. 3.45 per SMS. However, the generally prevailing tariff is Rs. 1.50 per SMS.

2.32. In order to evaluate the pros and cons of the HPR regime in national roaming, it would be necessary to estimate the impact of implementation of such a regime on the revenues of the wireless access service providers. In the following description, we have attempted to estimate the potential revenue implication to the entire wireless access service segment upon transitioning to HPR regime.

(1) Estimation of Impact of Implementation of HPR in National Roaming Service on Revenues of the Wireless Access Service Segment

2.33. The estimation of impact on revenue upon implementation of HPR for national roaming service has been carried out for the entire wireless access service segment on a national level on the basis of information submitted by service providers to TRAI in the prescribed formats which was sought through TRAI's letter dated 26.10.2012. While this is an overall estimate for all providers at a national level, it is to be understood that implementation of HPR for national roaming service would have different impacts for different service providers, depending on factors such as presence in service areas (pan India or regional), usage profile of subscribers etc.

2.34. Since the service providers collect revenue from outroamers based on applicable tariff rates, the estimation of impact on revenue of wireless access service segment has been carried out accordingly.

2.35. The estimation of impact on annual revenue of wireless access service segment has been carried out in the following steps:

(i) The quarterly revenue from national outroamers under HPR is estimated assuming zero price elasticity of demand i.e. by assuming that HPR in national roaming service will have no impact on the usage pattern of wireless subscribers. It may be denoted by $QR_{pe0.}$

QR_{pe0} is the aggregate of the products of usage of various call types in a quarter with the prevailing tariff for respective call types in home service area as described below:

QR_{pe0} = [Total incoming calls (min) * 0 + Total outgoing local calls (min)*0.72 + Total outgoing STD calls (min) * 0.90 + Total outgoing local SMS (nos.)*1.00 + Total outgoing national SMS (nos.)* 1.50]

(ii) The change in quarterly revenue from national outroamers due to price elasticity of demand as against a situation of zero price elasticity is estimated. It may be denoted by ΔQR_{pe}. This also includes the increase in revenue in the remaining network as a result of increase in incoming calls due to price elasticity of demand as discussed below.

(iii) On the basis of the step (i) and (ii) above, the quarterly revenue from national outroamers under HPR has been estimated. It may be denoted by QR_{pe} where $QR_{pe} = QR_{pe0} + \Delta QR_{pe.}$

(iv) On the basis of the difference between (a) the actual quarterly revenue from national outroamers reported by service providers for a quarter and (b) the estimated quarterly revenue from national outroamers under HPR i.e. QR_{pe}, the impact on quarterly revenue of the wireless access service segment has been estimated.

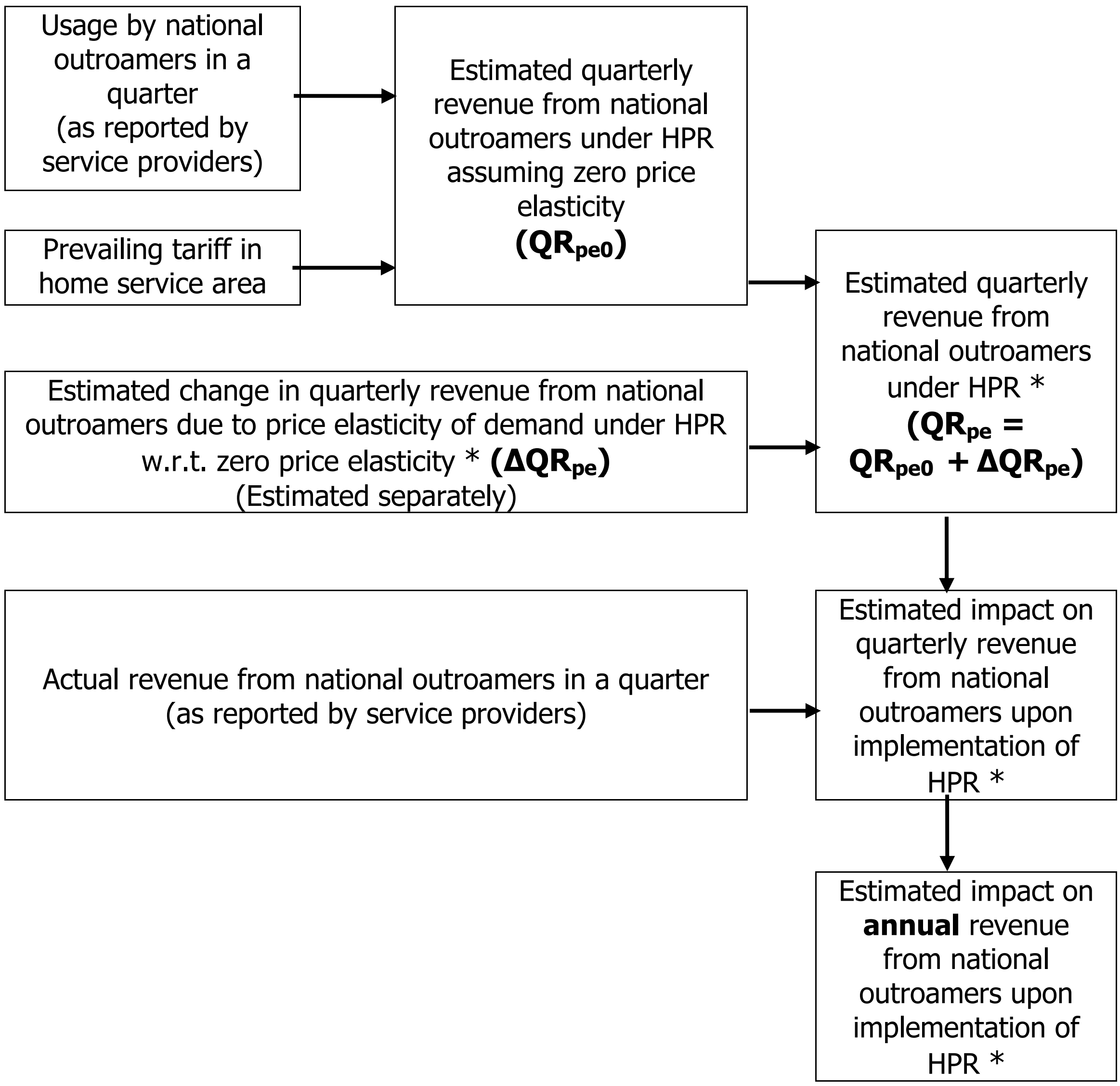
Impact on quarterly revenue from national outroamers

= Actual quarterly revenue from national outroamers *minus* QR_{pe}

(v) The impact on annual revenue of wireless access service segment from national outroamers under HPR has been extrapolated from the impact on quarterly revenue obtained in step (iv)

2.36. The block schematic diagram given below explains the above steps:

Diagram 2.1
Block Schematic for Estimation of Impact on Annual Revenue of Wireless Access Service Segment Upon Implementation of HPR Regime



***** *Including increase in revenue in the remaining network as a result of increase in incoming calls due to price elasticity of demand as discussed below.*

2.37. In order to estimate the change in quarterly revenue due to price elasticity of demand w.r.t. zero price elasticity (**ΔQR_{pe}**), the following steps are involved:

(i) Price elasticity of demand for various call types is estimated.

(ii) Through comparison of the generally prevailing tariff in the home service area with the generally prevailing tariff for national roaming service, % decrease in tariff for each call type is estimated as in Table 2.5 above.

(iii) Using the data from steps (i) and (ii) above, % increase in usage by national outroamers upon implementation of HPR is calculated. For example:

% increase in outgoing local calls by national outroamers

= (% decrease in tariff for outgoing local call) *multiplied by* (price elasticity of demand for outgoing local calls)

(iv) Based on actual usage by the national outroamers in a quarter and estimated % increase in usage by national outroamers, net change in quarterly usage of various call types is estimated. This also includes the change in usage in the remaining network as a result of increase in incoming calls while national roaming due to price elasticity of demand.

(v) Having estimated net change in quarterly usage, change in quarterly revenue from national outroamers due to price elasticity of demand as against a situation of zero price elasticity may be estimated as below:

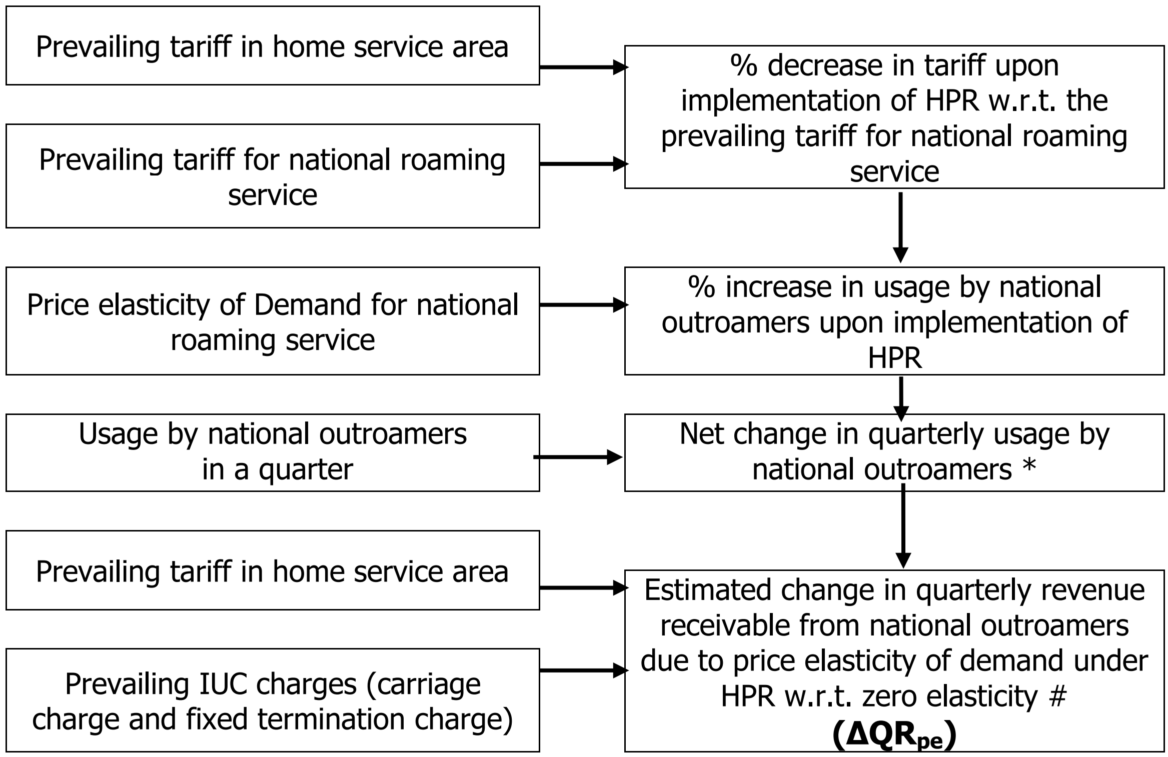
Change in quarterly revenue from national outroamers due to price elasticity of demand w.r.t. zero price elasticity **(ΔQR_{pe}**)

= (Net change in quarterly usage for various call types) *multiplied by* (Generally prevailing tariff in home service area for various call types *less* applicable carriage charge and fixed termination charge)

It may be noted that the carriage charge and fixed termination charge have been deducted from the net revenue of the wireless access service segment because these charges do not remain with this segment.

2.38. The following diagram depicts the block schematic for the above steps:

Diagram 2.2
Block Schematic for Estimation of Change in Revenue of Wireless Access Service Segment due to Price Elasticity of Demand Under HPR Regime



* *Including change in usage in the remaining network as a result of increase in incoming calls while national roaming due to price elasticity of demand*

\# *Including increase in revenue in the remaining network as a result of increase in incoming calls due to price elasticity of demand*

2.39. **Estimation of Price Elasticity**: The price elasticity of demand for national roaming service is not readily available. In order to arrive at an approximation of price elasticity of demand for the present exercise, we have taken into account the pattern of roaming traffic emanating on account of various types of calls in the three clusters of service areas viz. (i) Mumbai and Maharashtra (ii) Kolkata and West Bengal and (iii) UP (East) and UP (West) to compare with the overall national usage pattern. These clusters were selected because the roaming tariff within these areas closely approximates the likely tariff under the HPR regime. For example, when a subscriber of Mumbai service area roams in Maharastra service area, he can receive the incoming calls for free of charge while the tariff for outgoing calls made by him in Maharastra is similar to or slightly higher than the tariff in Mumbai service area. The price elasticity of demand for incoming calls is expected to be higher than the elasticity of demand for outgoing calls and SMS as the most significant increase is likely to occur in the number of incoming calls of national outroamers in case such incoming calls become free of charge. Based on the pattern of traffic observed in the afore-mentioned clusters and in line with expectations, the following price elasticity of demand for various call types have been assumed in the present exercise.

(i) Elasticity for outgoing calls and SMS = 0.33

(ii) Elasticity for incoming calls = 0.5

2.40. **Break-up of Incoming and Outgoing Calls**: As mentioned above, upon implementation of HPR in national roaming service, the most significant increase is likely to occur in the number of incoming calls of national outroamers. For every increase in incoming minute of a national outroamer, there would be a corresponding increase in outgoing minutes generated by wireless access network in the country. This would result in an increase in revenue in the remaining network. For estimation purposes, it has been assumed that upon implementation of HPR, the break-up of incoming minutes for national roaming would be similar to that in the home service area i.e. 95% incoming minutes would be originated from the wireless network and 5% incoming minutes would be originated from the fixed network. Similarly, it is assumed that upon implementation of HPR, the break-up of outgoing minutes while national roaming would be the same as that in the home service area i.e. 80% of outgoing calls would be local while 20% would be national.

2.41. **Fixed Termination Charge**: As per the prevailing Interconnect Usage Charge Regulation, a fixed termination charge (FTC) at the rate of Re. 0.20 per minute is payable on the calls terminating on the fixed network. Presently, of all the local calls and national calls originated from home service area, 1.66% and 0.46% calls terminate on fixed network respectively. Accordingly, for estimation purposes, it has been assumed that 1.66% local calls and 0.46% STD calls originated by national outroamers would be terminated on the fixed network, for which FTC would have to be paid to the fixed telecommunication networks in the country.

2.42. **Carriage Charge**: As a result of price elasticity of demand of national roaming service, there would be an increase in national long distance traffic which would attract carriage charge to be paid to national long distance operators (NLDOs). TRAI has fixed a ceiling of Re. 0.65 per minute for interconnect usage charge for carriage of long distance calls i.e. carriage charge. In practice, such charges differ for different routes. While carriage charge for some extremely busy routes is less than Re. 0.15 per minute, it is above Re. 0.50 for some routes linking remote and hilly areas. In order to estimate the effect of price elasticity on the revenue from various call types, three scenarios have been considered assuming average carriage charge as below:

(i) Carriage Charge = Re. 0.15 per minute (Scenario-1)
(ii) Carriage Charge = Re. 0.30 per minute (Scenario-2)
(iii) Carriage Charge = Re. 0.50 per minute (Scenario-3)

2.43. Based on the above assumptions, the impact on annual revenue of wireless access service providers upon implementation of HPR in national roaming has been assessed on the basis of the usable information received from the service providers and necessary additional extrapolations. Annual change in revenue of NLDOs due to an increase in national long distance traffic upon implementation of national roaming service also has been worked out. These estimations have been summarized below:

Table 2.5
Impact on Annual Revenue of Wireless Access Service Providers Upon Implementation of HPR Regime

Item	Scenario-1	Scenario-2	Scenario-3
	Carriage Charge @Re. 0.15 per minute	Carriage Charge @Re. 0.30 per minute	Carriage Charge @Re. 0.50 per minute
Change in annual revenue of wireless service providers (in Rs. Crore)	-1803	-1980	-2216
Change in annual revenue of NLDOs (in Rs. Crore)	177	354	589
Total change in annual revenue of wireless service providers and NLDOs (in Rs. Crore)	-1627	-1627	-1627

*Estimated figures are based on the usable information received from the service providers and necessary additional extrapolations

2.44. While the gross revenue for the wireless - full mobility service was 1,32,211 Crore in F.Y. 2011-12 with a compounded annual growth rate (CAGR) of about 13.7% in the past two years, the gross revenue for NLD service was Rs. 29,227 Crores in F.Y. 2011-12 with a compounded average annual growth rate (CAGR) of about 26.6% in the past two years. The following table summarizes the gross revenue of wireless access service segment and corresponding impact on revenue upon implementation of HPR regime in national roaming service.

Table 2.6
Impact on Annual Revenue of Wireless Access Service Segment upon Implementation of HPR vis-a-vis Aggregate Annual Revenue

Item	Scenario-1	Scenario-2	Scenario-3
	Carriage Charge @Re. 0.15 per Minute	Carriage Charge @Re. 0.30 per Minute	Carriage Charge @Re. 0.50 per Minute
Gross Revenue of Wireless – Full Mobility Service in F.Y. 2011-12 (in Rs. Crore)	132211		
Change in Annual Revenue of Wireless Service Providers upon Implementation of HPR (in Rs. Crore)	-1803	-1980	-2216
% Change in Annual Revenue of Wireless Service Providers upon Implementation of HPR	-1.36%	-1.50%	-1.68%

2.45. From the above table, it is clear that there would be some impact on the revenues if the HPR regime is implemented. More significantly, service providers who do not have a pan-India presence are likely to be adversely affected. In the service areas where such service providers do not have presence, they would have to depend on other service providers for national roaming service, for which they would have to face market determined inter-operator roaming settlement rates. Therefore, the revenue that remains with non-pan India operators after paying the pass through charges (i.e. the roaming settlement charges and applicable IUC charges) is likely to be relatively lower.

2.46. However, one could argue that the impact on revenue should be looked at in the context of the socio-economic benefits that such a regime would bring to the country. By facilitating communication between citizens, the HPR regime would play its role in fostering nation-wide mobility of individuals and social, cultural and educational integration. As 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. It will facilitate the customers' buying decisions, as a simplified tariff will enable easy comparison.

Issue for Consultation

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.

2.47. As discussed in Chapter-I above, carriage charge is to be paid by the service provider of the roaming subscriber to the national long distance operator (NLDO) who carries the call from the home service area to the visited service area in case of an incoming call to a roaming subscriber. In case HPR is implemented, the incoming calls while on national roaming would be free of charge. Thus one may contend that while the service provider of the roaming subscriber would have to pay carriage charge to the NLDO, he would not collect any charges from the subscriber and thereby the carriage charge payable on incoming calls while on national roaming would remain unrecovered.

2.48. With the above in mind, some stakeholders are of the view that HPR regime for national roaming service would result in non-recovery of carriage charge in case of incoming calls to national outroamer; this would adversely impact the service providers financially and the service providers would like to compensate it by raising the tariff of other services; thus it would lead to a cross subsidization of costs imposed by an affluent roaming subscriber on the other subscribers.

2.49. Some other stakeholders have expressed that in case the incoming calls (while on national roaming) are made free of charge under home price rule, it is likely that the subscribers of one service area would carry the SIM cards to the other service area to avoid STD charges and take advantage of the arbitrage created due to the difference in local call charge and STD call charge; it would lead to a flight of SIMs from one service area to another, causing revenue loss to the service providers and the exchequer apart from posing a potential security threat. In support of this argument, a stakeholder has submitted the following example: A migrant worker in one service area who habitually makes STD calls to his family at his home (another service area) would purchase a SIM card from the service area where he works (with a 'local' service area specific number) and give it to his family. In this case, the calling party will save money by paying for a local call instead of an STD call and the called party would not have to pay to receive the call. As a result, the home network would not be able to recover the costs of carriage on a large number of calls. Thus, he would need to recoup these costs from other services.

2.50. In order to address the issue of non-recovery of carriage charge in HPR regime, a variant of the HPR regime could be envisaged where the incoming calls remain free to the called party but the carriage charge for such calls is paid by the calling party with a view to mitigate the adverse impact on the service providers. The following section describes this variant of the 2nd Approach.

(2) Implementation of Home Price Rule in National Roaming Service with Provision of Recovery of Carriage Charge on Account of Incoming Call from Calling Party

2.51. As per this Approach, Home Price Rule (HPR) should be implemented in national roaming service with a provision that in case of incoming call to the national outroamer, the party calling the roamer would have to bear the cost of carriage i.e. carriage charge.

2.52. It appears necessary to understand the necessary technical arrangements, required for implementing this approach viz.

(i) The calling party is required to be informed that the called party is on national roaming and that he would have to pay a 'pre-defined charge' in case he would like to speak to the called party.

(ii) The afore-mentioned 'pre-defined charge' needs to be quantified.

(iii) An arrangement is to be put in place through which the calling party's service provider pays the 'pre-defined charge' to the called party's service provider who, in turn, pays carriage charge to the NLDO for taking the call from home service area to visited service area.

2.53. The operationalisation of this approach may require a scheme of the following nature to be put in place.

2.54. When a call is made to the national outroamer, the calling party would be provided with an announcement informing him the following:

(i) The called party is on national roaming.

(ii) The calling party would have to pay 'additional charges' in case he wishes to speak to the called party.

2.55. Intuitively, the 'additional charges' would be equivalent to the applicable carriage charge. As per the prevalent Interconnect Usage Charges (IUC) regime, a ceiling of Re. 0.65 per minute has been specified for carriage charge. The service providers would have to specify 'additional charges' in their tariff plans within the ceiling of applicable carriage charges. Such charges may be termed as 'additional call charges per minute/second in case of outgoing call made to a national outroamer'.

2.56. In this case the service provider of the calling party would collect the 'additional charges' from him and pass it on to the service provider of the called party on wholesale basis.

2.57. In order to understand the nuances of this approach, it would be worthwhile to discuss various call scenarios viz.

(i) Calling party and called party are subscribers of the same service provider in same service area.

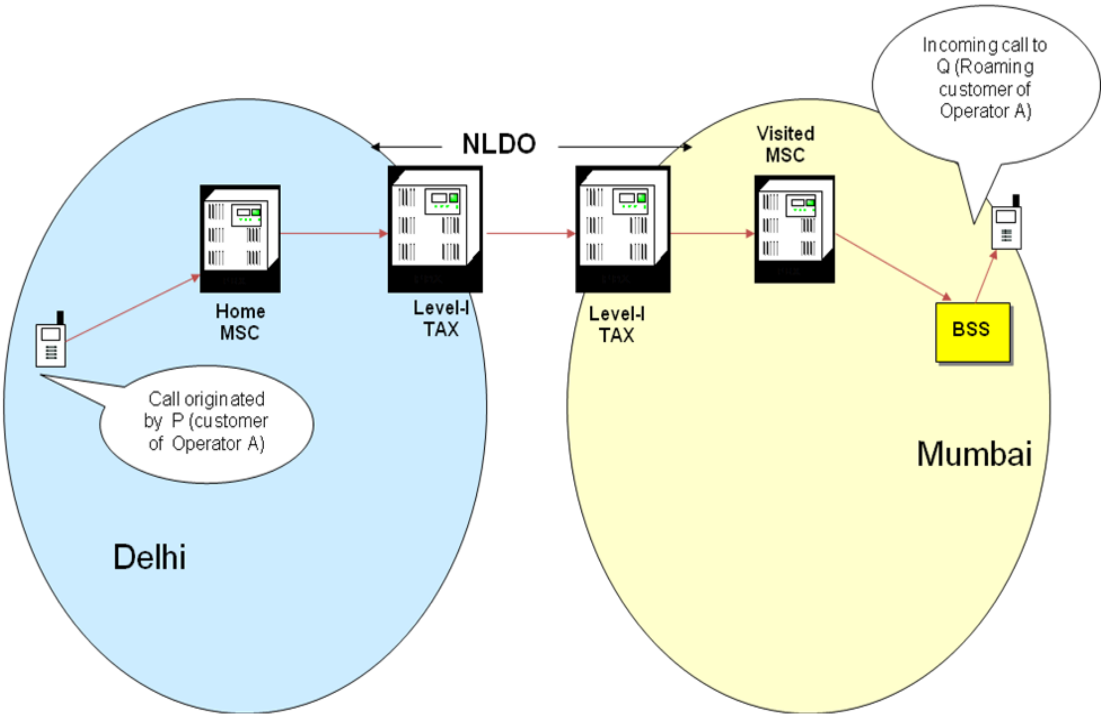
(ii) Calling party and called party are subscribers of different service provider in same service area.

(iii) Calling party and called party are subscribers of different service providers in different service areas within the country.

(iv) Calling party is outside India while called party is within the country.

2.58. **Calling party and called party are subscribers of the same service provider in same service area:** As depicted in the Diagram 2.3 below, both the calling party (P) and the called party (Q) are subscribers of the same operator 'A' in Delhi service area. The called party (Q) is presently roaming in Mumbai service area. When P attempts a call to Q, the operator 'A' (prior to connecting the call to the roaming subscriber Q) sends an interactive voice response (IVR) message to P mentioning that the called party is on national roaming and that P would have to pay for additional charges (already declared tariff in the tariff plan chosen by P) in case he wishes to speak to the called party. The IVR message prompts P to press any key in case he does not wish to speak to the called party. In case P does not press any key within a pre-configured time-period, the call is placed to Q. In this case the operator 'A' collects the additional charges from the calling party (P) for making call to national outroamer.

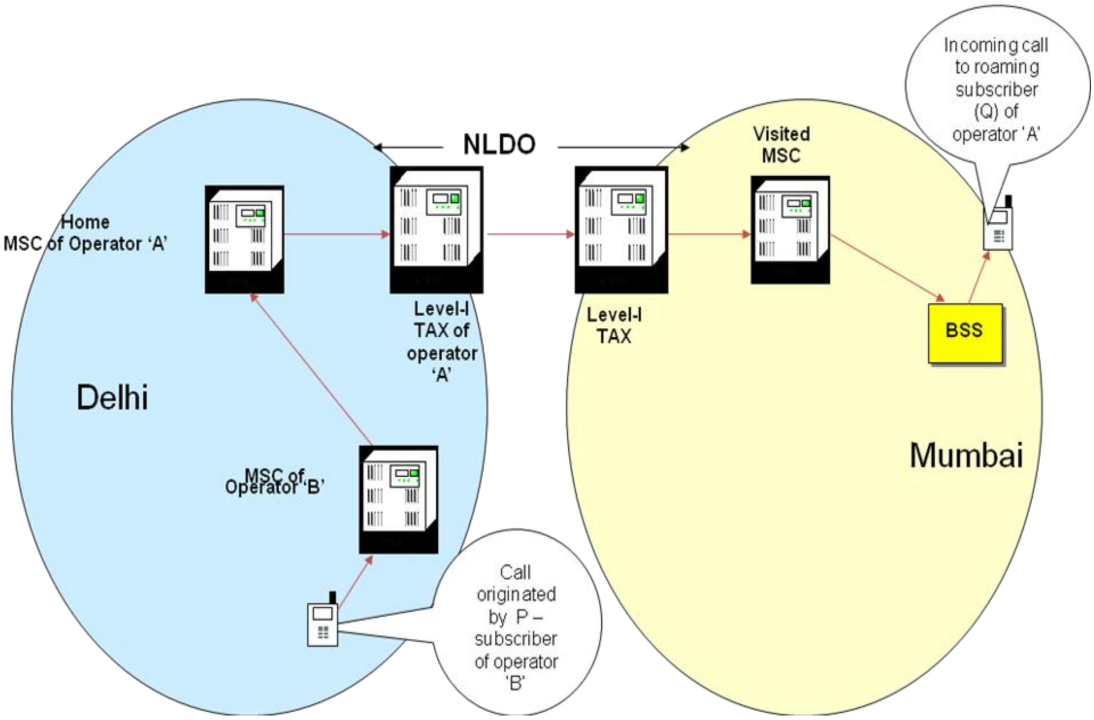
Diagram 2.3
Incoming call to a National Outroamer: Calling Party and Called Party are Subscribers of the Same Service Provider in the Same Service Area



2.59. **Calling party and called party are subscribers of different service providers in the same service area**: As depicted in the Diagram 2.4 below, the calling party (P) is a subscriber of operator 'B' while called party is a subscriber of Operator 'A', both operating in Delhi service area. The called party (Q) is presently roaming in Mumbai service area. When P attempts a call to Q, the operator 'A' sends a message to operator 'B' that the called party is on national roaming. In turn, the operator 'B' (prior to connecting the call to the roaming subscriber Q) sends an interactive voice response (IVR) message to P as discussed in the preceding paragraph. In case P does not press any key within a pre-configured time-period, the call is placed to Q. In this case the operator 'B' collects the additional charges from the calling party (P) for making a call to a national outroamer and then passes it on to the operator 'A' on wholesale basis.

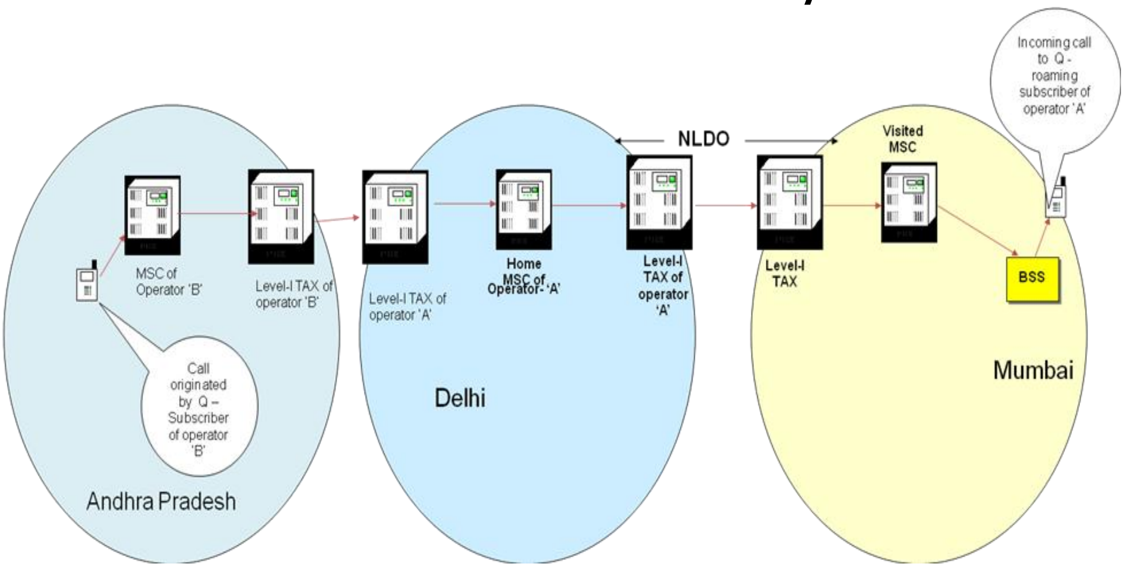
Diagram 2.4

Incoming call to a National Outroamer: Calling Party and Called Party are Subscribers of Different Service Providers in the Same Service Area



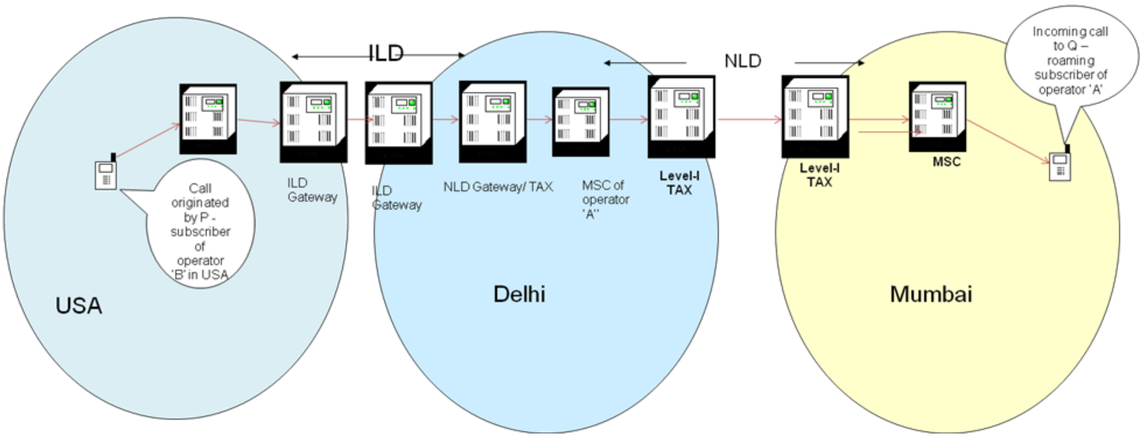
2.60. **Calling party and called party are subscribers of different service providers in different service areas within the country**: As depicted in the Diagram 2.5 below, the calling party (P) is a subscriber of operator 'B' in Andhra Pradesh Service Area while called party is a subscriber of Operator 'A' in Delhi service area. The called party (Q) is presently roaming in Mumbai service area. When P attempts a call to Q, the operator 'A' sends a message to operator 'B' that the called party is on national roaming. In turn, the operator 'B' (prior to connecting the call to the roaming subscriber Q) sends an interactive voice response (IVR) message to P as discussed earlier. In case P does not press any key within a pre-configured time-period, the call is placed to Q. In this case the operator 'B' collects the additional charges from the calling party (P) for making a call to national outroamer and then passes it on to the operator 'A' on wholesale basis.

Diagram 2.5
Incoming call to a national Outroamer: Calling Party and Called Party are Subscribers of Different Service Providers in Different Service Areas within the Country



2.61. **Calling party is outside India while called party is on national roaming:** As depicted in the Diagram 2.6 below, the calling party (P) is a subscriber of operator 'B' in USA while the called party is a subscriber of Operator 'A' in Delhi service area. The called party (Q) is presently roaming in Mumbai service area. When P attempts a call to Q, the operator 'A' analyzes the calling party number and after ascertaining that it is an international number, passes on the call to the roaming subscriber. In this case the cost of carriage i.e. carriage charge on account of incoming call remains unrecovered.

Diagram 2.6
Incoming Call to a National Outroamer: Calling Party is Outside India While Called Party is on National Roaming



2.62. As can be seen from the above illustrations, the cost of carriage i.e. carriage charge in case of incoming call to national outroamer would be recovered from the calling party except in case of call coming from outside the country. As a result, the issues of under-recovery of carriage cost in case of incoming call to national outroamer and thereby the possibility of service providers rebalancing the tariff to recover the cost would not arise.

2.63. However, upon implementation of such a regime, the service providers would have to make suitable provisions in their network for sending IVR messages to the calling party and would also have to make arrangements to settle the 'additional charges' between themselves on wholesale basis.

Issue for Consultation:

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.

H- 3rd Approach: Revision of Ceilings Tariff for National Roaming in Line with the Present Costs

2.64. As discussed in the Chapter-I, the regimes governing several cost components of national roaming charges have undergone changes since issue of the TTO (44th Amendment). The Access Deficit Charges (ADC) regime has been phased out through 'The Telecommunication Interconnection Usage Charges (9th Amendment) Regulations' dated 27.03.2008. The termination charges for local and national long distance voice calls were lowered from Re. 0.30 to Re. 0.20 per minute through the Telecommunication Interconnection Usage Charges (10th Amendment) Regulations, 2009.

2.65. The underlying costs to be recovered by the home service provider of the national outroamer in various call scenarios have already been discussed in the Chapter-I. The following Table presents a summary of the cost components for various call types:

Table 2.7
Cost Components to be Recovered
by the Home Service Provider of the National Outroamer

Call type	Origination Charge	Carriage Charge	Termination Charge	Incremental Cost for Roaming
Incoming Call	-	√	-	√
Outgoing Local Call	√	-	√	√
Outgoing STD Call	√	√	√	√

2.66. The various cost components of national roaming service as per the prevailing regime are as below:

(i) **Termination Charge**: Through the Telecommunication Interconnection Usage Charges (10th Amendment) Regulations, 2009, the termination charge has been fixed as Re. 0.20 per minute.

(ii) **Origination Charge**: In the present regime, the origination charge is under forbearance. However, during the previous exercise of fixing national roaming tariff through TTO (44th Amendment), cost for origination (and therefore origination charge) was considered to be equal to the cost for termination (and therefore termination charge) since the work done by the telecom service provider is the same in both cases. In the present exercise also, we may consider the origination charge as equal to the termination charge i.e. Re. 0.20 per minute.

(iii) **Carriage Charge**: Through the Telecommunication Interconnection Usage Charges (10th Amendment) Regulations, 2009, a ceiling of Re. 0.65 per minute has been imposed on carriage charge.

(iv) **Incremental Cost for Roaming**: Based on the information provided by the wireless access service providers on cost dedicated for national roaming service and usage of resources by in-roamers, preliminary estimates of incremental cost for national roaming have been worked out. As per the assessment, the magnitude of incremental cost for roaming per minute has been found to be lot lesser than Re. 0.75 per minute i.e. the incremental cost for national roaming arrived at during the tariff review exercise conducted by TRAI in 2006-07 prior to issuing TTO (44th Amendment), 2007.

2.67. The ceiling tariff for national roaming services may be estimated on the basis of the afore-mentioned cost components.

Issue for Consultation:

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.

I- 4th Approach: Revision of Ceiling Tariff for National Roaming such that the Tariff for Incoming Calls is Zero and the Cost of Incoming Calls is Recovered from the Outgoing Calls while on National Roaming

2.68. At present, the calling-party-pays (CPP) regime applies in the home service area but not while on national roaming; therefore, the national outroamers pays for receiving the incoming calls. It has been observed that a significant proportion of incoming calls are rejected by outroamers in order to avoid paying for such calls. This is not only a source of inconvenience to the calling party, but also a wastage of work done by the service providers for connecting such calls through their networks, thereby reducing the socio-economic benefits that could potentially accrue out of telecommunication facilities.

2.69. As an alternative approach to prescribing tariff for national roaming, incoming calls while on national roaming could be made free of charge and the cost incurred by the service providers on incoming calls, could be recovered from the outgoing calls while on national roaming. In other words, the ceiling tariff for outgoing calls would also incorporate the cost of incoming calls. In this approach, as in the CPP regime, incoming calls would become free of charge. However, instead of the additional cost of the incoming call being recovered from the calling party, the same would be subsidized by outgoing calls made by national outroamer. In this approach, the same set of subscribers i.e. national outroamers meet the cost of incoming calls while on national roaming (which is free of charge to the subscribers).

2.70. This option for prescribing tariff for national roaming could be implemented either:

(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 costs on account of free incoming calls, from the outgoing calls while on national roaming.

(ii) **Through a Glide Path**: viz. by approaching zero tariff for incoming calls in a phased manner (over a period of say three years) and fixing 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.

Issues for Consultation:

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?

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

J- Other Issues Related to the Framework for Tariff for National Roaming Service

2.71. Through the Telecommunication Tariff Order (TTO)-44th Amendment, 2007, TRAI prescribed the ceilings on tariff for (i) Outgoing local call, (ii) Outgoing STD call and (iii) Incoming call while on national roaming. It also mandated that incoming SMS would be free of charge and there would be no monthly access charge for national roaming service. The other matters related to roaming remained under forbearance.

2.72. Apart from seeking comments on the approach for setting tariff for national roaming service, the stakeholders were requested to comment upon the following other issues through the Pre-Consultation Paper:

(i) Fixing tariff for video calls while on national roaming
(ii) Fixing tariff for outgoing SMS while on national roaming
(iii) Allowing special tariff vouchers for national roaming

2.73. The afore-mentioned issues are being raised once again to seek a comprehensive view from the stakeholders:

(1) Fixing tariff for video calls while on national roaming

2.74. The tariff for video calls was not prescribed through TTO (44^{th} Amendment), 2007. In response to the Pre-Consultation paper, the stakeholders appear to be in near consensus on the question of leaving the tariff for video calls while on national roaming under forbearance in view of the fact that these services are still in a nascent stage.

2.75. The growth of video calling is closely linked with the availability and affordability of 'video enabled' mobile handsets. Further, video calling has not picked up because not many people like to be on camera during telephonic conversations. Apparently, both technical and societal reasons are responsible for the slow growth of the video services.

2.76. It is understood that the 'work done' in case of video calls is relatively greater than that for voice calls. However, the generally prevailing tariff for video calls is comparable to that for voice calls in the home service area.

2.77. Thus the following facts regarding video calls can be brought on record:

(i) Video calls are in an early stage of growth.

(ii) Video calls are premium services in the sense that these are not consumed by the masses.

(iii) Such calls are being offered at reasonable tariff in the marketplace.

2.78. In view of the above facts, there would appear to be no need for prescribing the tariff for video calls while on national roaming.

Issue for Consultation:

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

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.

(2) Fixing Tariff for Outgoing SMS While on National Roaming

2.79. As per the TTO (44th amendment), 2007, the incoming SMS while on national roaming are free of charge while the outgoing SMS while on national roaming are under forbearance. In response to the Pre-Consultation Paper, some stakeholders have expressed a need to prescribe ceiling tariff on outgoing SMS as the current tariff on offer for outgoing SMS is considerably higher than the marginal cost for providing the service.

2.80. National outroamers widely use SMS for communicating while on national roaming. As per the information submitted by the service providers, about 28 crore SMSs are sent by national outroamers in a month. It is understood that the 'work done' for an outgoing SMS by the service providers is relatively little compared to the 'work done' for a voice call. However, it has been observed that some service providers charge a higher tariff for SMS while on national roaming than for voice calls while on national roaming.

2.81. The SMS originated by the roaming subscriber is first sent to the Short Message Service Center (SMSC) of the home network from where it is sent to the recipient as in the case of SMS from home service area. Thus the work done by the service provider in the case of an outgoing SMS while on national roaming is by and large the same as the work done in the case of an outgoing SMS originated from the home service area.

2.82. In view of the above facts, it appears to 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.

Issue for Consultation:

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?

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.

(3) Allowing Special Tariff Vouchers for National Roaming

2.83. As per the TTO (44th Amendment), 2007, the service providers are not allowed to charge any monthly access charge for national roaming service. In accordance to TTO (44th Amendment), the service providers cannot offer special tariff vouchers (STVs) for national roaming service as STVs provide tariff benefits in lieu of a fixed charge.

2.84. In response to the Pre-Consultation Paper, most of the stakeholders have expressed a need for allowing the service providers to offer STVs for national roaming service. It is generally argued that in case STVs for national roaming service are not allowed, these services would continue to remain less competitive than the home tariff.

2.85. It has been observed that the STVs for home tariff have allowed both flexibility and convenience to the subscribers. Availability of a wide range of STVs allows the subscriber to buy tailor-made tariff for any occasion and thus gives him an opportunity to minimize his bill and maximize the benefits. It can also bring in a particular call type into the competitive arena, making it a commodity which is fiercely contested by all the service providers in the marketplace.

2.86. The STVs designed for national roaming service have a potential to bring competitiveness in the tariff in any of the proposed approaches to regulate the national roaming tariff. It can be an effective tariff tool under forbearance, home tariff rule or a revised ceiling regime. The STVs designed for national roaming service would be able to take care of the short term needs of roamers and would also allow more choices.

2.87. In view of the above, it appears that STVs have a potential to make national roaming service more competitive and affordable to the subscribers. However, some stakeholders have cautioned against the move as they are of the view that that STVs with roaming benefits will further add to the on-net/ off-net tariff imbalance.

Issue for Consultation:

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

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

K – Any Other Issue Related to National Roaming Service

Issue for Consultation:

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

2.88. The following chapter lists the issues for consultation.

Chapter-III
Issues for Consultation

It may please be noted that answers/ comments to the issues given below should be supported with justification. Stakeholders may also comment on any other issues related to 'Review of Tariff for National Roaming', along with all necessary details.

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.

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.

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.

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.

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?

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

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

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.

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?

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.

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

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

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

List of Acronyms

S. No.	Acronym	Description
1	3G	Third Generation
2	ADC	Access Deficit Charge
3	AGR	Adjusted Gross Revenue
4	CAGR	Compounded Annual Growth Rate
5	CAPEX	Capital Expenditure
6	CDMA	Code Division Multiple Access
7	CIBER	Cellular Intercarrier Billing Exchange Record
8	CPP	Calling Party Pays
9	CV	Combo Voucher
10	EMF	Electro-Magnetic Field
11	EU	European Union
12	FTC	Fixed Termination Charge
13	GSM	Global System for Mobile Communication
14	HLR	Home location Register
15	HPR	Home Price Rule
16	ILD	International Long Distance
17	IUC	Interconnect Usage Charge
18	IVR	Interactive Voice Response
19	LSA	Licensed Service Area
20	MNP	Mobile Number portability
21	MOU	Minutes of Usage
22	NLD	National Long Distance
23	NLDO	National Long Distance Operator
24	NTP	National Telecom Policy
25	OPEX	Operating Expenditure
26	PE	Price Elasticity (of Demand)
27	PSTN	Public Switched Telephone Network
28	QE	Quarter Ending
29	QR	Quarterly Revenue
30	SIM	Subscriber Identity Module
31	SMS	Short Message Service
32	SMSC	Short Message Service Center
33	STD	Subscriber Trunk Dialling
34	STV	Special Tariff Voucher
35	TAP	Transferred Account procedure
36	TAX	Trunk Automatic Exchange

S. No.	Acronym	Description
37	TRAI	Telecom Regulatory Authority of India
38	TSP	Telecom Service provider
39	TTO	Telecommunication Tariff Order
40	UCC	Unsolicited Commercial Communication
41	VAS	Value Added Service
42	VLR	Visited Location Register

Annexure

सत्यमेव जयते

भारतीय दूरसंचार विनियामक प्राधिकरण
महानगर दूरसंचार भवन, जवाहर लाल नेहरू मार्ग,
(पुराना मिन्टो रोड), नई दिल्ली-110002

TELECOM REGULATORY AUTHORITY OF INDIA
Mahanagar Doorsanchar Bhawan, Jawahar Lal Nehru Marg.
(Old Minto Road), New Delhi-110002
Fax : 91-11-23213294

No.: 301-10/2012-ER

Date: 26.10.2012

To,

All Wireless Telecom Service providers

Sub.: Calling for information in respect of national roaming services

The Authority is in the process of reviewing the tariffs for national roaming, which were specified in the year 2007. Towards, this, the Authority calls upon all the wireless telecom service providers to furnish information on cost, revenue and usage in respect of national roaming service under Section 12(1) of the Telecom Regulatory Authority of India Act, 1997.

2. In this regard, you are required to provide information on usage, revenue and cost in respect of national roaming service as per **Annexure-I** and **Annexure-II** enclosed herewith. The call routing diagrams for incoming, outgoing-local and outgoing-national calls while national roaming, applicable to your network, should also be provided along with illustrations and examples.

3. Please ensure that the afore-mentioned information reaches TRAI positively by the closing hours of the 10.11.2012. The soft copy of the information may also be e-mailed at raj.pal@nic.in.

Encl.: As above

(Raj Pal)
Advisor (F&EA)

Copy to:
1. COAI
2. AUSPI

Annexure-I

Information on Usage and Revenue in respect of National Roaming service

(separate sheets for each service area and technology)

Name of the Wireless Service Provider	
Name of the Service Area	
Technology (GSM/CDMA)	
Period	**Quarter ending March 2012**

S.No	**Item**			
1	**Subscribers**	**Jan-12**	**Feb-12**	**Mar-12**
1.1	No. of Subscribers - opening (as on beginning of the month)			
1.2	No. of Subscribers - closing (as on last day of the month)			
1.3	No. of national out-roamers during the month (An out-roamer who went out of the service area several times during the month should be counted only once.)			
1.4	No. of national in-roamers during the month (An in-roamer who came in the service area several times during the month should be counted only once.)			
2	**Usage by home subscribers in home service area**			
2.1	No. of incoming minutes			
2.3	No. of outgoing local minutes			
2.4	No. of outgoing STD minutes			
2.5	No. of outgoing ISD minutes			
2.6	No. of outgoing SMS			
3	**Usage by national outroamers**			
3.1	No. of incoming minutes			
3.2	No. of outgoing local minutes			
3.3	No. of outgoing STD minutes			
3.4	No. of outgoing ISD minutes			
3.5	No. of outgoing SMS			
4	**Usage by national inroamers**			
4.1	No. of incoming minutes			
4.2	No. of outgoing local minutes			
4.3	No. of outgoing STD minutes			
4.4	No. of outgoing ISD minutes			
4.5	No. of outgoing SMS			
5	**Revenue from national out-roamers**			
5.1	Gross Revenue from national out-roamers (in Rs.)			
5.2	Pass through charges			
5.3	Net revenue from national out-roamers (= item 5.1 minus item 5.2) (in Rs.)			
6	**Revenue from national in-roamers**			
6.1	Gross Revenue from national in-roamers (in Rs.)			
6.2	Pass through charges			
6.3	Net revenue from national in-roamers (=item 6.1 *minus* item 6.2) (in Rs.)			
7	**Roaming settlement rates (in Rs./minute) with other operators (Please enclose AA14 document)**			
7.1	For incoming call			
7.2	For outgoing local call			
7.3	For outgoing STD Call			
7.4	For outgoing ISD Call			
7.5	For outgoing SMS			
7.6	Any other type of call (please specify)			
8	**Average period of roaming by an out-roamer during the period (in minutes)**			
9	**Average period of roaming by an in-roamer during the period (in minutes)**			

Annexure-II

Information on CAPEX and OPEX Costs for providing National Roaming service

(separate sheets for each service area and technology)

Name of the Wireless Service Provider	
Name of service Area	
Technology (GSM/CDMA)	
Period	**F.Y. 2011-12**

A CAPEX Costs as on 31.03.2012

S.No	Item	CAPEX Cost (in Rs.)	Useful life (in years)
1	Additional equipment/ application in billing system to support roaming service		
2	Connectivity resources e.g. routers, modems etc. (Please give details)		
3	Additional application in the MSC, if any, on account of national roaming service		
4	Other costs attributable to national roaming service, if any (Please give details)		

B Annual OPEX Cost for F.Y. 2011-12

S.No	Item	Amount (in Rs.)
1	Annual cost of leased Lines for transfering TAP files	
2	Annual cost payable to clearing House for validation of TAP files	
3	Annual cost for financial clearing and Fraud management	
4	Other costs attributable to national roaming service, if any (Please give details)	

C Licence fee and Spectrum Fee in F.Y. 2011-12

S.No	Item	Amount
1	Applicable licence fee (%age) (please indicate as a % of AGR)	
2	AGR for the purpose of calculation of licence fee for F.Y. 2011-12 (in Rs.)	
3	Applicable Spectrum fee (%age) (please indicate as a % of AGR)	
4	AGR for the purpose of calculation of spectrum fee for F.Y. 2011-12 (in Rs.)	