TCL/RA/TRAI-CP/2010/12

January 20, 2011

Advisor (I&FN)
Telecom Regulatory Authority of India,
Mahanagar Doorsanchar Bhawan,
Jawahar Lal Nehru Marg,
New Delhi – 110002

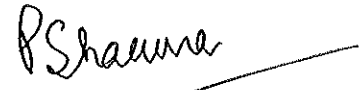
Sub: **Response to the Pre-Consultation Paper on Review of Interconnection Usage Charges dated 24th Dec'2010**

Ref: **TRAI letter No.409-9/2010-I&FN dated 24th December, 2010**

Dear Sir,

Kindly find enclosed herewith the Tata Communications Ltd. response on the Pre-Consultation Paper on Review of Interconnection Usage Charges for your consideration and perusal please.

With kind regards,
For Tata Communications Ltd.



(Praveen Sharma)
Head – Corporate Regulatory

Encl: a/a.

TATA COMMUNICATIONS
TATA Communications Ltd.
VSB Bangla Sahib Road New Delhi 110001 India
Tel +91 11 66501111 66501234 Fax 91 11 66501140
Regd office: VSB, Mahatma Gandhi Road, Fort, Mumbai 400 001 India

TCL Response to the Pre-Consultation Paper on Review of Interconnection Usage Charges

Since the inception, the IUC regime has been a major factor in developing a working commercial model to address various issues in a multi-operator multi network environment. At the time of implementation of the first IUC in Jan 2003 the need was to specify an IUC regime which gives greater certainty to the Inter-operator settlements and facilitates interconnection agreements. Thus cost based Interconnection Usage Charges (IUC) for origination; transit and termination in a Multi-Operator environment were the need of the day. We would like to commend the approach adopted by the Authority since the inception of the regulation which has resulted in a generating a neutral and sustainable business environment in the Telecom Industry. It has been more than five years since the first IUC regulation however; the considerations for evaluating the interconnection regime continue to be the same.

We would like to present the following aspects which have been highlighted in various forms during this period of Telecom growth since the time of implementation of IUC regime:

- Priority to provide affordable communications to the Indian Masses
- Need to provide a litigation free and simple interconnection regime
- Need to ensure sustenance of all competing operators to ensure sufficient level of competition and avoid monopolistic situation in the telecom market
- Be proactive and flexible to assimilate future growth scenarios and technological advancement
- To avoid situation of Vertical Squeeze by any of the Operators and provide level playing field to all operators

The current review should take cognizance of all the above factors to arrive at a refined regime which can act in a way similar to the earlier regime and facilitate assimilation of all relevant aspects including if required taking steps to propose changes in policies.

Keeping in view the above we shall like to submit our response to the various issues and questions raised in the consultation paper as follows:

QUESTION

(i) What should be framework of interconnection Usage Charges that meets the requirement of today as well as takes care of future developments like deployment of Wi-Max, High Speed Packet Access (HSPA), Fixed Convergence (FMC) and Next Generation Network (NGN).

TCL RESPONSE:

The Framework for interconnection usage charges must be based on the principle of "work done", wherein cost of each un-bundled network element used for carriage of calls is considered for arriving at the applicable Interconnection Usage costs and sharing of such costs between operators involved in carriage of the calls. This Framework was rightly adopted in the Regulation on Reference Interconnect Offer (RIO) and consistently adopted since the first IUC Regulation dated 24th Jan 2003.

In this context we would like to reproduce the observations made by the Authority in IUC Regulation dated 24th Jan 2003:

"IUC has to be determined based on minutes of usage for various Unbundled Network Elements and the cost of these elements. As brought out in the Reference Interconnect Offer (RIO), the IUCs for Origination, Transit and Termination are based on the principles of element based charging i.e. one operator charging the other for the resources consumed for carriage of its calls in terms of minutes of use (MOU)."

While the framework adopted for determining the Interconnect Usage Charges since IUC Regulation dated 24th Jan 2003 is fair and equitable, there is a need for comprehensive review of the calculation of Interconnection Usage Charges since the Costs have not been reviewed by the Authority since the year 2003.

The Costs considered at the time of IUC Regulation dated 24th Jan 2003 were largely based on the Balance Sheet (Year 2001-02) of BSNL, the main significant operator at that time. Using this Top down approach together with certain other information provided by BSNL, the Authority considered the Capex, Depreciation and Opex costs of BSNL and allocated it to different parts of the network in the same ratio as BSNL had done in its RIO. The data of MOUs was then considered to arrive at a Cost Per Minute for various unbundled Network elements.

It is important to note that BSNL provided Basic and NLD services covering about 38 million subscribers through Basic Service Network at that time and the private sector operators were yet to roll out completely. The consumer base of Cellular Mobile operators in March 2003 was only 13 million subscribers. Taking both the Origination and Termination amount to be equal, the Authority calculated the total per minute charge that covered BSNL costs and provided for ADC. Both Origination and Termination IUCs were computed to be identical assuming near-end handover in the LDCA in which the call originated and a far-end handover in the destination LDCA. As for the Mobile Termination Charges (MTC), the Authority arrived at a cost of termination for cellular mobile as Rs.0.30 per minute in Cellular Metro and Rs.0.40 per min in Circle areas. These Costs were based on Opex data of 25 Circle/Metro Cellular Operators from their audited annual reports.

Evidently, there is a sea change in the telecom market since that time and the calculation of IUC requires a comprehensive review of IUC that meets the requirements of today as well as future developments.

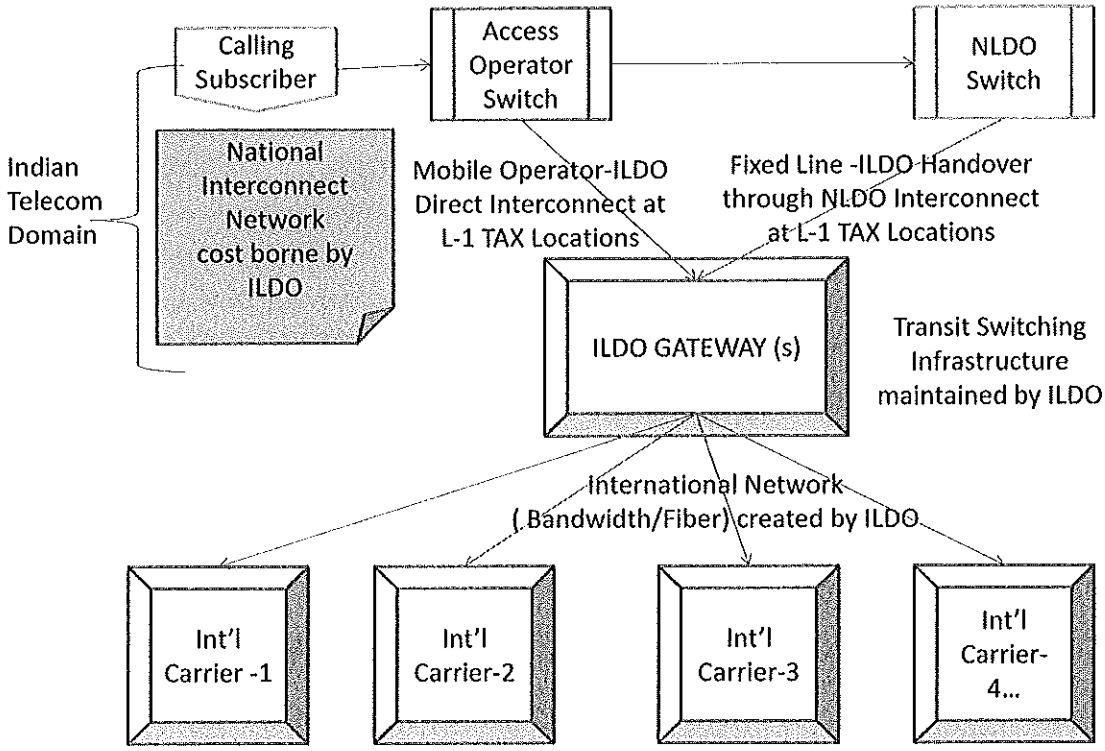
As also noted by the Authority in IUC Regulation dated 29th October, 2003, for costing purposes, several countries have used Forward Looking Long Run Incremental Costs (FLLRIC) instead of Historical Average Costs that were considered in the earlier Regulation dated 24th January, 2003. In fact, the Authority also noted in the IUC regulation dated 29th October, 2010 that

"the difference between Historical Costs and Forward Looking Costs would be large and relying on costs based on modern and forward looking technologies would imply a large burden from the stranded costs for BSNL. While the Authority feels that change over to FLLRIC model is imperative, it examined the implications of a sudden changeover against a gradual changeover.....In short, the approach is to achieve full shift to FLLRIC Cost in a gradual manner over a few years rather than a single year change"

Thus, we recommend a FLLRIC model for review of all components of IUC at this stage.
Besides review of calculation of IUC components, the components themselves need to be reviewed. There is a strong case for considering International Carriage & switching by ILDOs as a component of IUC. In this context it is pertinent to look at network and infrastructure that the ILDOs need for ensuring ILD call completion.

The call flow in case of International Calling needs to be taken into account to determine the "work done" by the various entities involved. A simplistic block diagram is presented below to provide details of the call flow in case of ILD Outbound and ILD incoming calls:

Figure 1: Call Flow and provision of network by ILDOs for carriage of ISD calls from India to the world

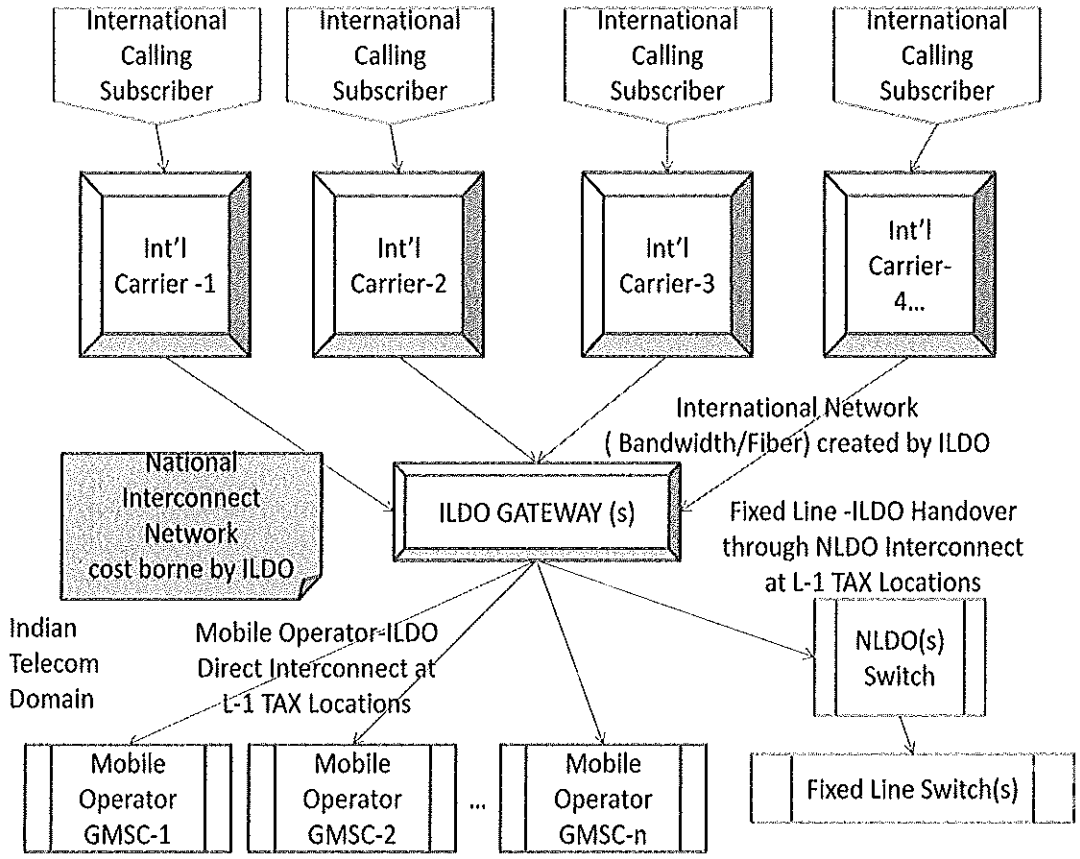


Multiple Interconnects with International Carriers maintained by ILDOs to ensure call completion to all destinations across the world

ILDOs carriage of outgoing ISD calls from India involves:

1. Picking up calls from GMSC POIs from all 23 circles (for interconnections at L-1 TAX locations with Mobile Operators) ,
2. Backhauling the calls to its ILD Gateway switch across the country (in some cases involves carriage over 500 Km across the country),
3. Switching of calls at its ILD Gateway to the correct International Carrier,
4. Implementation of Optimal Routing on ILD Gateway based on different foreign carriers offering different Costs & capacities for calls to various destinations. The routing of ILD calls is much more complex than domestic call routing since it entails arrangements with multiple operators for each country of termination and handling of complex numbering plans for each country. This requires sizable investments and operations costs in managing ILD outbound traffic and delivering an optimal cost for terminating the calls. Indian customers making international calls benefit from the lower costs and good quality of service achieved through such routing optimization systems deployed by the ILDOs.
5. Carriage of calls through a International network created through submarine/satellite capacity to interconnect international carriers across the world. Costs of building redundancies and scalable networks need to be factored in.
6. Handover of calls at designated locations to the international carriers. This involves payments of transit charges, co-location charges and exchange rate variations which impact the costs of the ILDO.

Figure 2: Call Flow and provision of network by ILDOs for carriage of incoming ILD calls from international carriers to India.



Termination of Incoming calls by ILDOs involves:

1. Pickup of calls from International Carriers through the global interconnections created with multiple International Carriers and different point of presence outside India.
2. Carriage of calls from International locations to ILD Gateway in India on submarine capacity/satellite capacity. There are associated costs of providing redundancies and scalability of the network deployed to cater to this traffic. Both Voice and Signaling traffic requires investments by the ILDOs.
3. Switching of calls at the ILD gateway to the correct mobile/fixed line network
4. In case of MNP dipping into the MNP database to resolve actual mobile network where the call needs to be terminated for ported numbers.
5. Carriage of calls to designated point of handover to either a Mobile Operator GMSC(at L-1 TAX location interconnects) or to the NLDO designated transit switch for fixed terminations
6. Handover of calls at the designated point of handover.

In addition to the above, ILDOs need to significantly invest in the following infrastructure/assets to manage the routing/billing/settlement of calls:

1. International SS7 interconnects to manage signaling
2. Routing systems to manage complex routing. International routing involves managing multiple country number plans and ILDO switches need the capability to route at a granularity of country-operator-addressable codes. For e.g. in case of calls to United Kingdom, the ILDO switches need to resolve apart from country codes the actual network (e.g. UK Vodafone, UK O2, UK Orange, etc), the codes being supported /active with

these networks (e.g. +44 7XX YYY), cost of terminations to these codes at various hours in a day, cost of termination to these codes on various days of the week.

3. Billing systems to manage
    a. National Interconnect billing (Indian Interconnects for ILDOs means average 7-8 mobile operator interconnects per circle)
    b. International interconnect billing which include various mechanism of settlements e.g. Billing based on invoices, billing and settlement based on declarations of traffic.
    c. Multiple billing cycles with various international carriers
    d. Multiple currencies with various international carriers and manage exchange rate risks
4. QoS Monitoring systems to ensure
    a. Standard Quality of service for international calls
    b. End – end measurements of QOS
    c. Near Real time network monitoring parameters
5. Settlements with multiple carrier including reconciliation and dispute resolution
6. Bad debts, legal costs to settle disputes or make collections from carriers outside India.
7. MNP NPDB database systems to manage correct routing of traffic for ported numbers not only for India calls but even for international destinations where number portability has been implemented
8. Extensive expenses to ensure restoration of network in case of transmission outages of submarine capacities.
9. 24X7 network operations support for trouble shooting.
10. Monitoring systems to comply with the regulatory directives issued by DoT and the Authority

It may clearly be seen that in case of ILD calls carriage both from India to the world as well as ILD incoming calls to India, ILDOs play an extremely significant role to ensure call completion. However, it may be seen that the current market situation is making it unviable for ILDOs to sustain the ILD business. Especially in case of ILD Incoming calls due to cut throat competition in this segment, the settlement rates to India have dropped to unsustainable levels. This has been brought out in multiple submissions made by Indian operators in the past. It may be seen that while the regulations have ensured that the access operators are compensated duly (and in case of the latest regulations currently applicable allowing Rs 0.40/min of termination charges more than the due share) against the actual cost of network /work done for completion of these calls, the ILDOs have been bearing the brunt of reduction of costs both on the outbound traffic and the inbound traffic. While currently the cost of termination to India for an ILDO is Rs 0.40/min i.e ~ 0.9 US cents, the market price for India termination being offered by some carriers is as low as 1 US cents which leaves a meager margin of only 0.1 US cents (~ 4.5 paisa) for ILDOs. Similar is the case with ILD Outgoing, while the consumer still continues to pay as high as Rs 4/min for destinations like USA, the share of margin for ILDOs in the traffic is not more than 0.1 cents (~ 4.5 paisa). The margins being made by ILDOs are not even sufficient to cover the cost of bandwidth being maintained by the ILDOs for carriage of calls leave aside getting a reasonable return on their investments.

The current situation is not conducive for ILDOs to continue business and is detrimental to free competition to be maintained in India market. Not only it impacts the ability of stand along ILDOs to earn sustainable revenues, it impacts their ability to service the requirements of making the International telecommunications affordable to Indian consumers.

It is extremely pertinent to address this issue at a regulatory level and ensure ILDOs are compensated duly for the work done by the ILDOs. We accordingly suggest thatLDO carriage charge payable to ILDOs to be included as mandatory component in IUC.

In view of the above we submit:

1. Forbearance in International termination rates payable by access operators to ILDOs should continue
2. A new component of ILDO carriage charge of Rs 0.25/min as a floor or as determined during costing exercise should be included in the IUC Regime to compensate for cost of carriage involved in carrying international calls to and from various international destinations.
3. All Settlement rates to International Carrier should be a sum of ILDO carriage charges (floor of Rs 0.25/min) and prescribed termination charges payable to mobile operators (which should be cost based i.e. Rs 0.20/min or as determined by the Authority through its review of cost of termination) along with NLD carriage component as applicable.
4. Over and above the negotiated termination rates for ILD Outbound calls being transited through ILD switches, a minimum transit charge of Rs 0.15/min should be payable by access operators to ILDOs to compensate for the deployment of complex routing systems for management of International Call routing at the ILDO Gateway.

Development of new technologies like WiMAX and HSPA would primarily be drivers for data usage and broadband access in the coming years. In the current context of current regulations, IP calls are not allowed to be directly terminated on to PSTN/PLMN networks except if the call is made to International destinations. Hence, there at this stage, the review of IUC Costs need not be evaluated in relation to WiMAX and HSPA technologies. We suggest considering the impact of the developments like Wimax, NGN, HSPA etc at a later date as these are still in nascent stage of development. However, any consideration on IUC in future should be technology agnostic and must be coupled with changes in regulations relating to Voice over IP in India.

QUESTION

(ii) What Components of IUC for voice, SMS and any other value added services should be reviewed? What should be the level of charge for each component that requires review? Please give detailed justification/reasons to support your viewpoint .

TCL Response

The components of the IUC regime warranting a review include both opex related charges such as origination charges, transit charges and termination charges as well as charges like port charges and other facility charges.

Importantly, to sustain competition in all segments especially the long distance segment both termination and origination charges need to be mandated based on costs. This is all the more pertinent in view of the license changes in NLD/ILD licenses enabling NLDOs/ILDOs to access the end subscriber directly through a calling card service. In this reference we would also like to draw the attention of the Authority to the Consultation Paper on revenue share arrangement for IN services issued by the Authority on 3rd Nov 2010 which has been duly responded to by Tata Communications on the 15th Dec'2010.

In case of carriage charges we have already seen due to the available flexibility of ceiling charge most of the NLDOs have been able to on pass the benefit of reduction of cost to the end user, resulting in significant growth in traffic volumes. The ceiling for carriage charges is reasonable and if the Authority deems fit may be evaluated in current context, however, we would suggest maintaining the same ceiling for carriage rates.

The cost considerations especially for the origination cost should also take into account unbundling of cost elements and relevant metrics should be set to discount or add costs based on the level of work being done by interconnecting operators. At this point we invite reference to the guiding principles as promulgated in the 1997 WTO (World Trade Organization) Agreement on Basic Telecommunications where non-discrimination,

transparency, and the availability of reasonable interconnection terms, including cost-oriented rates and unbundled access, from "major suppliers" have been suggested as the key aspects which need to be looked at.

In the consultation process which ensued the review of IN services and provision of calling cards by long distance operators/Carrier selection it was clearly identified that more than the number of stakeholders the unbundling of elements specially the access can bring about phenomenal leverage to end customers resulting in a truly competitive market and free choice to the end customer. It may be pertinent to take this opportunity in this review and delink access to customers from provision of services. Only when the customer can exercise choice of selecting service provider separately from the network provider can the real essence of universal service and mass propagation of telecommunication be achieved. It may be seen that the Authority has already taken similar steps in case of provision of CLS access as one of the examples where the network and service provider have been clearly segregated by implementing unbundling of elements. Mobile Number portability also is another example where though to a limited extent unbundling of number from the network provider is being proposed.

(iii) Which of the following approach/methodology should be used for estimating Interconnection Usage Charges:

(a) Existing Fully Allocated Cost methodology used by TRAI or any variation in it;
(b) FLRIC or any other variant;
(c) Bill and Keep;
(d) Left to forbearance all components of Interconnection Usage Charges;
(e) Any other methodology

TCL RESPONSE

We recommend the use of FLLRIC approach for estimating interconnection Usage Charges. For the same the cost required to set up network to run a Mobile/fixed line access operation, NLD operation and ILD operation should be individually and separately estimated based on a efficient network operator construct and the cost incurred in such 'Efficient Operator' Network operations should be taken as a basis to estimate all IUC components.

(vi) Justification as to why model proposed by you should be used for determination of interconnection Usage Charges for voice calls, SMSs and any other value added services.

TCL RESPONSE

We would like to submit again the justification for mandating ILDO carriage charges and ILDO switch transit charges as below:

There is a strong case for considering International Carriage & switching by ILDOs as a component of IUC. In this context it is pertinent to look at network and infrastructure that the ILDOs need for ensuring ILD call completion.

The call flow in case of International Calling needs to be taken into account to determine the "work done" by the various entities involved. A simplistic block diagram is presented below to provide details of the call flow in case of ILD Outbound and ILD incoming calls:

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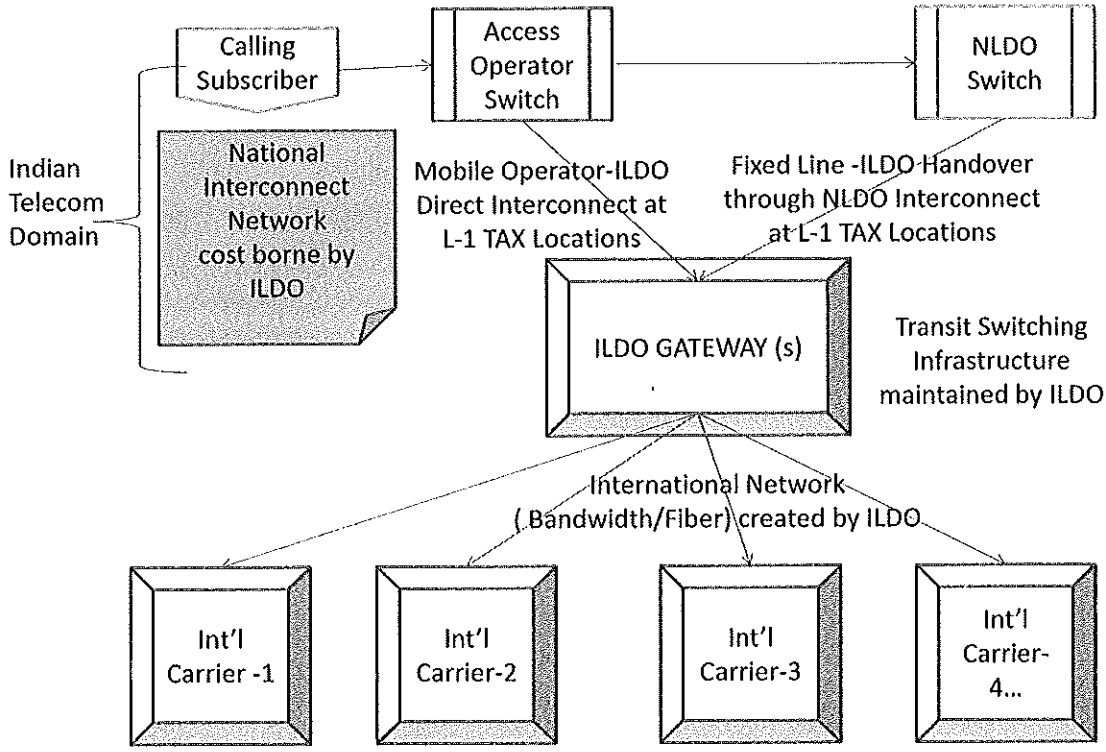

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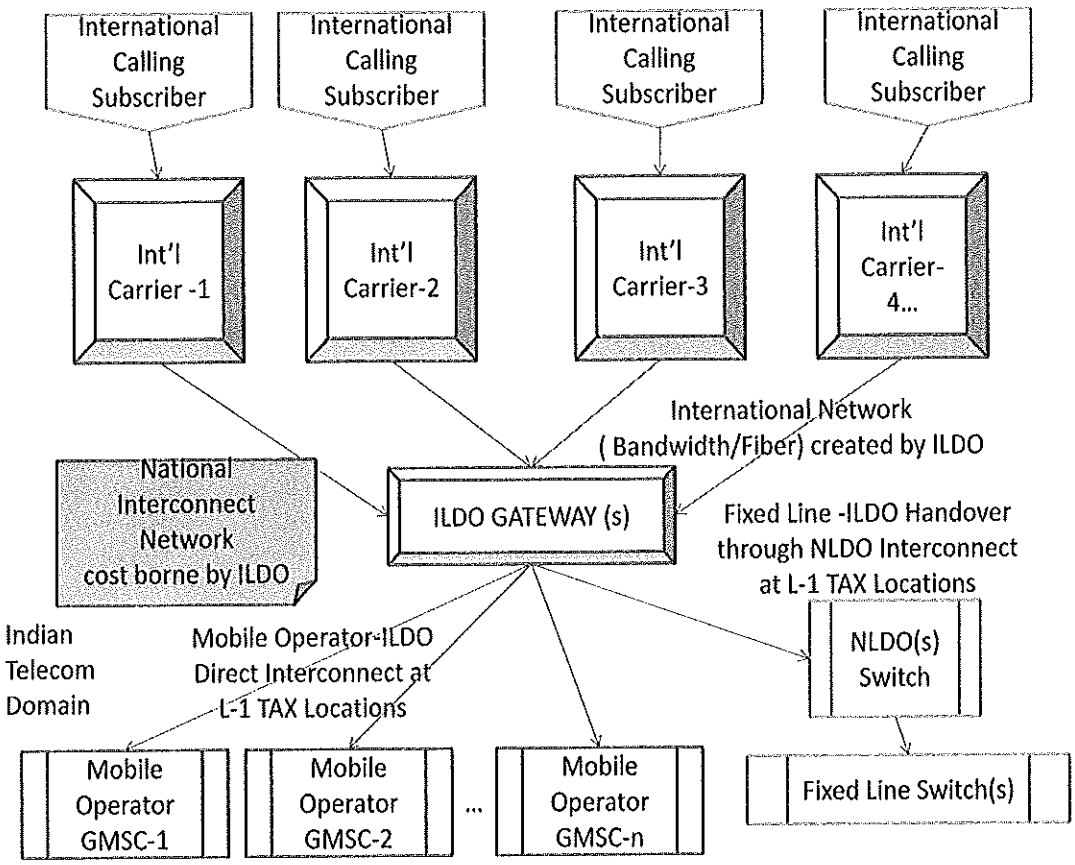

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APPENDIX

Tata Teleservices response to TRAI's review of Interconnection Usage Charges (Pre-Consultation Process)

TRAI has been the leader for driving telecom growth and enhancing consumer benefit in India. In the recent past, the Authority has recommended a number of pro-growth and pro-customer policies. We strongly believe that the TRAI recommendations on IUC once again have to be consistent with these recent enhancing telecom growth policies. To further increase the telecom density and penetration, the Government and Regulatory Authority must take more aggressive, proactive swift measures to sustain the growth in this sector. IUC is an important lever that TRAI can use to address the gaps of still low penetration and drive further telecom growth in India. It is laudable that TRAI has taken the similar step like most of the countries who evaluates and review termination charges every 2 to 3 years and nearly all countries have reduced MTC by more than 50% over the past 5-6 years.

It is further to be noted that despite the growth in MoUs; the average network utilization remains low. Every minute/ second which is not properly utilized is a minute/ second lost, and thus an opportunity to generate revenues is gone forever. A dynamic MTC regime can enable the industry to launch innovative off-peak usage schemes to boost utilization. This will help the industry grow its revenues and profitability further, which can help further growth in the sector.

The still higher MTC of 20p/ minute in India results in lowering of consumer benefit and increase consumer confusion. Due to this high MTC in India, there is still the massive difference between on-net and off-net tariffs. With an increasing number of operators and allocations of numbers across different series, the consumer is unable to differentiate between on-net and off-net numbers. The situation is bound to get exacerbated with the implementation of MNP on 20th January 2011 all across the country.

As desired by the Authority, the following are the question wise responses by Tata Teleservices review of Interconnection Usage Charges (Pre-Consultation Process):

i) What should be the framework of Interconnection Usage Charges that meets the requirement of today as well as takes care of future developments like deployment of Wi-Max, High Speed Packet Access (HSPA), Fixed Mobile Convergence (FMC) and Next Generation Network (NGN)?

The framework of Interconnection Usage Charges that meets the requirement of today as well as takes care of future should be only for voice (2G and 3G including video calls). Future developments like deployment of Wi-Max, High Speed Packet Access (HSPA) and Next

Generation Network (NGN) are nothing but underlying technologies which do not require being part of the IUC framework. Framework of IUC for Fixed Mobile Convergence (FMC) will never happen as the incumbent operator is using old technology based switches and they will incur heavy cost towards changing the same. Also, at this moment, it is very premature to comment IUC charges for NGN. This needs brainstorming among stakeholders about IUC calculation and settlement methodology. TRAI is requested to frame a separate consultation paper and guidelines to finalize architecture and IUC regime for NGN interconnectivity.

VAS service like SMS is functionally different from voice. Sending an SMS involves only the cost of the SMS server and signaling. SMSs are carried on the SS7 signaling channel. Incremental cost of carrying an SMS for a mobile operator is very low due to its relatively short size of 160 characters. An SMS costs less than 1 paise because there is no authentication needed and no incoming SMS airtime used etc. The current situation for SMS termination charges is that of Bill and Keep wherein the operator who initiates the SMS does the billing and retains the generated revenue. This regime should continue as cost for an operator to carry SMS traffic is nearly zero. Introduction of an interconnect charge will affect the growth of the nascent Application to Peer SMS industry and the Peer to Peer SMS usage at a time when SMS is becoming part of business processes of companies and is being mandated by RBI and SEBI for specific types of transactions.

Internationally too, SMS termination charges have not been regulated in countries like USA and Lithuania. In Pakistan, Finland and Singapore SMS termination is not regulated and is based on mutual negotiation between operators. Hence, we may not consider SMS services for the determination of interconnection charges.

Services like Value Added Services and GPRS primarily are accessed bu subscribers through their home termination points and hence may be kept out of the purview of Interconnection.

HSPA or High Speed Packet Access rides over a core IP based network. HSPA network primarily carries data. In the event that the network carries voice, the topology would be based on voice-over-IP framework and may be principally governed by the IP network connection rules. The IP internet world has no termination fees and is based on a P2P arrangement in which the sender-keeps-all. Hence the Authority is request not to consider HSPA in the IUC framework.

Further, developments like deployment of Wi-Max, High Speed Packet Access (HSPA) and Next Generation Network (NGN) are at a very nascent stage and there is a lack of adequate data points across years of the network elements used that is required to calculate the cost and revenue outlay for calculation of termination charges.

Fixed Mobile Convergence (FMC) is not envisaged in India at present due to huge disparity between the number of fixed and mobile subscribers. With a 707 million wireless connection

base and a tele-density of 59.52%, the number of mobile subscribers in India is much more than the 36 million fixed subscriber base with a tele-density of just 2.98%.

ii) What components of IUC for voice, SMS and any other value added services should be reviewed? What should be the level of charge for each component that requires review? Please give detailed justification / reasons to support your viewpoint.

We recommend the following components of the IUC ***only for VOICE (2G and 3G including video calls)*** to be reviewed:

a. Termination Charges
b. Transit Charges
c. Port Charges
d. Carriage Charges

We recommend the immediate review of the above Interconnection Charges for brief reasons as enumerated below:-

1. **Termination Charges**: The termination charge for most operators' particularly new / second network and smaller operators is an item of cost and not of revenue as they are net payer of termination charge. Higher termination charges reduce their margins and their competitive ability to match established and larger operators. To enhance competition it is imperative that termination charges for both wireline and wireless are reduced so that no operator has an advantage of transferring undue costs to other operators.

The termination cost is one of the main costs for the new entrants. The excessive termination rate gives competitive advantage to the existing players which delay the onset of real competition from the new entrants. **The current termination charges are higher and transfer costs of the terminating network to the originating network. The existing IUC regime is promoting on-net traffic and therefore does not serve the basic objective to promote competition. Considering market reports a large difference in the off-net and on-net call rates, there is a pressing need to review the fixed and mobile termination charge components of the IUC.**

2. **Transit Charges:** Since TRAI is reviewing the origination and termination charges, it is necessary that TRAI reviews and prescribes the ceiling for transit charges as well. It is not the cellular subscribers alone who bear the cost, even when the BSNL NLD POIs are congested then NLD and ILD carriers are required to handover the traffic at a different POI for which BSNL charges Rs.0.19 per minute as a transit carriage charge. The prevailing transit carriage charges do not protect the consumer interest and result in enriching of the incumbent operator. Therefore there is urgent need to review the charges so that minimal costs are transferred to the interconnecting networks.

3. **Port Charges:** The Ports are part of the interconnection related charges and the Authority's port charges regulation is notified under the same powers used for IUC regulation. To maintain the homogeneity and consistency, it would is essential to review the Port charges along with the present IUC review. The port related OPEX is recovered from the IUC but the capital cost is recovered from the separate port charges. The two costs for the same items are being recovered through two different principles - OPEX being recovered on the basis of usage and CAPEX directly from the interconnection seeker.

Even if inconsistencies between the port and other IUC charges are not considered and kept apart, the port charges review is still needed as the Authority's adopted costing methodology requires regular review. If the charges are not reviewed then there is an over recovery of costs which unnecessarily enriches port providers i.e. BSNL. In this regard, the following submissions are relevant:

In the port charges review, the Authority did not reveal the total estimated cost for port systems. However using the notified port charges, depreciation rate , cost of capital and the reverse calculations one may obtain the rough estimate of the capital cost per E1 which may be around Rs 162 500. The calculation in the table which follows shows that there would be an over recovery of around 14% in the second year of the regulation (this will increase further, in case BSNL start charging @ Rs 55000/ E1) even if we assume that the costs remain the same level when the regulation was notified:

Table 1

Year	Depreciation	Net Block	Cost of capital	Total cost	TRAI charges	Over recovery
1st year	16250	162500	22750	39000	39000	Zero
2nd year	16250	146250	20475	36725	39000	2275
3rd year	16250	130000	18200	34450	39000	4550
4th year	16250	113750	15925	32175	39000	
5th year	16250	97500	13650	29900	39000	
6th year	16250	81250	11375	27625	39000	
7th year	16250	65000	9100	25350	39000	
8th year	16250	48750	6825	23075	39000	
9th year	16250	32500	4550	20800	39000	
10th year	16250	16250	2275	18525	39000	

The above mentioned estimate clearly indicates that even if we considered that there is no reduction in cost and the cost recovery principles remain the same, even then it is clear to review the port charges as BSNL is over recovering cost which has implication of crores of

rupees on the Industry. The Authority is therefore requested to review the port charges and align it with the actual costs.

Further, based on the traffic pattern and the market share, we would like to bring it to the kind notice of the Authority that BSNL should not charge from Private Operators the port charges, because the ports are more used by BSNL for traffic terminating on Private Operators from BSNL.

4. **Carriage Charges:** The NLD carriage charge is only IUC component which has been reviewed since the inception of IUC Regulation. The Authority had fixed NLD carriage charges under IUC Regulations of October, 2003 which was based on the distance ranging from Rs.0.20 for 50 Kms to Rs.1.10 per minute for distance of 500 kms and above. The NLD carriage charges were reviewed by TRAI in February 2006 and a new ceiling of Rs.0.65 per minute irrespective of the distance was specified. TRAI kept these charges same even in their 9th March 2009 regulation.

The NLD carriage charge is comparatively competitive and recently reviewed and therefore we believe there is need to review the carriage charges. Further the prevailing market rates are below the ceiling which clearly establishes that the **NLD carriage market is largely competitive, but still there is a need to review the present ceiling of Rs.0.65 per minute to Rs.0.50 per minute.** For hilly and other remote locations, since the telecom penetration in such areas should be increased with more incentives rather than an increase in tariffs. ***However, we will strongly recommend that BSNL should also charge the competitive carrier charges.***

It is a common knowledge that the phenomenal growth in the Telecom Sector in India is largely due to some very innovative and Sector friendly approach and policies laid down by your office from time to time. However, recently some developments and action on the part of few Service Operators is acting as a retardant to the growth of the Telecom Sector much against the policies and objectives laid down by the Authority. These few large and established private service operators are insisting on interconnect charges for SMS services. This has put the entire gamut of activities pertaining to SMS based services in jeopardy and unviable as may be evident from the submission made in paras below:

Types of SMS:

There are three types of SMS:

1. P2P SMS:

Mobile terminated short messages can be used to deliver digital content such as news alerts, financial information, logos and ring tones. Generally, the text messages are

used as a communication tool between two mobile users who exchange the text messages. This is termed as peer-to-peer (P2P) SMS.

2. P2A SMS:

Mobile originated text messages may also be used in a premium-rated manner for services such as tele-voting. In this case, the VAS providers who give the service obtain a short code from the telecom operator, and subscribers send texts to that number. Such a scenario is termed as peer-to-application (P2A) text message.

3. A2P SMS:

A third scenario is generated when an application that runs on internet protocols (such as TCP/IP) generates a short text message (such as an advertising message) and sends it to a mobile subscriber. This is called application-to-peer (A2P) messaging; a definition is often used to define enterprise bulk messaging. Interestingly, A2P traffic comprises approx 40% of total SMS traffic in India. It has seen rapid growth in consumer application deployments e.g. tele-voting, self-care, and infotainment applications. A2P SMS concept has seen logarithmic growth since mid-2008. There are four types of A2P SMS:

a) **Business – Transactional:** these are typically high-volume, low-revenue messages, generating traffic that is not very high. They include routine notification messages e.g. service activation alerts. The benefit to businesses if that such routine, low revenue messages are moved onto applications, and off the costly SMSC route. For example, many banks send out instant updates when one does a banking transaction, especially if it is above a certain limit (RBI mandate). Some Yellow Pages companies send out the information requested by SMS.

b) **Consumer – Opt-in:** These are messages we receive for free when we subscribe (opt-in) to an SMS channel. MyToday Mobs, SMS Gupshup and Google SMS channels have thousands of groups in which members publish and send out messages to all members. Opt-in services are primarily monetized via ads which are added to the content. So far, ad revenues are not enough to cover the cost of sending the messages. This form of Consumer Opt-in SMS channels is unique to India, and holds great promise to the creation of mobile media, especially as it is fuelled by low cost A2P messaging.

c) **Business – Promotional:** These are messages sent by businesses to all their current customers. In the case of messaging to prospective customers, messages are sent to those who are not registered with Do Not Call Registry. They are typically used to inform them about some scheme or promotional offer. One of the issues with

promotional messages is that in many cases there is no way to opt-out of receiving these messages. A simple capability to unsubscribe (STOP) will go a long way towards making customers feel in control while receiving these messages.

d) **Business – Spam:** These are messages sent by businesses to individuals who are not their customers and who are among the 40 million Indians registered on the Do Not Call Registry. This is Spam, and it is what is causing a lot of grief among people today. Businesses need to exercise restraint and not send messages to those on the DNC Registry; else the backlash against SMS marketing will only increase. From our end, we are committed to ensuring that NO SMS goes to any one registered with DNC Registry.

Further, TRAI has recently come out with its UCC recommendations on 1st December 2010 which will be implemented all across the country and all across the networks w.e.f. 1st February 2011. This will definitely curb this spam.

Taken together, these four types of messages aggregate to about 100 million a day or about 3 billion a month, and have created a Rs 250 crore (annual spend) industry, of which about 35-40% flows back to the mobile operators for SMS capacity.

On average, bulk SMS capacity comes to about 3-4p, with actual retail prices for specific business customers depending on their actual monthly volume. Today, this industry is coming under threat because a number of the larger operators want to institute an unreasonable SMS inter-connect (or termination) charge of as high as 15 paisa per SMS.

Economics of A2P

SMS is carried on the SS7 signaling channel which is also used for call set-up. Since one SMS is 160 characters, traffic on the SS7 is not very high. Thus, the incremental cost of carrying an SMS for a mobile operator is negligible.

Subject matter experts on A2P SMS note the following points:

- It is possible that the cost to carry a P2P SMS may be more than a few paisa. But for an A2P SMS, the cost will probably be significantly lower because there is no billing involved (SMS billing costs less than 1 p.), no authentication needed, no cash balance checks, etc. Also, no incoming SMS airtime is used since A2P SMS come over IP, and are sent directly to the destination operators.
- There is a large capex for the SMS Centre (SMSC), which can cost about Rs 1-2 crore. With A2P, this capex is eliminated.
- In addition, signaling links costs will need to be augmented for A2P, but their costs are not large. (One can do more detailed calculations based on the national long-distance costs

and the fact that SMSes are only a max of 160 characters long). The result will be a price that is a small fraction of a paisa as the loading due to the signaling link costs.

- In short, while a P2P SMS could cost a few paisa, an A2P SMS costs much-much lower (very much under 1 paisa) for the mobile operator.

In a market served by different operators, there is an interconnect charge for voice calls @ 20 paisa per minute and there is NO justification of SMS termination charges being demanded as 15 or 10 paisa, et al by some incumbent operators.

A2P charging: various views:

In India, retail voice tariffs have been brought down significantly; ***thanks to active intervention by TRAI at the wholesale level***. **SMS business between operators so far has been Bill and Keep,** which offers operator the ability to get into the A2P SMS business, if it so desired.

Now, some operators are trying to introduce a charge in an effort to increase SMS pricing even further. While the impact on the P2P SMS is likely to be marginal since the P2P SMS traffic is relatively balanced and linked to the operator's subscriber numbers, the impact on the A2P SMS business is likely to be substantially negative. And in going ahead with an irrational SMS interconnect charge; some incumbent operators are crossing the boundary of what is fair.

- Some operators have already signed the bilateral agreements on SMS interconnect (for all types of SMSes) seeing their personal gains and not the overall growth of SMS in the country.
- The current situation is that of bill-and-keep – the operator through which the SMS is initiated does the billing and retains the revenue thus generated. ***The current regime of no interconnect charges payable between operators on SMS should continue because - the cost for an operator to carry SMS traffic is near-zero***; SMS is becoming part of business processes of companies and is also being mandated by RBI and SEBI for specific types of transactions; and an inter-connect charge introduced at this point will stunt the growth of the nascent A2P SMS industry and may also impact P2P SMS usage negatively

Who is affected?

- **Operators**: Some believe that they are being forced to carry A2P SMS traffic without being compensated for it (especially if they are not in the business of selling A2P SMS capacity)
- **SMS Aggregators**: will see a dramatic fall in business due to the significant increase in costs that they will need to pass on their customers

- **SMS Media companies**: will effectively see their business being killed since they send SMS for free and it will be difficult to charge advertisers a higher price to cover the inter-connect charge
- **Businesses**: will see an increase in costs and will thus limit the use of SMS wherever possible
- **Consumers**: may not get services they have become used to, or will have to start paying more money for SMS

In a regime with low spectrum bands, the voice traffic is always under stress and thus SMS traffic should be encouraged to fill-in as much of communication as is possible and practical and thus SMS termination charges should not be imposed, which could shift further pressure on voice traffic.

We further would like to bring to the kind notice of TRAI that during 2006-07, Airtel was the leading provider of A2P SMS services. A2P SMS costs were very high then (40 paise per SMS during early 2007). As volumes rose in the industry, prices started falling. Since the incremental cost for an operator to carry an SMS is close to zero, so there was plenty of room for prices to go down.

Airtel lost its market share in the A2P SMS business after Tata Teleservices entered more so on account on quality parameters and not on prices. With Airtel having more than a quarter of the mobile subscribers, it still has to terminate the SMS traffic coming into its network. (A couple of years ago, the situation was the other way around – Airtel was pushing most of the A2P SMS traffic to other operators). Thus, Airtel stands to benefit with interconnect charges if they are implemented. This lead to the dual strategy that Airtel is adopting: force operators to sign SMS interconnect agreements at prices ranging from 10-15 paise (which effectively would mean that it would become way too expensive to send SMS from other aggregators to Airtel subscribers), and then sell A2P SMS capacity to aggregators at 2-3 times the prevailing prices. Some other incumbent operators have also devised this technique recently, which means businesses would end up paying substantially higher prices for A2P SMS capacity. For consumer-centric A2P SMS services, there is no way they would be able to afford these higher costs, and would in effect be forced to curtail services to the extent of making them practicallyuseless.

Incidentally, TRAI had looked at the SMS Interconnect issue in 2006 and come up with a consultation paper on the issue. TRAI did not come out with any recommendations on the issue (A2P SMS was still a small industry then). They left it to market forces to decide ("forbearance") even though, from what we gather while talking to people involved in the process then, the intent was "Bill and Keep" (which would have meant no interconnect charges).

SMS Termination Charges on Bill and Keep

In the ideal world, there need be no SMS interconnect charges and there is negligible SMS carriage cost. This will ensure retail A2P SMS pricing to stay attractive for both the consumer-centric and enterprise A2P SMS traffic, thus facilitating continuing growth in the industry.

Bill and Keep would definitely be pro-competitive and thus good for consumers because it would bring SMS pricing close to costs. It would also mean that no one will have to worry about figuring out what the cost of SMS is – the competition among operators will inevitably align the price to the costs.

Further, as per TRAI's Regulation on Interconnect Usage Charge (IUC) (10th Amendment) Regulations, 2009 (2 of 2009) dated 9th March 2009 –

"…Quote

"Schedule IV

INTERCONNECT USAGE CHARGE (IUC) FOR SHORT MESSAGE SERVICE (SMS)

Interconnect Usage Charge (IUC) for Short Message Service (SMS).- Interconnect Usage Charge (IUC) for Short Message Service (SMS) shall be under forbearance:

Provided that such charges shall be transparent, reciprocal and non-discriminatory."

…Unquote"

It is noteworthy that in the prevailing scenario there is no uniformity of approach and each player is adopting discriminatory tactics while fixing Interconnect usage charges for SMS services and is not complying with the TRAI Regulation/Direction in terms of transparent, reciprocity and non-discrimination. ***This is against the principles of level playing, predatory and anti competitive.***

In the premises, aforesaid it is important that that the issue regarding the Interconnect usage charge may be revisited. As the present regime is susceptible to being misused by some established players at the cost of others, the Bill and keep policy should be adopted to obviate such subjectivity and discrimination and to infuse transparency and provide level playing field regarding SMS based services by various players.

We shall be obliged if the Authority may issue appropriate regulations in this regard after following the regulatory process as deem fit. We shall be glad to provide any further assistance and information in this regard as and when called upon to do so.

iii) Which of the following approach / methodology should be used for estimating Interconnection Usage Charges:

a) Existing Fully Allocated Cost methodology used by TRAI or any variation in it;
b) FLRIC or any other variant;
c) Bill and Keep;
d) Left to forbearance all components of Interconnection Usage Charges:
e) Any other methodology.

And

iv) Explain the approach / costing methodology adopted, provide the model, if any, developed for estimating the level of each component of IUC for voice, SMS & any other value added services with all calculation sheets. Give justification for adopting the proposed approach /; methodology. Also provide details of revenue, minutes of usage (MOU) (off-net / on-net), CAPEX and OPEX corresponding to each network element, cables etc. separately for your network.

And

v) Provide cost and revenue corresponding to each service like voice service, SMS, GPRS, EDGE, roaming services and any other value added services. Also provide cost and revenue for interconnecting services like terminating call, originating call, terminating SMS and originating SMS. All cost and revenue data may be cross referenced with the accounting separation report submitted to TRAI.

And

vi) Justification as to why the model proposed by you should be used for determination of estimating Interconnection Usage Charges for voice calls, SMSs and any other value added services.

TRAI in their regulation dated 9th March 2009 had rightly justified to continue with the existing methodology of Fully Allocated Cost. We also support it. However, we would request the Authority to consider Bill and Keep approach once again.

We also endorse the following observations of the TRAI:

As regimes increase in complexity, operators and potential entrants are more likely to focus on arbitrage opportunities than ways to offer consumers genuinely new services. ***There is no guarantee that detailed cost estimation approaches will be accurate***. It is therefore necessary that regulators may decide the costing methodology and approach used based on the development of telecommunications in the country. ***If an approach has been established then motivation must be really strong to change it in the next review***.

Extract from Para 1.3, TRAI Consultation Paper of 31st Dec 08.

There is substantial cost involved at the regulators end specially to evaluate LRIC models, if applied, for various networks and to verify claims and counter-claims. There would be cost involved at the service providers' end in preparing and giving detailed information required for such an exercise and implementing the changes in their networks.

Extract from Para 3.1.6, TRAI Consultation Paper of 31st Dec 08.

The third suggestion made by the service providers was to use Fully Allocated Cost (FAC) that divides the cost that the firm incurs amongst the services that it sells. This method has the advantage of simplicity. It uses accounting data submitted by the service providers in their balance sheet, profit and loss accounts and accounting separation reports. It is easy to develop and understand. The results are easy to audit. If modelling is not carried out properly then inefficiencies of the operators may creep in. It is possible to make use projections on the historical or current costs to bring in forward looking element in the analysis.

Extract from Para 5.3.14, Explanatory Memorandum to "The Telecommunication Interconnection Usage Charges (Tenth Amendment) Regulations, 2009" of 9th March 2009.

We strongly agree that the current TRAI methodology of "Fully Allocated Cost" is technology neutral and this principle should continue. The termination rate is not a guarantee for revenues and margins. The revenue is a function of retail prices only. It has been proved that, the inter operator compensation in form of termination charges is only a notional cost and provide regulatory arbitrage to increase cost of off net calls. The higher termination charge using capital cost is not only inconsistent with the causation principle, but also provide undue advantage to the existing large operators and disadvantage to new and emerging operators/ second networks by offering cheaper on-net calls. Most regulators are working to decide rates such that inefficient costs or undesired costs are not transferred from one operator to the other operator. The consumer welfare and competition can best be achieved by recovering most of the internal network costs from end subscribers and not transferring on to the other operators.

The Calling Party Pays (CPP) regime is an inefficient mechanism for inter operator compensation for termination of calls especially when markets are fairly competitive and

there is nearly balanced flow of traffic. The current regime of uniform reciprocal compensation of 20p/minute is resulting in nearly negligible net revenues with the most operators although transactions worth thousands of crores of rupees take place. The current mechanism of compensation is in-efficient as it unnecessarily holds thousands of crores of money for inter-operator adjustments in the working capital which can be productively used by investing in the networks.

We suggest that the Authority should review the current CPP regime as it is causing more problems in the current competitive market for the following reasons.

(i) When traffic is more or less balanced between operators then CPP regime only creates a notional termination costs as there is no net implication on revenues or margins. The net revenues available with service providers on account of termination are negligible to the overall inter-operator transactions.
(ii) The CPP regime creates unnecessary inefficiencies for measurement and settlement of inter-operator compensations. Gives rise to innumerable disputes which are settled by dominant operators through disconnection of POIs.
(iii) The inter-operator transactions are holding crores of rupees which can be productively used in the network expansion, particularly for rural areas.
(iv) Many technologies like CDMA, GSM, Wi-Max, HSPA, FMC, wireline etc will be available with own network costs, requiring detailed estimation, fixation of termination charges etc making it very complex to estimate and fix termination charges for proper compensation.
(v) It un-necessarily inflates off net call costs.

Bill and Keep Regime

We are of the strong view that a viable alternative to the CPP is the Bill and Keep regime. This provides a mechanism whereby subscribers pay for the benefit of making and receiving calls. The "Bill and Keep" regime has number of benefits which foster economic efficiency by reducing service providers administrative costs and releases the capital held for inter-operator settlement of IUC. The payment of reciprocal compensation of termination charges requires that service providers incur significant administrative costs to measure, record, and bill for exchanged traffic. The whole scenario will become increasingly complex with soon to be launched innumerable technologies having own costs. The service providers also reconcile discrepancies in their traffic measurements, generating additional administrative costs for settlement of IUC bills. . Bill and keep reduces and nearly removes these costs by eliminating the need for service providers to measure, record, and bill every minute of every call.

The Bill and keep is also administratively easier from a regulatory perspective, because it would eliminate the need for the Authority to review among other things, cost studies, rates in interconnection agreements and also reduce the innumerable disputes between the

operators. The frequent disconnection of POIs for settlement of compensations would also abate. In a perfectly competitive scenario, operators have more or less balanced traffic and therefore compensation based on CPP regime is not required. The existing telecom scenario is much more competitive and therefore bill and keep is more relevant as compared to the CPP regime.

In the CPP regime, the service providers have the opportunity and incentives to transfer costs to their competitors which provides them economic and competitive advantage. Such regulatory manipulation is more evident in case of new entrant/ second network who has to depend on the incumbents for termination of calls and the incumbent service providers also are the primary competitor of the new networks. The service provider should recover their costs to originate and terminate traffic from their own subscribers and not from each other. Bill and keep imposes just such a requirement by eliminating the regulatory arbitrage available with the operators to price off net calls much higher (100% to 400%) than the on net calls.

In case the Authority still believes that the current CPP regime should be continued, then the international best practices for determination of IUC can be followed. **However, while using any methodology it may be kept in mind that the methodology should be in the interest of consumers including rural customers and overall growth of the sector.**

We also recommend that the termination charge should be " cost –based" and there is an urgent need for reduction of termination charge, which is made out for the following reasons:-

- Exponential telecom growth. With the current 742 million subscribers (as on October 2010), there has been significant growth since the last review of the Termination Charge. While decrease in the Minutes of Usage is non-substantial, ,(taking the " Networking Effect" into consideration the rate of increase in traffic is much higher than the rate of increase in customers) the corresponding increase in OPEX has been comparatively lower, thereby the scope for reduction in Terminating Charge has increased even further.
- Based on the computations, it can be concluded that the current level of minutes has drastically brought down the cost of termination which should typically lie in between a range of Rs. 0.07 per minute Rs. 0.10 per minute and hence must be brought down from the existing level of Rs. 0.20 per minute. TRAI also can not adopt a principle different from what it adopted in 2003 and 2009. It must be remembered that it was this reduction brought in by TRAI, which was responsible for the explosive growth in the telecom sector both in Urban and Rural areas.

- Such tremendous saving to the consumer who would directly benefit by a **reduction in tariff by about Rs. 0.13 per minute and would lead to the next round of explosive growth in India.**
- High termination charges favour larger incumbent operators.
- A cost and revenue transactions analysis across telecom operators today demonstrates clearly that mobile operators who have large subscriber base benefit from high IUC termination charges at the cost of smaller and newer/Second Network operators.

While the charges themselves are equal, a relatively higher burden is borne by smaller operators. This is because smaller and new/ Second Network mobile operators pay proportionately larger IUC charges month on month since a higher proportion of their calls terminate on mobile operators.

Termination costs above the actual cost leads to market distortion. Differentially price its off-net and on-net by large operators because of high termination charge. A small operator can set its off net prices below the on-net prices of large operator to attract customers which forces small operator to incur losses. Lower termination charges would increases service uptake. Even though the average call rates in India are one of the lowest in the world, for some sections of society they remain high preventing them from being connected. High termination charges will prevent the rural population from being connected.

TRAI had used cost based methodology to arrive at the termination costs wherein it considered the operational cost, minute of usage and the subscriber base. In the ensuing years due to advances in the technology, networks have become more efficient reducing the termination charges below what were calculated in 2009. Hence, a review of voice termination charges is overdue.

Data published by TRAI in its last five Quarterly Reports of Telecom Parameters, the quarterly figures of the Minutes of Usage and the subscriber numbers for the 5 quarters ending June 30, ’09, September 30,’09 December 31, ’09, March 31, 2009 and June 30, ’10 have been used as the basic input for our computations. These have been reproduced in the Table 2 below. In addition, the table also computes the average quarterly subscriber & the average monthly minutes.

Table 1

GSM	*O/G MOU per subscriber (Min.)	*I/C MOU per subscriber (Min.)	*Total MOU per subscriber (Min.)	*No. of Subscribers at the end of Quarter (million)	Average Quarterly Subscribers (million)	Avg Monthly Minutes (Min.)	Average Minutes for Every Quarter (Min.)
Apr'10 - June'10	195	206	401	527.62	498.6009	199938.9609	599816.8827
Jan'10 – Mar'10	201	209	410	478.68	452.3526	185464.566	556393.698
Oct'09 – Dec'09	202	210	412	421.58	398.3931	164137.9572	492413.8716
Jul'09 – Sept'09	207	216	423	370.594	350.21133	148139.3926	444418.1778
Apr'09 - June'09	223	231	454	328.83	310.74435	141077.9349	423233.8047
CDMA	*O/G MOU per subscriber (Min.)	*I/C MOU per subscriber (Min.)	*Total MOU per subscriber (Min.)	*No. of Subscribers at the end of Quarter (million)	Average Quarterly Subscribers (million)	Avg Monthly Minutes (Min.)	Average Minutes for Every Quarter (Min.)
Apr'10 - June'10	146	154	300	107.88	101.9466	30583.98	91751.94
Jan'10 – Mar'10	146	160	306	105.64	99.8298	30547.9188	91643.7564
Oct'09 – Dec'09	151	167	318	103.51	97.81695	31105.7901	93317.3703
Jul'09 – Sept'09	145	163	308	101.132	95.56974	29435.47992	88306.43976
Apr'09 - June'09	160	182	342	98.46	93.0447	31821.2874	95463.8622
Blended (GSM+CDMA)	*O/G MOU per subscriber (Min.)	*I/C MOU per subscriber (Min.)	*Total MOU per subscriber (Min.)	*No. of Subscribers at the end of Quarter (million)	Average Quarterly Subscribers (million)	Avg Monthly Minutes (Min.)	Average Minutes for Every Quarter (Min.)
Apr'10 - June'10	187	197	384	635.5	600.5475	230522.9409	691568.8227
Jan'10 – Mar'10	191	200	391	584.32	552.1824	216012.4848	648037.4544
Oct'09 – Dec'09	192	202	393	525.09	496.21005	195243.7473	585731.2419
Jul'09 – Sept'09	194	205	398	471.726	445.78107	177574.8725	532724.6175
Apr'09 - June'09	208	220	428	427.29	403.78905	172899.2223	518697.6669

The above Table 1 also presents the computed minutes of traffic for all mobile networks and uses it for the final arriving at the final tally of minutes for the period April 2009 to June 2010.

The calculation of Termination Charges requires computation of Total revenue and Operational Expense for the respective year, which requires a slight revisit to the published TRAI Performance Statistics. As per the TRAI Performance Indicator Reports, the total revenue

for the 5 quarters (Apr' 09 – June '10) was estimated to be Rs.199377.49 Crores. Computation of the Operation expenses however, cannot be directly ascertained due to absence of any consolidated data. In order to overcome this limitation an estimation of the same has been made by making use of the industry benchmark figures, wherein the Operation Expenses incurred on account of Mobile Termination Charges has been estimated to lie around 10% to 15% excluding expenses such as subscriber acquisition cost, license fees, spectrum charges, marketing costs, etc. which are in any case required for the network and the service provided on it by the operator irrespective of where the call is terminated.

Keeping, the said figures in mind, the final calculations for arriving at the Termination rate have been arrived at by computing the ratio between the Operational expense on account of mobile termination versus the total minutes, which is Rs. 0.07 per minute to Rs. 0.10 per minute.

Based on the above, it can be concluded that the current level of Minutes has drastically brought down the cost of termination which should typically between Rs. 0.07/minute to Rs. 0.10/minute and hence, must be brought down from the existing level of Rs. 0.20/minute. *TRAI also cannot adopt a principle different from what it adopted in 2003 and 2009.* ***It also must be remembered that it was this reduction brought in by TRAI, which was responsible for the explosive growth in the telecom sector. Now that the Government has included more players in the network, this is an ideal stage for increasing competition by drastically reducing termination charges to the bare costs calculated above.*** Such a step would result in tremendous savings to the consumer, who would directly benefit by a reduction in tariff and would lead to the next round of explosive growth.

The above calculations have been done based on the consolidated data. The actual minutes of outgoing and incoming calls differ from network to network because of two factors. These are the size of the network and the calling pattern of subscribers. The imbalance is particularly acute at the beginning of the service by a new operator/ Second Network and those operators whose subscriber share is much smaller. Additionally, in the wake of the new licenses granted by the DoT, reduction in termination charges would result in improving their business case significantly which will bring in more healthy competition and thus the consumers will be benefited.

The above is also based on the following aspects:-

(i) <u>Cost causation: Service providers acquire customers to provide incoming and outgoing facility</u>.

Service providers roll out their network to acquire new customers and provide telecom services. The service provider issue telephone number to the subscriber, so that it could be used to receive the calls. Therefore, the capital expenditure to rollout network and provide incoming and outgoing service is caused to acquire new

customer and not caused by the calling party for making the call. Even if calling party does not make a call, the network with outgoing and incoming calling capabilities would still be operating and therefore the capital costs are not attributable to the calling party. Only the OPEX i.e expenditure to run the network is the relevant cost for determination of termination charges.

(ii) Cost causation: Licensing and Quality of Service Requirement

As per the license conditions the service provider has to establish and maintain interconnection for transmission and reception of the messages. Further, the transmission and reception of the calls/ messages are subject to the TRAI Quality of service Regulations. The service provider would not get the operating license unless that service provider establishes the capability of receiving and transmitting messages. Therefore, the outgoing and incoming facility is setup by the service provider to obtain the operating license i.e, the capital cost is caused much before the commercial launch and calling party making the calls.

(iii) The TRAI methodology and the Consumer Benefit

The termination charges are input costs for termination of calls. The net termination revenue is negligible, when compared to the overall transaction for termination of calls. The inter-operators adjustments require large working capital. In case termination charges are reduced, the working capital which is locked for settlement of termination charges can be used in productive manner by way of investing the same in the network. It is evident that the consumers have benefited from the low termination rates and would get more benefits, if the termination rates are further lowered. The existing rates of termination charges are providing regulatory arbitrage to established operators to make on net calls cheaper than the off net calls.

(iv) The TRAI methodology and Promotion of Competition

As emphasized above, lowering of termination charges would promote competition and consumers will be further benefited because amongst other things, it would provide less opportunity for arbitrage for off-net and on-net calls and regulatory distortions.

(v) The existing Methodology was developed by the Authority after following an Extensive consultation process.

The existing methodology has been decided after proper consultation by the Authority in, 1999. The methodology was given in the TRAI's consultation paper on Tariffs, which clearly indicated that the capital costs are to be recovered through rental and operating costs though the call charges. The methodology is in use for last ten years and there is little evidence and justification to change this methodology to suit a few large operators.

Therefore, we recommend that the TRAI should adopt the Bill and Keep or Fully Allocated Cost based regime. Needless to say this is to benefit from a monopolistic tendency which as rightfully observed by the Authority in their previous Consultation Paper needs to be curtailed.

Also, we are in agreement with the view of TRAI regarding non inclusion of both revenue & OPEX emanating out/as a result of VAS towards determination of termination charges. It is pertinent to mention here that VAS also includes SMS, MMS, etc. While the revenue component can easily be identified, computation of OPEX can be arrived at using historical trends and approximated at a level of total OPEX.

The network costs are common for carriage of voice and other Value Added Services like SMS, MMS, content based services, GPRS etc. Since the network costs are common, the costs should be apportioned appropriately and attributed to the respective products and services.

Since the tariffs are under forbearance, it would be more appropriate to apportion the costs on the basis of revenue and not on the basis of network usage. The correct cost apportionment driver in the case of VAS is revenue and not the cost. Therefore, there is no need to estimate costs for the VAS. In case the Authority allows minimal apportionment of costs on the basis of usage then on one hand more costs will be allocated for termination of calls which would not be beneficial for competition and customers and on the other hand it would minimize costs for the VAS services including premium services like tele-voting, ringtones, jokes etc.

Therefore, the revenue likely to be earned from the VAS including SMS should be completely excluded from the revenue requirement estimated for the MTC.

In case TRAI intends to adopt some other methodology then, we recommend the methodology of Asymmetric Termination Charges which should be done on the "Existing service provider Vs New Entrant" basis.

The Indian market structure today makes networks fall into two clear categories:

(i) **Existing networks** having large customer base in addition to inherent network advantages (spectrum in 900MHz allocation; and also allocation beyond 6.2MHz).

(ii) **New networks/ second networks** - who will need to establish a network subscriber base; in addition, severe network disadvantages to existing networks (1800 MHz and 4.4MHz allocation)

Internationally, Regulators adopt asymmetrical MTC regime to compensate late entrants for the higher costs incurred due to the differences in the spectrum allocation bands. The cell

radii for the 1800 MHz frequency band are much lower than 900 MHz, thereby resulting in increased number of sites and higher incremental CAPEX. Hence, the differences in spectrum allocation ranges could result in cost differences between the operators. In India, many of the established operators have already been allocated spectrum in both 900 MHz and 1800 MHz bands, while the late entrants have been allocated spectrum **only in 1800 MHz frequency band**, resulting in cost differences between operators building a network for similar type of coverage. The difference is more significant and more evident in the sparsely populated areas in semi urban and rural habitation.

Thus, Asymmetric termination charges can be introduced for the reasons enumerated in sections below.

Asymmetric terminations charges promote fair competition

This asymmetry between larger and smaller networks is the basis upon which several regulators around the world have introduced asymmetric termination charges to promote fair competition. We cite the following details to substantiate this:

EXHIBIT 2a: Asymmetric rates have been introduced in many countries shortly after entry of the 3rd operator

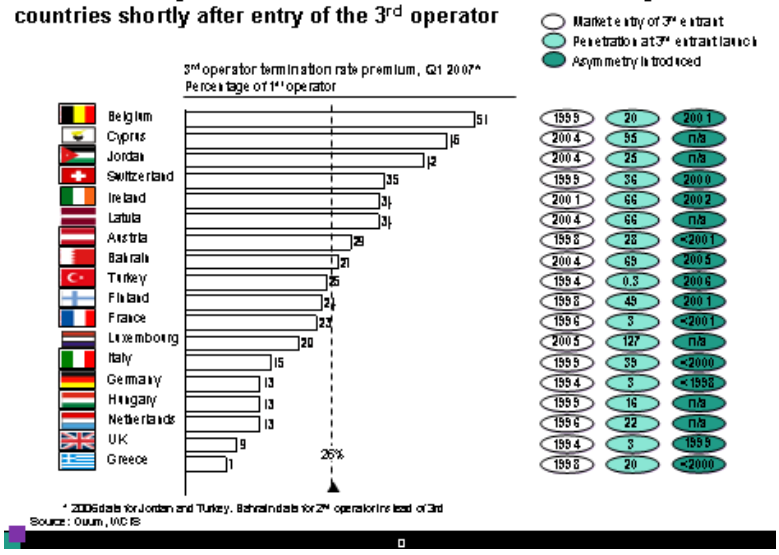

***Exhibit 2a* demonstrates how Belgium, Cyprus, Jordan, Switzerland, Ireland, Latvia, Austria, Bahrain, Turkey, Finland, France, Luxembourg, Italy, Germany, France, Netherlands, UK and Greece, all introduced asymmetric termination charges when the third operator was introduced to promote competition by reducing the charges paid by smaller, newer/ Second Network operators relative to larger operators. It should be noted that most of these countries do not have a fourth operator, however, if they did, it would require an even greater level of asymmetry to create a level playing field. Further, it demonstrates the extent of the 3rd operator termination rate relative to the first operator – as high as a 51% premium in the case of Belgium, with an average of 26% across this sample set. Such**

regulation is long overdue and explains, in part, the significant difference in profitability between larger and smaller operators in India today.

Exhibit 2b: Asymmetric termination rates are common in several countries to support competition between larger and smaller players

Mobile termination rates, March 2007
EUR cents

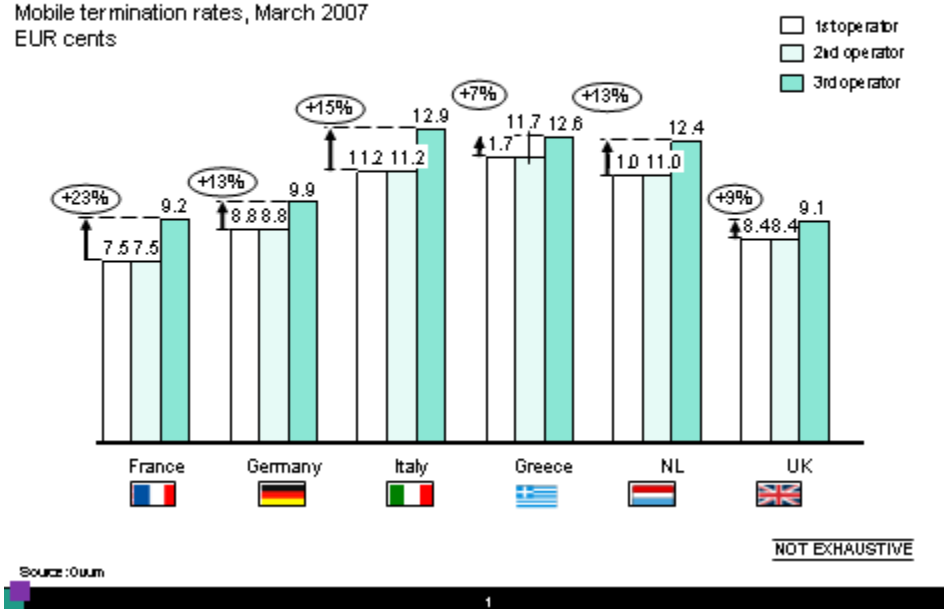

Exhibit 2b demonstrates how asymmetric termination charges persist (although at a reduced level) even in relatively mature telecom markets, recognizing the need to sustain such efforts to maintain equity among larger and smaller players.

Martin Peitz[1], Christian Chalopin[2] ,Yuntsai Chou and Kung-Chung Liu[3] are some of the scholars who have studied the impact of asymmetric termination charges on penetration level, consumer welfare, stimulating entry and industry profitability among others and have concluded that asymmetric termination charges lead to increased industry profitability, makes market more desirable for newer firms, increases consumer welfare and leads to increased service uptake.

[1] "Asymmetric access price regulation in telecommunications market"- Peitz M, 2002

[2] "Asymmetric regulation applied to interconnection charges "-Chalopin C, 2005

[3] " Paradoxical impact of asymmetric regulation in Taiwan's mobile communications"- Chou Y, Liu K C, 2006

Symmetric termination puts newer/ Second Network entrants at a disadvantage[4]

Laurent Benzoni[5] from his study of European mobile market has concluded that late entrant's suffer from inherent disadvantages in a fixed-cost industry with fast growing demand. The later a firm enters such a market, the higher its initial investments need to be as late entrant cannot spread its investment over several years and must immediately offer the same QoS as an early entrant. Thus competition begins with a real "asymmetry of purse": the first entrant made profits while it was a monopoly and could spread its investment over years, whereas the later entrant starts with a huge loss[6]. Financial constraints mean that the later entrant cannot compete on equal terms with the first entrant. In terms of market shares and profits, the gap between the competitors gets wider and wider and since they compete in a fixed-cost economy, the first entrant keeps on being more and more profitable while the later entrant has difficulties providing a return on its initial investment.

European Regulator's Group (ERG, 2004) also believes that "*Without on going vigilance new entrants may never be able to develop a sufficient market presence to justify making long term investments and the long term vision of investment based competition will never emerge*"

Asymmetric charges promote services among underserved and poorer populations

Relatively underserved areas and poorer populations typically generate lower revenues from outbound calling and significantly lower overall ARPU. In India this is further exacerbated by free incoming calls for subscribers resulting in even fewer outbound calls. Termination charges are used strategically by several regulators to improve the economics of serving these 'low-end' subscribers.

[4] TKK ,Austrian regulator has justified asymmetric termination being the specific protection of investment of a new market entrant and the fact that new entrants have (non quantifiable) latecomer disadvantages

[5] " The curse of the later entrants: the case of European mobile markets"- Benzoni L, 2005

[6] ComReg, Irish regulator has justified asymmetric regulation on basis of need to build economies of scale

EXHIBIT 3: Several international organizations recognize the importance of asymmetric interconnection charges to promote competition, investment and innovation

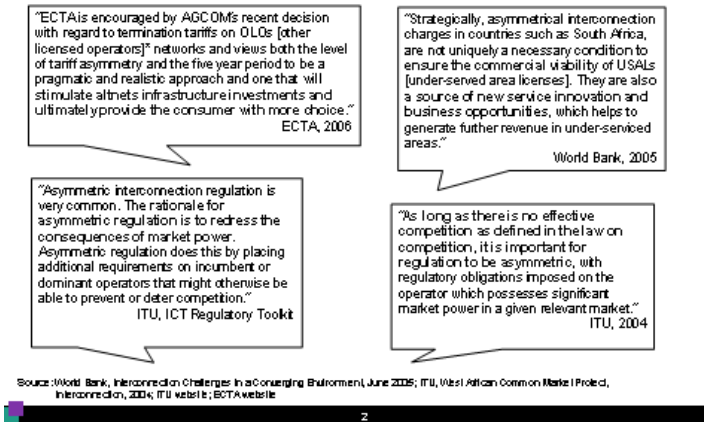

Exhibit 3 quotes the World Bank, ECTA and ITU to this effect. In particular, South Africa introduced asymmetric termination charges to promote services in USALs (under serviced licensed areas). In effect, asymmetric charges support poorer populations, and its lack hurts them as well as those who serve them.

World Bank working paper No 27 on "Telecommunication's Challenges in Developing Countries" has suggested asymmetric interconnection as an important mechanism that could help to close the "market efficiency gap" by enabling the market to work more efficiently, reaching further into rural-heartlands.

With urban teledensity reaching saturation, any further growth would come from underserved and poorer sections. And most of these underserved populations are living in rural and semi rural areas where telecom networks are not present and are prohibitively expensive to roll out. Thus asymmetric termination can act as facilitator for reaching into rural markets and help in increasing access to telecommunications facilities in rural areas.

<u>Current termination regime still favors operators in 900 MHz</u>

Late entrant into the telecommunications got spectrum in the 1800 MHz band. At this band, they face higher coverage costs than the operators in 900 MHz. Current IUC regime doesn't support these operators in 1800 MHz even though they suffer from obvious cost disadvantages. Asymmetric termination charges are justified for transitory period in such cases where due to exogenous factors some operators are at a disadvantage.

Mobile networks are classic two camp structure having different costs. The existing networks have following advantages over the new networks:

Characteristic of existing networks	Implication on termination charges
Large customer base	• Costs spread over a much higher base → *lower costs to terminate calls*
Typically with 900MHz allocation in some circles with 1800MHz in some other circles *CDMA operators on 850MHz*	• Up to 2-2.5 times lesser sites needed for coverage at 900MHz over 1800MHz • Additional need for indoor base stations (IBS) for 1800MHz • *Implication → up to 2-2.5 times lower costs to terminate calls on existing networks compared to new networks*
Typically 8 MHz per circle and even higher in few circles	• On a pan-India basis, per additional MHz of allocation beyond 6.2MHz implies a cumulative network saving over 3 years of Rs 1,200 crores per network • *Implication → 15% lower mobile termination costs for existing network per MHz additional spectrum allocated beyond 6.2MHz*

From the above it is quite evident that the termination costs are different between new and old networks. Averaging of costs of different networks is not the correct method of costing. The cost orientation is not permitted under the TRA's own Regulation to decide the common termination charges for all networks.

The best option would be to follow the Bill and Keep Regime so that all operators and technologies could co-exist without affecting the competition or providing level benefit to any operator. The Bill and Keep regime is competitive neutral and is best option for inter-operator compensation.

In case it is not possible to migrate to the Bill and Keep regime then we recommend Asymmetric termination charges. Even if this method is not acceptable to the Authority, then the Authority should use their present methodology of Fully Allocated cost methodology and bring down the MTC between Rs. 0.07/minute to Rs. 0.10/minute.

The Bill and Keep or lower termination charge of about 7 - 10 paise per minute will have no impact on the tariffs as operators have nearly balanced traffic. Though, the inter-operator transaction on account of IUC runs into thousands of crores of rupees but the net revenues available with few operators is marginal as compared to their total revenues.

We also suggest that there should be no asymmetric Domestic and International termination charges. All termination charges should be on cost basis and not on the reciprocal basis. The proposal would again lead to the situation of grey market which is not desirable and will be against the national security. This will also result in loss of revenue for the government and promoting incoming calls without monitoring.