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Dated: 17th October 2016

To,

Shri Arvind Kumar,
Advisor (Broadband and Policy Analysis),
Telecom Regulatory Authority of India
Mahanagar Doorsanchar Bhawan
J.L. Nehru Marg, Old Minto Road
New Delhi – 110002

Subject: Airtel's Response to TRAI's Consultation Paper on Review of Interconnection Usage Charges

Dear Sir,

This is with reference to your above mentioned consultation paper. In this regard, please find enclosed our response for your kind consideration.

Thanking You

Yours Sincerely
for Bharti Airtel Limited

Ravi P. Gandhi
Chief Regulatory Officer

encl.: as stated above

Bharti Airtel's Response to TRAI's Consultation Paper on Review of Interconnection Usage Charges

The Indian Government launched its flagship program named 'Digital India' in 2015 with a vision to transform India into a digitally empowered society and knowledge economy.

As per the Indian Government[1], **a well-connected nation is a prerequisite to a well-served nation.** The aim is to digitally connect even the remotest Indian villages **through broadband and high-speed Internet** for the electronic delivery of government services, resulting in increased social benefits and financial inclusion for every citizen.

The ambition to create a 'Digital India' through affordable and reliable broadband-on-demand is laudable. However, in order to realize the vision, a lot needs to be done. Today, India ranks[2] 131st in fixed broadband penetration and 155th in mobile broadband penetration despite being the world's 10th largest economy in terms of GDP[3]. Further, despite the telecom sector having opened up for private investment more than 20 years ago, the rural penetration is still only around 51%.

The financial health of the Indian telecom sector is far from optimum, rather dismal. The industry is subject to one of the highest taxes and levies in the world and is laden with a net debt in excess of Rs. 3.80 lac crores, which amount will increase with the recently concluded spectrum auction. The ROCE currently stands at 1%, which makes operations unsustainable.

The Telecom Service Providers (TSPs) in India need to invest more than Rs. 5 lac crores [approx. 75 billion US dollars] to be able to realize the vision of 'Digital India' and 'Broadband Highways'. This, in turn, rests upon their ability to secure more investments, acquire more data spectrum and increase the deployment of infrastructure, towers, and optical fiber.

Fair competition and level playing field is the key to growth and innovation in the telecom sector and interconnection forms the basis for such competition. The interconnection capacities provided by one TSP to another involve costs for which the TSP ought to be fairly compensated. Therefore, ensuring the setting up of a cost-based IUC has far-reaching consequences. It is worth noting that IUC is a zero-sum game as the total number of outgoing and incoming calls are always the same at the industry level and a reduction in the IUC does not lead to any reduction in cost for the industry. However, a below-cost Termination Charge certainly results in lesser share of revenue for an operator serving more number of incoming calls then the operator serving more number of outgoing calls, hence shifts more cost towards the operator serving more incoming minutes and more revenue

[1] http://www.digitalindia.gov.in/content/vision-and-vision-areas
[2] http://www.broadbandcommission.org/documents/reports/bb-annualreport2015.pdf
[3] http://www.thehindubusinessline.com/news/in-terms-of-gdp-indias-economy-is-10th-biggest-world-bank/article6196736.ece

towards the operator serving more outgoing minutes. Therefore, when the termination charge is below cost, the terminating operator ends up subsidizing for the net traffic and this loss intensifies with an increase in the traffic imbalance. A subsidy of this nature helps the competing operator to provide services at a lower price, thereby adversely affecting the level playing field. Such a regime dis-incentivizes serious and long-term operators from investing in network infrastructure owing to lack of adequate returns and compensation for the resources utilized in its network.

A cost-based termination charge is crucial for promoting network investments in rural areas. There are a large number of low-usage customers, especially in rural areas, who do not originate many calls, even though they might receive many calls. Termination revenues from inbound calls compensate TSPs to retain low-calling customers on their network and continue to invest in and maintain the network in rural areas. If the termination charge is below cost, TSPs would not be able to recover their full cost of operating the network in rural areas, thereby discouraging them from taking on low-usage customers.

In order to attract the massive investments that are required in the telecom sector to meet the objectives of the Digital India program, it is critical to have a clear, fair, predictable, transparent and stable policy and regulatory framework. Further, any policy framework should incentivize TSPs to invest in telecom infrastructure, especially in rural areas, by way of ensuring adequate (fair) returns on network investments.

The present consultation paper on 'Review of Interconnection Usage Charges', dated 5th August 2016, has sought stakeholders' comments with a focus on domestic termination charges for both mobile and fixed line, international settlement rates and international termination charges in the country.

While a detailed response to the questions posed in the consultation paper will follow, we have the following preliminary submissions concerning the timing of the review, its trigger and the current status of the IUC regulations.

A. The Timing of the Review:

In the past, IUC reviews happened once every three years. For instance, IUC reviews have happened in the years 2003, 2006, 2009, and 2015. In its current applicable 2015 regulations, TRAI itself clarified that the next review would be commenced and concluded in FY 2017-18, meaning that next review would be implemented from 1st April 2018.The relevant extract from the regulation dated 23rd February 2015 is reproduced below:

> ***E. Review of termination charges***
> *88. The termination charges framework plays an important role in the telecom sector, given its potential effects on capturing network externalities as well as on retail tariffs.*

Changes in technology, cost structures and other market dynamics mandate that a periodic regulatory recalibration of these charges is undertaken so that industry concerns are balanced against consumer benefits. The Authority is of the view that setting a specific timeline for undertaking such a review would impart a modicum of certainty which is in the interest of all stakeholders. ***Hence, the Authority has decided that it shall review the termination charges regime two years after it has been in force, i.e., the review will be undertaken and concluded in financial year 2017-18.***

Keeping in mind past practices and the Authority's own stated position, the next review ought to have happened in 2018 only. A review of the Interconnection Usage Charges at this juncture seems to be a clear departure from TRAI's own stand of reviewing the IUC regime once every three years. Also, the Consultation Paper is premature and the review in the current financial year would be based only on one year's data, when TRAI should ideally have at least two years' data to be able to efficiently take into account all parameters, including the revenue and cost trends.

The Authority has rightly acknowledged that the setting up of a specific timeframe for undertaking any review would impart a modicum of certainty, which would be in the interest of all stakeholders. Any uncertainty in the telecom sector could result in drying up of investments, which would hamper not only the Digital India initiative but also have an effect on the growth of the industry and the country.

Keeping in mind the abovementioned points, the Authority is requested to initiate the review only in FY 2017-18 and implement the changes, if required, at the beginning of FY 2018-19. **Therefore, the present consultation process should be postponed by at least 6 to 9 months.**

B. Trigger for Review:

The National Telecom Policy, the licenses granted under the Indian Telegraph Act, and the various regulations framed by TRAI have followed the principle of 'technology neutrality', i.e., no specific preference for any technology.

In the 13-year long history of the CPP-based IUC regime, the review of IUC has never taken place on the grounds of any technological change, for whatever reason such technological change has happened. For instance, various technological changes happened in the past 20 years: GSM-based mobile services (1995), CDMA mobile (2003), 3G-WCDMA (2010) & LTE (2012). However, none of the earlier IUC reviews were scheduled according to any such technological changes; on the contrary, the Authority has followed the fixed time period of 3 years.

TRAI, in its consultation paper, has indicated that Internet Protocol (IP) communication is one of the trigger points for the present review. But the Authority has not taken into

cognizance the fact that TSPs have long ago deployed IP networks, such as Class 5 NGN, Class 4 NGN for NLD, Class 3 NGN for ILD, and packet switching based MSC in their 3G network. We are unable to understand how VoLTE, which is a public switched telephone network (PSTN), can be a trigger point for the present consultation paper. VoLTE only uses the underlying IP-based network similar to other voice networks using packet switching. It does not change the CPP regime and/or allow the terminating operator to recover their cost from the terminating customer. Hence, the only mode of recovery of the cost for terminating call, including the one originated in VoLTE network, is through the IUC payable by the originating operator to the terminating operator.

As far as Internet-based voice telephony is concerned, TRAI, vide its consultation paper dated 22nd June 2016, has already sought comments on the cost of termination of an Internet telephony (VoIP) call. It is important that the interconnection framework, numbering series, points of interconnection (PoIs), number portability, emergency services, quality of services, etc., with respect to Internet telephony services are decided before any discussion on termination charge is undertaken. A discussion on termination charge for Internet telephony calls without any decision on the associated issues such as interconnection framework, Points of Interconnection, and Numbering series would be tantamount to a vitiation of the entire consultation process, which should be avoided.

As per TRAI, another impelling reason for initiating a review of the IUC regime at this stage is concern raised by TSPs regarding FMT (Fixed Mobile Telephony), which was supposed to be launched by BSNL in April 2016. This service would have leveraged the arbitrage opportunity present between the international termination charge and fixed line termination charge. The service proposed by BSNL was a sheer violation of licensing conditions, and would result in grave security concerns, loss to the exchequer, violation of numbering plan and routing principles, and a breach of the existing Interconnection Agreement. It is important and extremely relevant to mention that in the past BSNL itself had cried foul when some operators had handed over the calls from WLL-M in the name of fixed line or international calls in the name of local calls. BSNL had approached various judicial forums not only to ensure that such tampering of CLI and conversion of the nature of call from one type to the other was declared illegal, but also made sure that they were hugely compensated for the loss caused to them by some of the TSPs offering such services. It is surprising now that BSNL itself want to perpetuate the same illegality by positing internet-originating calls, that too from mobile devices, as local fixed line calls in order to avoid the IUC payment.

It is ironic that the consultation paper proposes the FMT, which is an illegal service as one of the triggers for advancing the review of IUC and carrying it out in FY 16-17 instead of in FY 17-18.

We are of the view that the reasons for an early review of Interconnection Usage Charges as elaborated by TRAI are not substantial enough and that the exercise seems

to have been carried out in haste and should rightly be undertaken only in the next financial year as per usual practice and TRAI's own submission vide regulations issued in 2015.

C. Present Interconnection Usage Charges Regulation is Sub-judice:

TRAI, vide its regulation dated 2009, had mandated an FTC/MTC of 20 paise per minute. During the consultation, TRAI derived the termination charge using the Fully Allocated Cost (FAC) model but did not consider the CAPEX cost (Depreciation and Amortization) while arriving at the MTC. The said regulation was challenged in the Hon'ble TDSAT, which in its Judgment dated 29 September 2009 laid down the following principles for determining the termination charge:

- **Determination of termination charges to be cost-based and on the basis of work done. Hence, the same must be above zero (no Bill and Keep).**

  "….. various components of IUC namely, Origination charge, carriage charge and termination charge must be held to be the established principle of cost based determination therefore….." – (114 (12))

- **Capital costs must be included in calculations.**

  "It is not in controversy that cost would include CAPEX/OPEX and depreciation ….." – (114 (12))

- **Interconnection Charges determined by the Authority must be sustainable in the long run.**

  "TRAI was therefore required to consider that all the operators must offer the call charges to its customers which would be sustainable in the long run …." – (114(12))

- **IUC must be conducive to future investment, especially in rural and difficult terrains.**

  "It was its duty to adopt such principle which would be conducive for investment in future and in particular in rural and hilly areas." – (101(5))

- **New operators should not be given any undue privileges or subsidization.**

  "We are also unable to agree with the submission of Mr. Vaidyanathan, that interest of new comers would be the principal ground to adopt a methodology for determination of inter-operator charges. Policy decisions, in our opinion, in this behalf should be clear and explicit." – (101(10))

Thereafter, an Appeal was filed by TRAI before the Hon'ble Supreme Court in challenge of the Judgment and order dated 29.09.2010 and the same is still pending and a subject

matter to be determined by the Court. Similarly, a review application filed against the Judgment and order dated 06.12.2013 is also pending before the Hon'ble Supreme Court.

The TDSAT judgment has been challenged on the basis of the jurisdiction of TDSAT to adjudicate upon regulations framed by TRAI. However, the Hon'ble TDSAT, being a specialized tribunal for the telecommunications industry, has thrown light on relevant issues and made insightful observations on, among others, the inclusion of the various costs such as CAPEX, which is an important element to be considered while fixing the termination charge.

However, ignoring the TDSAT's observations with respect to costing, TRAI, vide its regulation dated February 2015, mandated the following charges:

Type of Traffic	**Termination Charge**
Wireless to wireless	Re. 0.14 per minute
Wireless to wireline	0 (Zero)
Wireline to wireline	0 (Zero)
Wireline to wireless	0 (Zero)

In the 2015 IUC regulation, TRAI had departed from its time-tested FAC method for determining termination charges and instead used the LRIC+ method. Though the said regulation indicates that the costing includes the CAPEX cost, we fail to understand how the cost of termination which had been calculated as 20 paise without CAPEX cost in 2009, slides down to 14 paise after the inclusion of CAPEX. Logically, the inclusion of CAPEX in the calculation of the termination charges should have raised it from 20 paise to a higher value. In no case could the Fully Allocated Cost have been less than 20 paise after the inclusion of CAPEX and spectrum amortization costs.

Further, in the 'Calling Cards Regulations' issued on 19.08.2014, TRAI had itself acknowledged that the cost per minute is the same whether the network is utilized for receiving an incoming minute or generating an outgoing minute and based on this, had derived an origination charge of Rs. 0.40 per minute. However, contrary to its own stand, in the IUC Regulation 2015, TRAI estimated the cost of mobile termination at Rs. 0.14 per minute. This is nothing but a clear case of contrary positions being taken between the previous regulations and current position.

It is worth mentioning that if the termination charge is fixed below the cost, it will adversely impact operators who have net incoming traffic from other operators. Every extra minute of traffic is a loss to the terminating operator and such loss necessitates and makes it extremely fair for such operators to seek compensation in the form of increased tariffs from existing customers.

As per the submission to TRAI in 2014, our cost per minute was 33 paise. Thus, due to the termination charge of 14 paise, which is below-cost, every call terminated in our network carries results in a loss of 19 paise per minute. Further, at the present level of traffic, Airtel's mobile network receives more than 80 billion minutes per year in excess of outgoing minutes, which results in a loss of more than Rs. 1500 crore per year due to the termination charge being fixed below the full cost.

Due to the above discrepancies, Bharti Airtel Limited and Bharti Hexacom Limited by way of Writ Petition No. 1187/2016 filed in Delhi High Court on 12th February 2016 have challenged the "Telecommunication Interconnection Usage Charges (Eleventh Amendment) Regulations, 2015" dated 23rd February, 2015 and the matter is presently pending for final adjudication by the court.

In light of the above, we believe that the review should be kept on hold, as the matter is sub-judice and any decision coming out of the Consultation would culminate in undermining the judicial process.

With the aforesaid submissions and without prejudice our rights and contentions in various court cases, we could like to give our comments on some of the issues raised in the consultation paper:

Q1: In view of the recent technological developments in the telecommunication services sector, which of the following approaches is appropriate for prescribing domestic termination charge (viz. mobile termination charge and fixed termination charge) for maximization of consumer welfare (i.e. adequate choice, affordable tariff and good quality of service), adoption of more efficient technologies and overall growth of the telecommunication services sector in the country?

(i) Cost oriented or cost based termination charges; or

(ii) Bill and Keep (BAK)?

Please provide justification in support of your response.

Bharti Airtel's Response:

We support a cost-based termination charge, enabling all TSPs to recover the legitimate cost of the termination of a call on their network from other operators. Such a regime is essential to protect and increase network investments. Briefly stated:

1) **The CPP regime requires 'Cost-based' termination charges and not 'Bill and Keep' regime**

Globally, countries have adopted two models of retail charging: the RPP (Receiving Party *also* Pays) regime or the CPP (*only* Calling Party Pays) regime.

Out of the 111 countries studied, 100 have cost-based termination charge. Only a few countries have adopted the RPP regime wherein both the calling and called customers pay their respective TSPs for the respective portion of their call. In the RPP regime, the Bill & Keep (B&K) model has been adopted in a few countries, wherein there is no sharing of revenue between the originating and terminating operators as both operators are free to charge their respective customers.

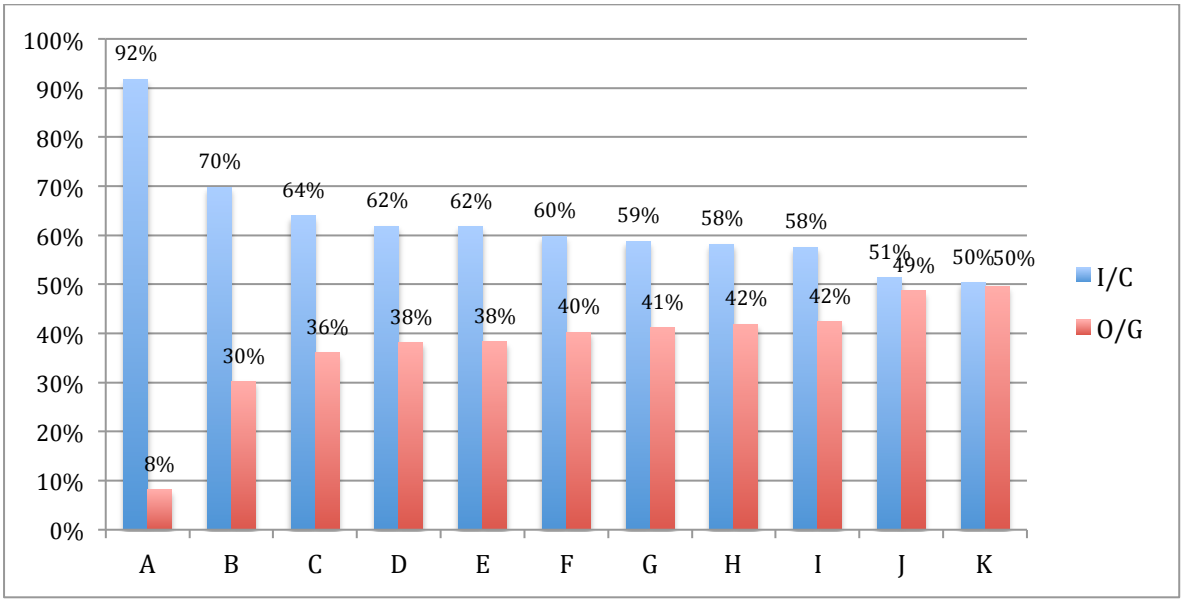
CPP is more consumer-friendly and most countries, including India, have adopted the same. In the CPP regime, only the calling customer pays for the complete call and the terminating operator or intermediate operator (carrier such as NLDO/ILDO) are not allowed to charge the customers directly and are instead compensated by the originating operators. CPP not only facilitates a single point of billing to the customer, but it also necessitates the sharing of a ***finite revenue*** which adequately compensates for the costs borne by the terminating operator or the carriers.

Based on practices prevalent in countries that have adopted the CPP regime, India has adopted a cost-based IUC regime for the sharing of revenue between various operators involved in the completion of a call. A cost-based IUC regime ensures that the terminating/carriage TSP gets its share of revenue to cover the cost of termination/carriage.

On the contrary, in a Bill and Keep (B&K) regime, the originating operator bills its customers, keeps all revenue with itself without sharing it and does not pay any amount for the termination of calls to the terminating operator. Such an arrangement is based on the basic assumption that the traffic is completely symmetric and thus the costs of operating the network are borne equally by the originating and terminating operator. There is no geography with a CPP regime where the B&K model has been mandated by the Regulator. Such a regime can be left to the mutual agreement of two operators based on their traffic trends rather than making it mandatory in an asymmetric traffic scenario.

In a large part of the developed world, where due geographical and population coverage has already been achieved, the number of operators in a country are in the range of 2-5, leading to an almost equal market share and, therefore, almost symmetric traffic. In those countries, keeping in mind the similar fixed/coverage cost, the termination charge is calculated on the basis of purely incremental cost using the LRIC or LRIC+ model.

In India, due to the large number of operators, vast differences in market share and customer profile and the coexistence of several technologies (e.g., Fixed Line, GSM, CDMA, WCDMA, VoLTE), the network coverage between operators varies substantially. It ranges from operators that cover deep rural areas to those that cover only a few clusters, which automatically results in the operational costs of various operators to be different. Therefore, such a scenario leads to asymmetry in traffic (as depicted in the figure below) and completely rules out the "Bill and Keep" regime.



Note: Imbalance of traffic basis traffic data for the month of August, 2016

Figure: Imbalance of Traffic in Airtel's Network w.r.t other operators

Although operators may compete for their share of customers in the market, they need to collaborate for seamless interconnection of their networks in order to provide end-to-end services to customers.

Keeping in mind the heterogeneous market structure, clubbed with the CPP regime in India, any suggestion towards keeping the termination charge '***below full cost***' or '***Bill and Keep***' regime would be highly unjust and unfitting and create an imbalance of cost and investment resulting in a non-playing fields. Hence, the termination charge should strictly be at full cost keeping in mind the actual cost incurred by operators instead of any hypothetical calculations.

2) Inherent imbalance in network traffic does not justify below cost termination charge or 'Bill & Keep':

In the CPP regime, the originating operator collects revenue from the customer for both the outgoing and the incoming part of a call, and the relevant part of that is shared with the terminating operator to compensate for the cost of call termination. However, if the

termination charges are lower than the full cost, the terminating operator ends up subsidizing the originating operator for the net traffic. This loss intensifies with an increase in the traffic imbalance. A subsidy of this nature helps the competing operator to provide services at a lower price at the expense of its own competitor and, hence, distorts the level playing field. Fixing the termination charge at the full cost is very important due to the substantial traffic imbalance prevalent between telecom operators in India.

The substantial traffic imbalance due to the heterogeneous market structure of the Indian telecom sector has already been acknowledged by the Authority while rejecting 'Bill and Keep' during the IUC reviews in the years 2009 and 2015.

Some of the reasons for the imbalance in traffic are explained below:

(a) **Radio coverage**: The operator with the better and wider coverage/footprint would have a higher probability of successfully terminating the calls and thus, will become a net receiver. For example, if Operator A has better coverage/footprint than Operator B, the probability of a successful termination in Operator A's network is higher than in Operator B's network. This would lead to an imbalance of traffic between Operator A and Operator B, wherein traffic from Operator B to Operator A would be higher than the traffic from Operator A to Operator B.

(b) **Customer profile:** Due to different marketing and positioning strategies, various operators cater to different market segments. For example, if one operator targets the higher income segment with differentiated services and the other targets the lower income customers, the calling pattern of the two operators is likely to be different, leading to an imbalance in traffic between the two operators.

(c) **Tariff plan:** If an operator implements a strategy to provide aggressive tariff plans such as free/bundle/low cost minutes, it would lead to more minutes terminating in the other operators' networks. Also, there is a large probability that smaller operators would offer lower tariffs to offset the acquisition cost and increase their market share. Such tariff plans that are bundled with free minutes result in higher incoming traffic to the networks of other operators.

In India, there are 7-12 TSPs operating with a wide variance in their network coverage and capacities. Any skewed and imbalanced traffic between operators can completely distort TRAI's own basic principles of IUC regulations wherein the termination charge has been fixed considering only 30% offnet traffic with the level of imbalance limited to 15%. Further, it is also worthwhile to mention that the imbalance of traffic has increased in the last 3 months with the entry of a new operator, which warrants that termination charge be strictly cost based with no justification for Bill & Keep.

3) **No change in the basic structure of the CPP regime despite the deployment of PS networks and Internet telephony:**

The Authority, in its present consultation paper, has also raised apprehension whether the CPP regime still holds good given the general direction of telecommunication services towards PS networks and Internet Telephony. In this regard, it is submitted that:

(a) In the CPP regime, the terminating operator is not allowed to charge for call termination on its network in any form, whether fully or partially. Therefore, the CPNP (***Calling Party's Network Pays***) regime is a must for compensating the terminating operator in a CPP regime.

Further, the CPP regime is for voice services bundled with the underlying network, be it circuit switched or packet switched. Therefore, a change in technology has no bearing on the requirement of revenue share since the terminating network (PSTN/PLMN) is not charging its customer for call termination in any form.

In a CPP regime, irrespective of any technology, whether TDM/circuit switched or packet switched, the terminating operator that is not charging its customers for the incoming call needs to be mandatorily compensated by the originating operator. **Therefore, a change in technology in an originating network cannot be a trigger for any change in the termination charge.**

(b) The argument given in the consultation paper that in a data/network the upload and download of data will be equal for the voice service is fallacious. The termination charge is not on account of a difference in the number of bits transported between the originating and terminating network but on account of the terminating operator not being allowed to charge for the utilization of its network in a CPP regime. Therefore, this argument is technically incorrect. Further, a change in technology from circuit-switched to packet-switched does not change the commercial construct, be it between the customer and operators or between the originating and terminating operators.

Further, IUC is not limited to the cost of the interconnecting link only but to the full cost of a call termination, which includes the cost of the entire range of network elements, including CAPEX and OPEX for fixed assets such as BTS, BSC, MSC, IN, optical fibre and transmission links, Spectrum cost, OPEX for customer services, service delivery, human resource, administrative and legal costs, etc.

(c) The introduction of any new technology by one operator does not change/reduce the cost of the other operator and, therefore, cannot be a ground for any review of the IUC. It is therefore imperative that the IUC regime, which is primarily a revenue-

sharing regime for voice calls, SMS, MMS, etc., be set at a full cost and not on a Bill and Keep basis.

(d) Further, without prejudice to the fact that technological changes should not play any role in determination of termination charge, even if it is accepted that the cost of a PS Network is lower than that of a CS network, all operators cannot be forced to adopt the same, as more than 70-75% of customers rely on 2G networks due to the limited capability of their devices. An immediate shift to 4G networks by the operators would requires millions of customers to change their devices which support 4G which not only will inflict a huge cost to the customers in buying new handset but will be time consuming exercise. Further, if the technology deployed is the governing logic, we believe that the termination charges should be set on the basis of technology deployed in the terminating network. Therefore, ***any technological change should only be considered in determination of termination charge when a majority of terminating networks have adopted the new technology and majority traffic in the terminating network is being handled on that technology***.

4) Ill-effects of B&K and below cost termination:

The Authority, while deciding on the IUC, should take full cognizance of the ill effects of the 'below cost termination charge' or 'Bill & Keep' being a special case of below cost termination charge. Some of these are described below:

(a) **The best networks will become incoming call networks:** India is already witnessing the phenomenon of multi-SIM phones. Lower termination charges/B&K will promote peculiarities in customer behavior, i.e., networks with inferior/ localized coverage would try to incentivize the customers to use their services for outgoing calls by having below-cost tariffs at the expense of the terminating operator and the networks with better coverage would be preferred for receiving incoming calls . In a B&K or below cost regime, this ratio will get worse and the operators with a higher proportion of incoming calls will be at a competitively disadvantageous position.

(b) **No incentive to deploy networks in rural and remote areas:** The population residing in rural and remote areas has a lower paying capacity and therefore, utilizes mobile connectivity mostly for incoming calls. In case the termination charge, which is already below cost is further reduced, the deployment of sites in these areas becomes financially unviable and disincentives investments in rural/remote/non-remunerative areas.

(c) **No incentive to enhance capacity (for terminating calls):** In a CPP regime, since the terminating operator is either not compensated or is compensated inadequately for the termination of net incoming minutes, there will be no incentive to augment its

network to support the requirement of other operators, resulting in a poor overall quality of services and disputes on the augmentation of PoIs.

(d) **Increase in spam calls:** B&K will incentivize originating operators to divert inordinate amounts of traffic towards the terminating operators' network. This will ultimately increase the number of unsolicited calls to the terminating operator's network, especially given the reduced cost of making promotional calls to subscribers.

(e) **Will result in the collapse of the tariff tables, leading to an overall loss to the industry:** With B&K or below cost termination charge, the originating operator will not be required to factor in the full cost of termination while fixing its tariffs, i.e., the tariffs will be fixed based on the cost of only the o/g leg of the call (instead of both the legs, termination being available without any charge). The operator with a smaller network, having more originating calls than terminating calls, will reduce tariffs to fill out its networks and recover only its own cost of origination and margins. Such an arbitrage in a hypercompetitive market will allow a newer operator to exploit the arbitrage to acquire the customers at the expense of the terminating operator without any real reduction in cost and bring down the profitability of an industry that is already under severe financial stress.

At the time of the introduction of the Calling Party Pays (CPP) regime, all issues related to IUC and its linkage with the retail regime were deliberated upon. Thereafter, an appropriate policy framework was prescribed by the Authority, which is still in continuance. The Authority, vide its letter dated 20th May 2003, stipulated that the tariffs must be non-predatory and IUC consistent. The issue of non-predation is linked to the ability to pay the IUC expenses while covering own costs. Therefore, the Authority maintained that the IUC expenses on a weighted average basis against the revenue are only limited to the specific service segment (i.e., within voice or data) and not between two service segments (i.e., between voice and data). The relevant extract of the said letter states as under:

> *"With regard to the relevant regulatory principles, the Authority would like to clarify that:*
> ***IUC consistency of tariffs implies that the service provider should be able to meet the IUC expenses on a weighted average basis. The relevant weighted average should be of the service segment concerned.*** *For example, if we consider a WLL-M tariff package, the weighted average tariffs for the service should be adequate to meet the weighted average IUC expenses for that service.*
> *The issue of non-predation is* ***linked to the ability to pay the IUC expenses*** *while covering own costs."*

Keeping in mind the importance of the termination charge in a CPP regime, TRAI has even prescribed that the tariffs need to be compliant with the IUC regime. The 27th Amendment dated April 2003 to the TTO, mandates that all tariffs are to be compliant with IUC Regulations. The relevant portion of the said TTO is as below:

> *"……Meanwhile with the issue of the 24th Amendment Order dated 24th January 2003 and the IUC Regulation dated 24th January 2003, the Authority observed that* ***ensuring compliance of tariffs with IUC Regulation, 2003 is of cardinal importance. In addition, the compliance to regulatory principles of non-discrimination and predatory pricing is also of utmost importance."***

The TTO, 30th Amendment, January 2004 requires the licensee to ensure that the tariff plans are consistent with the regulatory principles in all respects which, inter-alia, include IUC compliance and non-predation. Further, the IUC charges, as specified, act as a floor to the retail tariffs. Thus, any tariff where the realized rate for voice traffic is less than 14 paise is non-IUC compliant. The relevant portion of the said TTO is as under:

> *"(l) "Reporting Requirement" means the obligation of a service provider to report to the Authority any new tariff for telecommunication services under this Order and/or any changes therein within SEVEN days from the date of implementation of the said tariff for information and record of the Authority* ***after conducting a self-check to ensure that the tariff plan(s) is/are consistent with the regulatory principles in all respects which inter-alia include IUC Compliance, Non-discrimination & Non-predation."***

The explanatory memorandum to the said TTO is further clarified below:

> *"The Authority has now notified revised IUC Regulation, 2003 dated 29.10.2003 stipulating cost-based Interconnect usage charges. Furthermore, the price developments of Voice-telephony show that there is intense competition. With a high degree of competition, prior approval of tariffs may not be required as competition replaces regulation by the regulator. The Authority is of the view that current declining tariff environment is an ideal time to switch over from an ex-ante tariff regulation to ex-post tariff regulation meaning thereby,* ***complete freedom would be given to operators in the matter of offering tariff plans in the market within the framework of the existing TTO. The Authority has already laid down broad regulatory principles to determine as to whether a particular manner of pricing service is anti-competitive / discriminatory etc.*** *Further the Authority has forborne with the main tariff items in Cellular and Basic services (except rural subscribers' tariff & roaming tariffs).* ***The IUC regime specified by the Authority reflects the underlying costs providing the service. Also the IUC charges as specified will implicitly function***

as a floor to the retail tariffs and thereby scope for predatory pricing or cross-subsidization is limited".

In a predominantly prepaid market such as India, where there is no scope of charging rentals, any instance of a non-IUC compliant and predatory tariff would seriously hamper the growth of the industry and lead to a complete market failure with an adverse impact on the viability and sustainability of the telecom sector. By inhibiting investments in the telecom sector, it may even bring the broadband roll-out under jeopardy.

5) B&K as a wholesale charging mechanism is inconsistent with the CPP regime:

In 2003, when TRAI introduced the CPP regime, it made the following observations in the Fifth Amendment of the TTO dated 17th Sep, 1999:

"2. An important objective of the telecom tariff mechanism is ***to encourage usage, and a calling party pays (CPP) regime for cellular mobile (similar to that prevailing for basic services) would contribute in a major way towards this objective****. Further,* ***CPP would make the mobile cellular service more affordable to cellular mobile subscribers, including those receiving calls in rural areas****. It also transfers the payment responsibility to the calling party, which is the party that needs to make the call in order to contact the called party. Greater usage will lead to consumer satisfaction in general and to greater economic and social interaction. Over time, this will lead to lower average costs and thus provide a basis for reducing tariffs for both cellular mobile and basic services. The Authority therefore decided to implement CPP for the cellular mobile sector."*

"9. Irrespective of the revenue aspect mentioned above, ***each incoming call to cellular mobile should be provided with revenues to the terminating network because of the task of completing the call by the network, and because without such a revenue there will not be any incentive for maintaining the network****……."*

"16. ***CPP for cellular mobile is being implemented in a manner that the terminating cellular mobile network receives MTC for all incoming calls,*** *whether from basic service subscriber or from cellular mobile, except for calls made within its own network (i.e. intra-network calls). The payment of MTC would be made even for STD or ISD calls (for further detail, see the Telecommunication Interconnection (Charges and Revenue Sharing – First Amendment) Regulation 1999)."*

The decision of the Authority to adopt Calling Party Pays along with Calling Party Network Pays (CPNP) in the Interconnection Usage Charges Regulation, 2003 has been one of the main drivers of telecom growth in India and has led to a substantial increase

in telecom penetration. Any consideration on the "Bill & Keep" now would also need a of the CPP regime itself and will require us to migrate to the RPP regime.

6) Views of International Regulators on Bill & Keep:

Several international regulators have followed a consultation process before taking a stance on the Bill and Keep (BAK) method. During the consultation process, the viewpoints of several stakeholders have been considered with the implications of implementing BAK. The details of the decision taken by several international regulators on the BAK method are given below:

(a) The Office of Communications (Ofcom)[4]

Ofcom stated that BAK offers some benefits, in terms of the simplicity and transparency of the approach as well as the flexibility provided to CPs in setting retail tariffs. However, assessing the size of call externalities or the degree of possible internalization would make mandating BAK difficult. In addition, as noted by the respondents to the May 2009 consultation, there are significant practical problems associated with the implementation of a BAK regime.

Ofcom further stated that **adopting a BAK regime would mean a departure from rates that reflect the underlying costs of providing Mobile Call Termination (MCT)**. This would be a significant change from past regulation, and would raise some significant issues in terms of compatibility with the EC framework. Hence, Ofcom rejected adopting mandated BAK as an option for regulation of MCT.

(b) Australian Competition & Consumer Commission (ACCC)[5]

ACCC found that neither Mobile-to-Mobile (MTM) voice traffic nor SMS traffic were so closely balanced that termination rates did not have an impact on downstream retail markets. BAK arrangements may therefore be less appropriate for the Mobile Terminating Access Service (MTAS) in the Australian market.

The ACCC also notes that **even if the traffic is balanced, a BAK arrangement may not be ideal.** This is because termination rates reflect the perceived marginal cost to an MNO of providing offnet mobile calls and SMS to its retail customers. A termination rate of zero would mean that the perceived marginal cost to the MNO would be lower than the actual cost of providing the termination services. **In such a case, the MNO may set retail prices that are inefficiently low and lead to an over-**

[4] http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf
[5] https://www.accc.gov.au/system/files/MTAS%20FAD%20discussion%20paper%20on%20pricing%20approaches.pdf

use of mobile infrastructure, leading to costs being recovered in the prices of other services. The ACCC does not consider that a BAK regime is appropriate for mobile voice termination.

(c) Commerce Commission New Zealand (ComCom)[6]

ComCom submitted that regulating voice termination on a Bill and Keep basis from the current levels of termination rates would be a radical departure from international norms. ComCom submitted that it is not aware of any such evidence, and can see no compelling reason why a move away from a cost-based benchmarking approach should be required for voice termination in the New Zealand context.

SMS services carry a marginal termination cost close to zero, making it an ideal candidate for a pure BAK. However, ComCom later revised its position to support a cost-based MTR for SMS, noting that pure **BAK will have the effect of exacerbating and encouraging SMS spam.** BAK may be appropriate where cross-network traffic is relatively balanced. BAK may not generate savings in transaction costs as there will be ongoing operational costs.

(d) Canadian Radio-television and Telecommunications Commission (CRTC)[7]

The local network interconnection regime also includes two cost compensation mechanisms: ***(a) bill-and-keep: in the event that the volume of voice calls transferred between two local exchange carriers (LECs) is balanced***; and (b) mutual compensation: in the event that the volume of voice calls transferred is not balanced. **It is very clear that level of asymmetry in traffic plays a huge role in the determination of the termination charge.**

The following conclusions can be drawn from the perusal of the views expressed by the international regulators that have reviewed and rejected the BAK method after finding it inappropriate to implement due to the following reasons:

i) The traffic between operators is not balanced.
ii) Even if the traffic is balanced, a BAK arrangement may not be ideal because an MNO may set retail prices that are lower than the cost leading to an overuse of mobile infrastructure.
iii) B&K encourages spam.
iv) The adoption of the Bill & Keep regime does not mean that the terminating operator does not incur any cost of termination, but is based on the premise that

[6] https://www.comcom.govt.nz/dmsdocument/7902
7 http://www.crtc.gc.ca/eng/archive/2012/2012-24.htm

the traffic between two operators is balanced and hence, both operators can avoid billing to each other.

However, in India, such a scenario does not exist. During the last review of the IUC in the year 2015, the imbalance in traffic was of the order of 4-14%, which has now increased substantially with the entry of a new operator.

7) No significant changes since 2015 when TRAI itself had rejected B&K:

TRAI, vide its IUC Regulation dated 2015, had rejected the 'BAK regime' and 'below cost termination' (Page 10-17 of IUC regulation dated 23rd February, 2015). The relevant extract is given below:

(1) Should MTC and FTC be cost-oriented or under BAK arrangement?

24. In this backdrop, let us first examine the issues pertaining to MTC. ***Against a global average of about 96, the wireless tele-density in India is only 75.43.*** *Though rural penetration of wireless telephony in both population and coverage terms has improved with the passage of time, it has remained lower than expected.* ***As against an urban wireless tele-density of 142.46, the rural wireless density was only 45.47 as on 31.12.2014.*** *The tele-density figures indicate the proportion of number of SIMs in use and not the number of wireless users. As per a report, globally, on an average, each mobile subscriber owns two SIMs. Thus the proportion of wireless users to the total population in rural India is far lower than the teledensity figure of 45.47. In coverage terms too, wireless penetration has remained inadequate; though wireless telephony was introduced in India about two decades ago, about 50,000 villages are yet to be covered by wireless networks i.e. there are still so many villages without basic connectivity.*

27. Typically, the telephony business yields increasing returns to scale (IRTS) once a TSP acquires a critical mass (in terms of subscriber base). As a result, there has been a rush amongst TSPs to sign up new subscribers, sometimes even at a huge upfront cost of acquisition. The underlying hope is to attain positive customer lifetime-value (CLV) in the long-run. As urban areas in India began saturating, the TSPs started building telecom networks in rural areas, albeit cautiously. Investments in the rural telecom networks have lacked momentum because the TSPs have realized that the CLV of rural customers is far lower than that of urban customers because of (i) the level of utilization of the radio access network remains much lower in rural areas (i.e. the cost of servicing per customer is much higher in rural areas) for a considerably long period and (ii) the average rural customer's willingness-to-pay (WTP) for consumption of telecom services is relatively lower due to lower per capita income and higher incidence of poverty in rural areas (i.e. average revenue per rural customer is lower). Thus, break-even levels on investment in rural areas come much later than they do in urban centers. The net result

has been that the 'push' for wireless telecom services from the TSPs by way of investment in rural areas has not met expectations. As a consequence, network coverage and performance have remained patchy and inadequate in rural areas. Owing to these reasons, wireless telephony has not been able to enter into the rapid growth path through the virtuous cycle of supplier's push and buyer's pull in rural India. Thus, while promoting investments in rural telecom networks remains an important public policy priority, it needs to be recognized that wireless TSPs have shown far less enthusiasm in investing in rural areas.

28. When a TSP intends to provide network access to the 'marginal subscribers', who have either low income or who are currently not served by the telecom networks (these features together characterize the majority of rural subscribers), it lures such subscribers by way of offering attractive tariff packages to them in which call rates are much cheaper than standard rates during the initial period. Thus, a TSP might initially have to incur losses, when it serves outgoing voice call activity of such subscribers. In case there is an IUC regime in which cost-oriented mobile termination charges are paid by the calling party's service provider to the called party's service provider, the TSP serving marginal subscribers can be assured of receiving the cost of the 'work done' in carrying the off-net incoming calls. In short, while it may be incurring losses on outgoing calls initially, this would be partially offset by receiving fair and reasonable use-based returns on the off-net incoming calls. This would provide at-least some incentive for TSPs to invest in rural areas. ***Hence, a cost-oriented MTC regime could induce TSPs to expand their footprints in rural areas and, thereby, increase the overall value of the telecom networks.*** *A corollary is that setting MTC at a level which does not recover the 'work-done' by the called party's service provider in terminating the call carries the risk of hindering the expansion of telecom networks in rural areas.*

29. ***Besides, in case MTC is set below cost, TSPs would just not have sufficient incentives to carry off-net incoming calls on their networks. They may choose not to maintain the same standards of quality for off-net incoming calls as they do for their outgoing calls by not augmenting required number of E1 ports at point of interconnection. This would degrade consumer experience and, in turn, make telecom networks much less valuable. This risk is accentuated when MTC is set as zero (i.e. BAK arrangement) because in this case, the wireless access provider would get no reimbursement at all for the underlying costs in terminating off-net incoming minutes. Therefore, they would have absolutely no incentive to carry off-net incoming calls on their networks. It has been pointed out that the BAK arrangement is best suited in an environment in which traffic flow between the networks is balanced i.e. the off-net outgoing minutes and off-net incoming minutes are fully or nearly balanced. In such a situation, the BAK regime is unlikely to distort incentives for the TSPs in carrying off net incoming calls. In India, the TSPs are at different stages of growth.*** *While some networks are nearly two decades old, some others are only six to seven years old. Therefore, their sizes*

and particularly the profiles of their customers are vastly different. ***As a result, the traffic flows between the TSPs are significantly asymmetric.*** *The following figure provides the distribution of total off-net minutes by decomposing them into off-net outgoing minutes and off-net incoming minutes in 2013-14 for access providers offering full-mobility services.*

Figure 1: Distribution of off-net minutes in the F.Y. 2013-14 for the access providers offering full mobility services

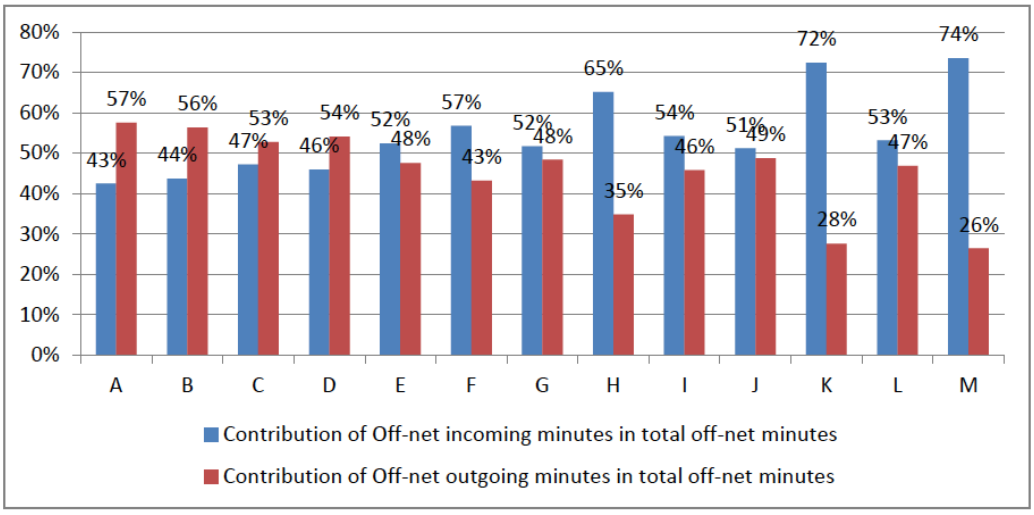
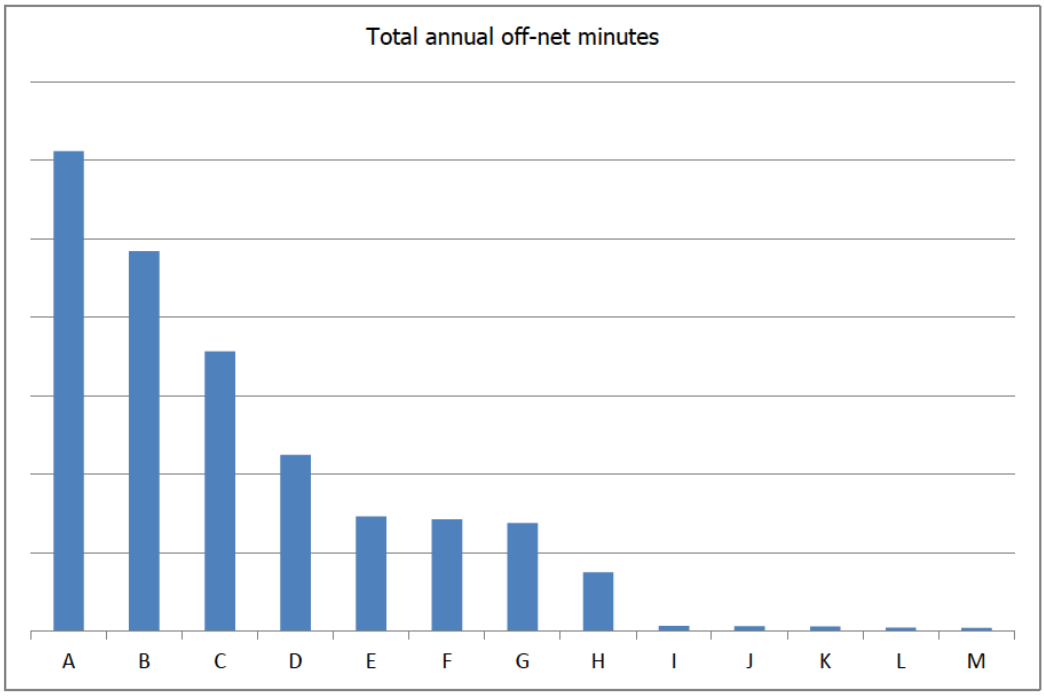


Figure 2: Comparison of annual off-net minutes carried by access providers offering full mobility services in the F.Y. 2013-14



A, B, C,...M are the legends for the access providers offering full mobility service.

31. In the report filed by the Authority in the Hon'ble Supreme Court on 29.10.2011, it was stated that it would take another two years for the asymmetries in the traffic flows to converge to some form of equilibrium between the new and old TSPs and it was opined that the BAK arrangement may, therefore, be implemented after two years. However, as can be seen from the above figure, traffic flows remain vastly asymmetric even as recently as 2013-14.

32. ***International experience shows that not many countries have adopted the BAK arrangement. BAK has not yet been mandated by regulatory fiat even in those jurisdictions which have matured telecom networks. In countries where the BAK arrangement has been adopted, it has, generally, happened not by a regulatory action but through voluntary action of the TSPs themselves.*** *BAK regime has been implemented in some countries where the CPP regime has not been put in place; instead, a Mobile-Party-Pays (MPP) regime (in which both calling party and receiving party pay for the call) is in force in such geographies. In view of the fact that the CPP regime is the prevailing regime in India since 2003 and a significant asymmetry in traffic flows between the TSPs still exists, the case for implementation of the BAK regime remains weak even in the present day conditions of the telecom market.*

33. Since a large part of rural India is still waiting to be connected, building and enhancing telecom infrastructure in rural areas continues to be a policy and regulatory priority. The Authority is of the view that, in the present day telecom market, ***the MTC should be fixed at a level which compensates TSPs adequately for the work done by them in terminating off-net incoming calls.*** *The absence of a cost-oriented MTC (including one where 'MTC=0' as in the BAK regime) would discourage TSPs from investing in rural areas and maintaining network quality standards to the optimum. 5 50,000 villages. Accordingly, the Authority has decided to continue to prescribe a cost-oriented MTC in the country.*

To summarize, TRAI itself concluded as follows:

(a) With a below cost MTC, operators would have no incentive to carry off-net incoming calls;
(b) BAK is best suited in an environment where the traffic flow between the operators is balanced;
(c) The size and customer profile of TSPs may vary significantly and therefore, traffic is significantly asymmetric;
(d) BAK has only been implemented in some countries wherein the CPP regime is not implemented and the terminating operators are allowed to charge for incoming calls as well, but in India it is not allowed;
(e) Against the global average of 96%, India has a teledensity of 75.43%;
(f) Large investments are required in rural areas;
(g) Cost-based MTC induces operators to expand in rural areas;
(h) Since, large parts of rural areas still need to be connected, termination charge should be fixed at a level, which adequately compensates the terminating operator for call

termination, i.e., at cost.

For the aforesaid reasons, it is critical to ensure that the termination charge is not set below cost lest it fall under the 'Bill & Keep' regime, which is the most detrimental case of below-cost termination charge.

Therefore, the **termination charges in a CPP regime should be fixed at full cost** in order to:

- Ensure fair/adequate compensation to terminating operator on the basis of "work done".
- Enable and motivate the operators to make the right investments in the network to ensure good quality of services to consumers.
- Adequate compensation is essential for serving rural and low-ARPU customers who use their mobile phones primarily for incoming calls. TSPs are largely dependent on terminating revenue for recovering the cost of serving these customers.
- Encourage network expansion into areas that are likely to experience more incoming calls, such as rural and remote areas.

Q2: In case your response to the Q1 is 'Cost oriented or cost based termination charges', which of the following methods is appropriate for estimating mobile termination cost?
(i) LRIC+
(ii) LRIC
(iii) Pure LRIC
(iv) Any other method (please specify)
Please provide justification in support of your response.

Bharti Airtel's Response:

While the determination of the termination charge using the LRIC model may be relevant in countries wherein telecom sector has matured and traffic is nearly symmetric and does not requires any investments in rural/remote/non-remunerative areas, the same is inappropriate for India.

India is a predominantly prepaid market without any fixed monthly cost such as rental. Therefore, operators do not have much opportunity to recover the cost of incoming voice minutes from other sources apart from IUC/MTC. Further, the network is required to be rolled out in rural and remote/non-remunerative areas where the business, which depends heavily on outgoing calls, may not allow the recovery of the cost. Hence, it is critical to recover the adequate cost from incoming calls.

We, therefore, recommend the Fully Allocated Cost (FAC) model as the most appropriate method for estimating the mobile termination cost. In fact, the Authority itself had been

using this methodology for the last 12-13 years, since it is verifiable and less prone to dimensioning errors unlike the bottom-up approach used in the LRIC/LRIC+ model.

FAC has the advantage of simplicity and is based on audited data, leaving no scope for disagreement or dispute. It also ensures that each cost element is clearly identifiable and included and relies on the actual data furnished by the operators.

The termination charge for each operator should be calculated on the basis of their audited ASR data. To take care of inefficiencies, the data of outliers may be discarded for the determination of the IUC.

Further, while selecting an actual efficient operator, it is recommended that the Authority take into account the cost models for operators who meet certain minimum criteria of coverage in terms of both rural population and geographic coverage, i.e., DHQs/BHQs.

Costs to be considered while determining the termination charge:

All cost items, including but not limited to the following, should be captured in the FAC methodology for the calculation of termination charges:

(a) **Network Operational Costs**: Site running costs such as rent, energy, security, rates and taxes, repairs & maintenance, AMC charges, MSC running expenses, managed service charges, PCM charges, signaling charges, stores and spares consumption, site relocation and handling charges, warehouse rent, insurance charges, etc.

(b) **Employee and Administration costs**: Personnel and administration costs, including allied services that are directly attributable to administering a network.

(c) **Customer Service:** The call center for complaint resolution caters to all the issues in the network and service delivery. It is incorrect to assume that a network complaint for an incoming call will not be entertained by an operator in the call center.

(d) **IT costs**: Costs relating to IT-based activities, such as billing, etc. are directly attributable to running a mobile network and therefore should be incorporated.

(e) **License Fees and Spectrum Usage Charges:** The annual charges payable by the operator with respect to License Fees and Spectrum/Microwave charges as part of the revenue share should also be included as costs attributable to operating a mobile telecom network.

(f) **CAPEX cost:** With the expansion of the Indian telecom market in terms of subscribers and the subsequent increase in the exchange of traffic, even the **operators who may not add new customers are required to invest heavily into network expansion so as to**

provide coverage, maintain Quality of Service levels and support the increased incoming traffic from other operators. The following items need to be included while calculating the CAPEX cost for termination charges:

- ✓ Core Network - HLR, GMSC, MSC, STP, BSC, IN (SDP and SCP), SMSC etc.
- ✓ Radio Network - BTS, Microwave Hops
- ✓ Backhaul - OFC for inter-node connectivity
- ✓ Infrastructure costs
- ✓ Associated IT CAPEX

We would like to submit that the CAPEX cost in the form of depreciation on fixed assets deployed be included while calculating the termination charges.

(g) **Spectrum Cost:** Spectrum cost paid in the form of entry fee is also part of the CAPEX invested into the network and amortized over the period of the license. The amortization costs need to be factored in while determining the termination charges. Moreover, post the change in methodology of allotment of spectrum from administrative to auction; a significant amount of CAPEX has been incurred by the operators in acquiring spectrum. It is therefore imperative that such significant costs incurred by the operators should be considered while determining the termination charges.

(h) **WACC:** The return on investments should be based on Weighted Average Cost of Capital (WACC) on the capital employed by the operator, to ensure that adequate protection is given to the operator on its investments.

The cost calculated on FAC basis is approx. 34 paisa per minute. We are submitting a detailed calculation sheet to the Authority separately.

LRIC model is not the right approach for India:

(a) In the LRIC model, the termination charge is determined using a bottom-up approach where the future cost for a hypothetical operator is calculated on the basis of an assumed coverage and capacity instead of the cost of the actually deployed network. Most variants of the LRIC model only consider the incremental cost, therefore, they do not entirely compensate the full cost.

(b) Given the asymmetric market structure and traffic and asymmetric level of coverage and network rollout, the incremental cost model is not suited for India. The reasons are detailed below:

- ✓ There are 4-9 operators in each service area with a heterogeneous profile in terms of their length of operations, technology deployed, network coverage and profile of customers served. Some operators have a vastly deployed network encompassing urban and rural areas whereas others are largely present in urban areas. LRIC

modeling for the two set of operators is very different and will yield completely different results. LRIC is normally used only in markets where the operators' profiles are homogenous.

- ✓ There is a huge imbalance in traffic between operators and, therefore, any method suggesting incremental cost would lead to subsidization of one operator by the other. With the entry of a new operator, the level of traffic imbalance, since the last IUC review in 2015, has increased from a nominal level of 4-14% to an extraordinarily high level of 90%. It seems this imbalance is going to stay longer, hence justifying the need for the determination of the termination charge on an FAC basis.

- ✓ The LRIC model does not allow for the recovery of historical costs incurred by the operators. It could result in an unfair situation where the marginal cost is pegged at a level, which does not realize the true cost and erodes the margin and, subsequently, the roll-out capabilities.

- ✓ The LRIC model is also hugely prone to errors. It is based upon a large number of assumptions while designing a model network. Any wrong assumption will result in a wrong/unrealistic termination charge. Given that such a model effectively starts from a blank piece of paper, there is a risk that some costs will be omitted or wrongly calculated. Further, the model requires extensive data, not all of which is easily available. Therefore, the assumptions run the risk of the overall model not being very reliable and susceptible to errors.

- ✓ In a heterogeneous market like India, where network coverage and traffic is largely asymmetric, it is difficult to list a common set of assumptions for all operators, leading to the possibility of disputes.

Due to the aforesaid reasons, we do not concur with the Authority estimating termination charges using any variant of the LRIC model.

In case TRAI still continues to determine the termination charge using the LRIC model, then such a model should be developed in a transparent manner and all its assumptions should be agreed upon with the stakeholders, for which a joint working group comprising the members from the operators and TRAI be constituted. The various costs as indicated above for the FAC model should be included in the LRIC model.

In the year 2015, while framing the IUC regulation on the basis of LRIC+ model, TRAI neither shared the model nor agreed upon the assumptions with the stakeholders. This is in sharp contrast to the process that is followed internationally by regulatory bodies such as Ofcom. Ofcom transparently seeks inputs from the stakeholders and holds a consultation on the finalization of assumptions for the LRIC model. The model is finalized only after the

agreement of assumptions with the stakeholders, post which the model is used for the determination of termination charge in the utmost transparent manner.

The following time-table followed by Ofcom (United Kingdom) shows the amount of rigor required to finalize the LRIC model. Ofcom undertook the following steps in a process that required more than a year to complete[8].

Steps	Particulars – Ofcom	Date/ Period
-	Time period for which mobile termination charge is to be fixed	1-April 2015 to 31-March 2018
1	Stakeholders workshop No. 1, explaining the background of the review	23-Oct-2013
2	Release of cost model for calculation of termination charges for calculation and comments of stakeholders. Version 1 released.	17-Jan-14
3	Stakeholders workshop No. 2 – To deliberate on cost modelling of MTRs and providing stakeholders with an early opportunity to comment on the direction of the modeling	23-Jan-2014
4	Publication of Consultation Document	4-Jun-14
5	Closing date for Responses	13-Aug-2014
6	Draft Statement published with explanatory memorandum for notification to European Commission (EC), BEREC and other national regulatory authorities	6-Feb-15
7	Published detailed Cost Model with all justifications.	6-Feb-15
8	Comments from EC received and were taken into account	6-Mar-15
9	Final decision released by Ofcom with - Annex 1 to 6: The regulatory framework and analysis of the effects of the cost standard on consumer prices and usage - Annex 8: Mobile network cost modelling - Annex 7: MCT cost model approach and design - Annex9: Calibration of the 2015 MCT Model -Annex 12: Model output and sensitivity	17-Mar-15
	Total time taken with complete transparency of Cost Model with justification on usage of numbers[9]	1 Year 5 Months

Some of the steps that ought to be followed by TRAI are listed below:

a) TRAI should float the assumptions of the model network, which is a close representative of the present networks.

[8] https://www.ofcom.org.uk/__data/assets/pdf_file/0016/74221/mct_consultation.pdf
[9] https://www.ofcom.org.uk/consultations-and-statements/category-1/mobile-call-termination-14

b) Post the comments and deliberations with stakeholders, the technical specifications should be frozen and published for stakeholders in a completely transparent manner.
c) These technical specifications should be similar to those of the actual networks deployed so that they truly represent the actual networks deployed in the country.
d) The non-network elements such as Customer Care, Call Center, Billing (both postpaid and pre-paid), Distribution, Sales, HR, Administrative and Legal should be modeled along with the network model.
e) Once the model is finalized and the actual cost is calculated, the detailed calculations should be floated for stakeholders' views in the form of a draft regulation/calculations.

Since the fixation of the IUC at the optimum level is most critical for the orderly growth of the telecommunication industry, it is very important to follow the above-proposed steps in a fully transparent manner.

It is also worthwhile to mention that as per the LRIC model developed by Airtel basis the model operator as assumed by TRAI, the cost per minute is approx. **33 paise.** Some of the key assumptions are as follows:

- 5 circles with a mix of Metro, A, B and C category circles have been taken as representatives.
- The model operator has been defined in these circles on the basis of the HHI Index defined by TRAI.
- Traffic per subscriber on the basis of Industry average has been used.

The detailed calculations/model will be shared with the Authority separately.

Further, we would like to bring to your notice that the detailed calculations while framing many other regulations, e.g., ceiling roaming tariffs, CLS etc. have been explained and made known to the stakeholders by TRAI. TRAI has also released many draft regulations before releasing the final regulations, e.g., explicit consent for the activation of data services, roaming tariffs, etc.

We recommend that TRAI should maintain the highest level of transparency in the spirit of compliance with the requirements as per section 11 of the TRAI Act, 1997.

The Authority has always accounted for a certain level of asymmetry while fixing the cost:

During its last IUC review TRAI had itself observed an asymmetry of the order of 4-14% between the operators carrying the majority of the traffic, and accordingly took into consideration 30% of the offnet incoming traffic while prescribing the below-cost MTC.

On the other hand, while framing regulations on calling card, toll free services etc., TRAI had acknowledged 100% traffic asymmetry and, therefore, fixed the cost at the full cost of 40 paisa.

Keeping in mind TRAI's current wish to reduce the MTC to B&K once the traffic becomes symmetric, we would suggest an alternate way to prescribe MTC, which is linked with asymmetry. Such a practice is already being witnessed by the industry in other segments and will help resolve the issue for the future too. We propose a slab-wise termination charge for both Mobile and Fixed Line as per the table below:

	Imbalance ranging from	**Termination Charge**
Zero Imbalance	+/-0.25%	0 paise/ min
Minor Imbalance-	+/-5%	14 paise/min
Small Imbalance	+/-10%	20 paise/ min
Major Imbalance	> +/-40%	35 paise/min

Note:

- Imbalance (%) = [I/C MOUs – O/G MOUs]/[I/C MOUs + O/G MOUs]*100
- For major imbalance (+/- 40%), the terminating operator may be compensated for full cost as per International Calling Card Services Regulation dated 19.08.2014

Advantages of the slab-wise termination charge are:

(a) An increase in traffic imbalance/asymmetry will increase the termination charge and hence will reduce the arbitrage between the "full cost" and "below cost/zero termination charge".

(b) Further, this will dis-incentivize any operator to create imbalance/asymmetric traffic and exploit such arbitrage.

(c) It will, in fact, incentivize the operators to work towards making the traffic balanced and symmetric.

(d) It will dis-incentivize the operators from introducing any non-IUC compliant and predatory tariff plans.

(e) Such a regime will promote an increase in network investments as the terminating operator will get a fair and adequate compensation for the usage of its network.

(f) The originating operator will expand its network and coverage so as to balance its traffic with other operators and reap the benefits of the lower termination charge.

(g) As recognized by TRAI itself, in many countries the BAK regime has been implemented by any two operators voluntarily. On the contrary, a mandated B&K in asymmetric traffic conditions will be unwarranted and should not be prescribed.

(h) If the traffic is completely symmetric between two operators, they would not charge any termination charge form each other. Therefore, a slab-wise differential termination charge may facilitate the B&K regime in a controlled manner.

Q3: In view of the fact that the estimates of mobile termination cost using LRIC method and LRIC+ method yielded nearly the same results in year 2011 (as filed in

the Hon'ble Supreme Court on 29.10.2011) and in year 2015 (as estimated for the Telecommunication Interconnection Usage Charges (Eleventh Amendment) Regulations, 2015 dated 23.02.2016), would it be appropriate to put to use the estimates of mobile termination cost arrived in the exercises of year 2011 and year 2015 in the present exercise?

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Q4: If your response to the Q3 is in the negative, whether there is a requirement of running the various LRIC methods afresh using the information on subscriber, usage and network cost for F.Y. 2015-16 for estimation of mobile termination cost?

Bharti Airtel's Response:

As is evident, the estimates of MTC derived during the year 2011 and 2015 yielded the same results. The costs included in the review during 2011 and 2015 have not decreased in the last 4-5 years. In fact, the benefits due to the increase in minutes during the last 5-6 years have been offset by the inflation during these years.

While the inflationary increase in cost continues, the growth in MoUs has slowed down, which would result in an increase in per minute cost. Therefore, a costing exercise keeping in mind this aspect is very important. ***We are sure that the costing done by authority on the basis of latest cost data would result in an increase in the cost per minute and hence Termination Charge.***

Further, during these years, operators had to renew their license and have paid substantial amount to Government against spectrum charges. As per our estimate various operators have paid Rs. 175,000 crore only for spectrum charge, which is assigned or being used for voice. The annual charges for amortization and finance charges for spectrum are Rs. 28,000 Crores. Per MoUs spectrum cost would be approx. 6 paise. (Detailed calculation/ excel sheet will be shared separately)

Further, as claimed by new IP-based operators that the IP-fication of network has reduced the cost, we would like to mention that this discussion is irrelevant as the reduction in cost for one network does not reduce the cost of termination in the other network. For example, a reduction in the cost by Telenor would not decrease the cost of termination by Airtel in its own network. Further, we would also like to bring to the notice of the Authority that the cost of a voice minute in a VoLTE network is not significantly lower than its cost in a 2G/3G network.

Q5: In what manner, the prescription of fixed termination charge as well as the mobile termination charge from wire-line networks as 'zero' through the Telecommunication Interconnection Usage Charges (Eleventh Amendment) Regulations, 2015 is likely to impact the growth of the Indian telecommunication services sector as a whole?

Please support your viewpoint with justifications.

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Q6: Whether termination charges between different networks (e.g. fixed-line network and wireless network) should be symmetric?

Bharti Airtel's Response:

We are of the view that the prescription of fixed line termination as well as mobile termination charge from wire-line networks as 'zero' has not materially impacted the growth of fixed line services. It has been a year and a half since the regulation has been in place but the number of wireline connections continues to decline. The growth in wireline broadband connections cannot be in any manner attributed to zero termination charges. Had this provision served as a large incentive, the numbers would have been different and we would have seen growth in fixed line numbers.

Further, TRAI had erred in stating the growth of broadband as one of the key reasons to make calls originating from/terminating onto fixed wireline as zero. It is to be noted that a termination charges applicable to voice and not data service and the growth in the broadband has no nexus with the termination charges being fixed at zero to/from for landline. It is submitted that the Impugned Regulations also fall foul on the touchstone of proportionality.

TRAI, in its 2009 Regulations, had stated that the termination charges cannot be zero and that there are more economically sound ways to provide support to fixed line. In this regard, it is submitted that if wireline services need to be promoted and incentivized, there are other more economically sound methods of doing the same. Some of these can be a reduction in license fees on wireline services (for instance, consider waiving off license fees on wireline services, including wireline broadband access), reduction in RoW charges for laying cables. This would provide the much required impetus for the proliferation of wireline and broadband services. Therefore, TRAI should have followed a cost-based approach while setting the termination charges.

It is submitted that TRAI is not expected to cross-subsidize an operator at the expense of another operator. Moreover, no consultation process was followed on the issue of fixing the termination charge to and from fixed line as zero, especially when the wireline and wireless have been treated similarly for purposes of termination charges since 2003. The present measure to fix termination charge for fixed line at zero is only helping BSNL and MTNL at the cost of mobile operators.

Considering the present situation and the CPP regime in India, the termination charges for wireline should be cost-based and on the basis of work done.

Q7: Which approach should be used for prescribing International Termination Charge in the country? Should it be kept uniform for all terminating networks?

Bharti Airtel's Response:

The termination charge on incoming ILD calls to India is amongst the lowest prevailing worldwide as is evident from Table 4.1 of the consultation paper. The termination rates for international calls in most countries across the globe are also regulated akin to India. While there has been a significant increase in termination rates in other countries over the last 5 years, the rates in India have only been revised by a meager amount, i.e. from 40 paise per minute to 53 paise per minute. In comparison, the termination rate paid by Indian operators is approximately Rs. 3-3.50/min. This arbitrage has resulted in a highly skewed ratio of incoming international calls to outgoing international calls. As of today, this ratio between outgoing and incoming calls stands at 1:20, an increase from 1:5 in the last 6 years. Such a skewed ratio has the following implications:

(a) Indian customers subsidize the calling costs for international operators, this despite international callers having a much higher paying capacity (per capita GDP) than Indian customers.
(b) There is an adverse impact on the profitability of Indian telecom operators. Please note that the Indian operators' share of the current termination charges is just 3% of the total tariffs charged in countries from where the outbound calls originate.
(c) The opportunity to earn higher foreign exchange is lost by the country. At the present traffic volume of 88 billion minutes p.a., an increase of 50 paise per minute will fetch additional forex revenues to the tune of Rs. 4,400 crore per annum (~$733 million per annum).

The dramatic increase in incoming traffic has forced Indian operators to undertake network expansion to maintain quality and customer experience, thus making it imperative that the termination charges be increased.

Ideally, the termination charge for incoming international calls should be in line with the charges payable by Indian TSPs for termination in foreign countries. This will ensure a win-win situation for all parties, as it will lead to:

- ✓ Saving and earning of precious foreign exchange for the country;
- ✓ Higher earnings for the government exchequer on account of high license fees and other increased government levies; and
- ✓ Additional funds for the creation of rural infrastructure and an enabler to provide affordable tariffs to Indian subscribers.

We also believe that charging differently for different countries may not be advisable as this will only result in international traffic flowing through the least costly path.

We, therefore, recommend that the best approach for fixing the termination charge for international incoming calls will be to adopt a forbearance regime for international termination charge, i.e., leaving the charges to negotiations between ILDOs and access providers. This will address the prevailing anomaly in international settlement rates.

However, if TRAI has any apprehension regarding the forbearance regime and wants to prescribe the termination charge for incoming international calls, we request that **the termination charge for incoming international calls in India should be raised closer to Rs. 3-3.50 per minute either in one go or in a phased manner, in order to be at par with the charges paid by the Indian operators for termination in foreign countries.**

Q8: Whether, in your opinion, in the present regulatory regime in the country, the standalone ILDOs are not able to provide effective competition owing to the presence of integrated service providers (having both ILDO and access service licenses) and, therefore, there are apprehensions regarding sustainability of the stand-alone ILDOs in the long-run?

Bharti Airtel's Response:

TRAI's apprehension is unwarranted, as in a free market like India, all operators have obtained telecom licenses after considering the prevailing market conditions and the competition. The licence regime is open for everyone. The comparison between a stand-alone and integrated operator is uncalled for, as integrated operators have invested in the sector much more than any stand-alone operator has. Accordingly, their financial and business risks are much higher than any stand-alone operator.

We disagree with the presumption that the standalone ILDOs are not giving effective competition due to the presence of integrated service providers. As per our internal analysis, Indian ILDOs are carrying approx. 7.2 billion minutes per month and approximately 30% market share is held by 3 standalone ILDO operators while the remaining 70% market share is held by 7 integrated ILDOs. In fact, ***the market share of standalone ILDOs is not influenced by their absence in access segment.***

We believe that any regulatory policy should be fair, transparent and maintain the level playing field and, thus, we humbly request that any policy framework should not be proposed to benefit the business case of any particular operator/category of operators.

Q9: If your response to the Q8 is in the affirmative, which of the following approach should be used as a counter-measure?
(i) Prescription of revenue share between Indian ILDO and access provider in the International Termination Charge; or
(ii) Prescription of a floor for international settlement rate (levied by ILDO upon the foreign carrier) for international incoming calls; or

(iii) Any other approach (please specify)

Please provide justification in support of your response.

Bharti Airtel's Response:

As explained in our response to Q.8, we are of the view that currently there is no apprehension regarding the sustainability of the stand-alone ILDOs in the long-run.

In case TRAI views this differently, it may consider deciding a revenue share regime between Indian ILDOs and access providers in respect of the international termination charge, in proportion to the costs incurred by the respective operators in terms of the investments made in networks deployment (CAPEX). Such costs can be obtained by TRAI from the Accounting Separating Reports (ASRs) being filed by both access providers and ILDOs. A sample illustration to this effect is as under:

Particulars	**Total Yearly Capex cost including Amortization for Industry (Rs. crores)**	**Percentage (%)**
Access*	36,000	96%
ILD*	1,600	4%
Total	**37,600**	**100%**

Note: Yearly Industry Capex Cost as per Airtel estimates

The fixation of revenue share between the access providers and ILDOs, based on their investments in the sector, will ensure that no party is put in a disadvantageous position and their revenue would be proportionate to their investments. Such a regime will be fair, transparent, equitable and non-discriminatory.

Q10: Is there any other relevant issue, which should be considered in the present consultation on the review of Interconnection Usage Charges?

Bharti Airtel's Response:

No Comments