PB/VIL/91

17th October 2016

Shri Arvind Kumar,
Advisor (Broadband & Policy Analysis)
Telecom Regulatory Authority of India (TRAI),
Mahanagar Doorsanchar Bhavan,
Jawaharlal Nehru Marg (Old Minto Road),
New Delhi-110002

Sub: Consultation paper on Review of Interconnection Usage Charge (IUC) - Vodafone India response

Ref: Consultation paper No.17/2016 dated 5th August 2016.

Dear Sir,

This is with reference to your above mentioned Consultation Paper on Review of Interconnection Usage Charge dated 5th August 2016.

At the outset, we submit that we do not agree with the TRAI's reasons for the current review in advance of communicated timelines and we believe that the Authority should have adhered to the timelines communicated in its 2015 Regulation. We are concerned that our several submissions regarding the same vide our Letters dated 25.08.2016, 20.09.2016 and 12.10.2016 have not been considered by have not been considered by the Authority.

No technological evolution has taken place to warrant a premature review or a move to Bill & Keep (BAK). Even in case of technological advancements, approach should continue to be cost based.

We have not seen any example that any telecom regulator has changed its wholesale charging approach from cost based to bill and keep, because of any technological developments in the telecommunication services sector, rather the technological developments/ changes get incorporated into the costing model of IUC/MTC by the respective regulator.

We have not come across any country where CPP regime is in place in retail market but BAK is applied for domestic termination rate. We do not support Bill& Keep (BAK) for termination charges.

We, respectfully submit that there is **no discussion of rural telephony aspect and its linkage to MTC in the present consultation paper, as against a detailed rationale for cost based IUC/MTC on this ground in the previous Regulation. Any change from a cost based regime**

Vodafone India Limited (CIN-U32200MH1992PLC119108)
7th Floor, DLF Centre, Sansad Marg,
New Delhi - 110 001. India. T +91 11 7171 0766, F +91 11 7171 0767
Regd. Off.: Peninsula Corporate Park, Ganpatrao Kadam Marg, Lower Parel, Mumbai - 400 013. India
T +91 22 7171 5000, F +91 22 2496 3645, Website: www.vodafone.in

will adversely impact our huge investments in the rural areas and bely the promise of cost based approach on the basis of which these investments have been made.

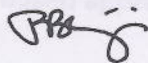
It may be noted that Vodafone's stated position is that termination rate should be cost based and founded on work done principle and, therefore, the termination rate cannot be zero. Further, the current rate for Mobile to Mobile Termination of 14P is below cost. The Bill and Keep principle is certainly not applicable due to various reasons, including the deviation from cost based principles, continuing (rather increasing) asymmetries in traffic, extent of rural coverage and peculiar call pattern in rural areas. We submit that present Calling Party Pays (CPP) regime is founded on Interconnect Usage Charges (IUC) and Termination Rate is an intrinsic part of IUC.

We respectfully submit that Vodafone's constant endeavor is to provide connectivity to Indian Public to enable economic growth, increase in digital literacy and also increase in societal benefits. The provision of connectivity is measured on coverage, capacity and technology, which all involve cost. Therefore, it is imperative that in a CPP regime, where incoming calls are mandatorily free for customers, the network operators who are investing in connectivity must be ensured fair cost based return on work done principle.

Our detailed response to the consultation is enclosed.

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

Warm regards,



P Balaji

Director - Regulatory, External Affairs & CSR

Enclosed: A/a

Copy to;

1. Sh. R S Sharma, Chairman, TRAI
2. Sh. Anil Kaushal, Member , TRAI
3. Sh. Sudhir Gupta , Secretary ,TRAI

Vodafone Response to TRAI Consultation Paper on Review of IUC (No.17/2016)

Vodafone hereby submits its comments to the Telecom Regulatory Authority of India (TRAI) Consultation Paper No. 17/2016 dated 5th August 2016 titled 'Consultation Paper on Review of Interconnection Usage Charge".

A. PRELIMINARY SUBMISSIONS:

At the outset, we submit that Vodafone's stated position is that termination rate should be cost based and founded on work done principle and, therefore, the termination rate cannot be zero. Further, the current rate for Mobile to Mobile Termination of 14P is below cost. The Bill and Keep principle is certainly not applicable due to various reasons, including the deviation from cost based principles, continuing (rather increasing) asymmetries in traffic, extent of rural coverage and peculiar call pattern in rural areas This is apart from other regulatory and legal concerns on Bill and Keep. We submit that present Calling Party Pays (CPP) regime is founded on Interconnect Usage Charges (IUC) and Termination Rate is an intrinsic part of IUC. Our contentions in this response are either in support of the aforesaid position or are without prejudice to the same.

We, respectfully submit that there is **no discussion of rural telephony aspect and its linkage to MTC in the present consultation paper, as against a detailed rationale for cost based IUC/MTC on this ground in the previous Regulation. Any change from a cost based regime will adversely impact our huge investments in the rural areas and bely the promise of cost based approach on the basis of which these investments have been made.**

We respectfully submit that Vodafone's constant endeavor is to provide connectivity to Indian Public to enable economic growth, increase in digital literacy and also increase in societal benefits. The provision of connectivity is measured on coverage, capacity and technology, which all involve cost. Therefore, it is imperative that in a CPP regime, where incoming calls are mandatorily free for customers, the network operators who are investing in connectivity must be ensured fair cost based return on work done principle.

IUC Regulations, 2015[1]promised review in 2017-18 and not in 2016

a) The TRAI, in 2015 had clearly and specifically stated 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. TRAI was cognizant of importance of giving predictable timelines and therefore mentioned that **setting a specific timeline** for undertaking such a review **would impart a modicum of certainty,** which is in the interest of all stakeholders.

[1] Para 88 of IUC Regulations, 2015 (1 of 2015) dated 23rd Feb 2015.

Therefore, the timing of present review is in violation of IUC Regulations, 2015. The relevant portion of the explanatory memorandum to the regulations is reproduced below;

> *"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.****" (Emphasis added)*

b) Even in the present consultation, the TRAI has noted [see para 1.16] that even in 2011, "the majority of service providers also expressed their preference during the consultation process **for a 3 year time horizon for IUC as establishment of a clear 3-year outlook** for IUC would **provide regulatory predictability** and enable service providers to plan their networks and businesses accordingly."

c) **We respectfully submit that the regulatory predictability and stability is key input for any business plans. In this case, since TRAI had clearly enunciated the time line, the 14P MTC [albeit below cost] has been factored in our business plans till 2017-18. Any further reduction at this stage or before the timelines given in 2015 Regulations, where the existing rate is already resulting in an adverse impact, will cause irretrievable damage.**

d) Therefore, the present review being initiated when the new regime has been in force for barely 18 months, has created an investor uncertainty and concern.

e) In view of the above, we do not agree with the TRAI's reasons for the current review in advance of communicated timelines and we believe that the Authority should have adhered to the timelines communicated in its 2015 Regulation. We are concerned that our several submissions regarding the same vide our Letters dated 25.08.2016, 20.09.2016 and 12.10.2016 have not been considered by the Authority. Copies are enclosed as **Annexure-I** for ready reference.

f) Our concern is further aggravated by the recent launch of free voice service by a new entrant, which is in violation of TRAI's own TTO and Clarifications on Regulatory Principle of IUC Consistency, which, we apprehend, may be in expectation of a Bill & Keep (BAK) regime being introduced.

g) Further, we have challenged the IUC Regulations, 2015 in Delhi High Court and the matter is sub-judice. We expect an outcome in the matter in coming few months well before the time mentioned for review in 2015 Regulations. **We are sure that the Authority views the issue of termination charge with equal importance and we urge the Authority to support us in requesting the Hon'ble High Court for early hearing in the pending matter.**

Therefore, we earnestly request TRAI to not to initiate any review at this stage.

We respectfully submit that our response to this consultation paper is without prejudice to any of our rights in the said matter before the Hon'ble High Court and such response should not be deemed as any waiver or admission by us of any kind.

Reasons given by TRAI do not warrant a premature Review

h) **We do not agree with the Authority's reasons for the current review** in advance of communicated timelines. (See Para 1.20 to1.22). We strongly believe that the reasons given for current review are not tenable because of the following reasons;

   (i) FMT service of BSNL cannot be basis for review of IUC, since this product is in violation of license agreement and its various conditions. The Authority is well aware about the facts and moreover matter is pending for decision before TRAI / Government.

   (ii) RAN is an integral part of all technologies. Therefore, up-gradation of RAN (CS RAN to PS RAN) cannot be basis for urgent review.

   (iii) Presently India's telecommunication networks are dominated by 2G and 3G mobile technologies for voice segment, therefore, the substantial investment in these technologies cannot be ignored by the Authority. Service Providers are, in addition, investing in 4G technologies, which also have cost implications. There is at present only one '4G only' operator is the country, which has in fact launched one month after the consultation paper was initiated and such launch by a new entrant cannot be the reason or basis for this consultation.

No Costing Data has been sought for present Review

i) The Authority has mentioned that generally a comprehensive regulatory exercise takes six to nine months. It is respectfully submitted that in such exercises, the Authority usually first seeks the costs from all operators and thereafter issues a consultation paper. In the 2015 exercise, the data collection exercise was initiated by the Authority on 30.04.2014 and the consultation was issued on 19.11.2014.

j) In the present exercise no such cost data has been sought from the operators, directly a consultation has been issued. Rather the consultation questions the need for a costing exercise opining that it "would yield nearly the same results" [See Para 2.42]. Under these circumstances, we question the need for such a review at this stage.

TRAI's stated principles regarding cost based IUC and MTC

k) It is submitted that the Authority must abide by the principles that it has repeatedly enunciated since 2003, that :

(i) A **well-designed IUC regime** should **allow** service providers to **recover costs.**

(ii) **Interconnection prices based on cost are most likely to lead to such desirable outcomes**.

(iii) **Cost-based IUC have a strong economic rationale.**

(iv) **Cost-oriented MTC regime could induce TSPs to expand their footprints in rural areas**.

(v) **MTC should be fixed at a level which compensates TSPs adequately for the work done** by them in terminating off-net incoming calls.

(vi) **Setting MTC at a level which does not recover the cost of 'work-done' carries the risk of hindering the expansion of telecom networks in rural areas**.

(vii) This **risk is accentuated when MTC is set as zero** (i.e. BAK arrangement) because 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.

(viii) **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**.

(ix) The **biggest deterrent for BAK is asymmetry in traffic** between operators, e**specially in a Calling Party Pays regime**

(x) **BAK has not been mandated by regulatory fiat even in those jurisdictions, which have matured telecom networks**.

(xi) 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.

(xii) **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 exists, the case for implementation of the BAK regime remains weak even in the present day conditions of the telecom market.**

l) **In fact, after the launch by a new entrant on 5 September 2016, the traffic asymmetry has increased abnormally qua that operator, to levels of around 8:2 with comparatively higher minutes of use, which is the direct result of the new entrant offering 'free services' till December 2016 and free voice services for life. It is submitted that not only are these tariffs IUC non-compliant as per the Authority's own clarification dated 20 May 2003 and 30th Amendment to TTO [which issue has been raised to the Authority, but has still not been addressed], but such volumes cannot be catered to without augmentation of our radio network for traffic of new entrant, which costs are not covered in the present IUC regime. We believe that the Authority must**

address these fundamental issues first and any IUC review without considering these factors may render the entire review process violative of the Authority's own regulatory principles. We respectfully submit that the Authority is bound by the principles, promises and regulations for cost based IUC, which as per the Authority's own regulatory principles, are important even for tariffs.

We, respectfully submit that there is **no discussion of rural telephony aspect and its linkage to MTC in the present consultation paper, as against a detailed rationale for cost based IUC/MTC on this ground in the previous Regulation. Any change from a cost based regime will adversely impact our huge investments in the rural areas and bely the promise of cost based approach on the basis of which these investments have been made.**

With the above background and analysis (which will form part and parcel of answer to each question in the consultation paper), we submit our responses to the issues raised in the consultation.

B. ISSUE-WISE RESPONSE

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.**

Vodafone Response:

a) It is our submission that **there have been no technological developments that have taken place in the last year to warrant a premature review** of the termination charges regime. We are **not aware of any country in the world, where the costing approach changes on account of technological developments**. We continue to **maintain that a cost based work done approach is the correct approach** for prescribing domestic termination charges. There is **no country in the world that has mandated Bill & Keep by regulatory fiat.**

<u>**Reasons given for need for review are not justifiable**</u>

b) We understand from the Consultation that **the reasons given by the Authority for initiating a review ahead of specific timelines** conveyed by it, are, inter alia, as below:

(i) that the **proposed FMT service of M/s BSNL** [which was put on hold], **requires a close look** to redress the concern **as to how voice calls travelling on public internet** should **be treated from the perspective of termination charges.**

(ii) That **TRAI has initiated a consultation on Internet Telephony** (VoIP) dated 22.06.2016, where it has **raised the issue as to "What should be the termination charge** when call is terminating into Internet telephony network?"

(iii) That in the recent past, **several TSPs in the country have built access networks using 4G mobile technology**. A **few of these TSPs may carry voice on such networks using Voice-over-LTE** (VoLTE) technology in near future. That MTC has been estimated on the basis of underlying network having CS RAN and not PS RAN and that **introduction of PS RAN** in the new networks raises a concern as to **whether the MTC estimated for networks having CS RAN would still be applicable** on networks with PS RAN.

c) In this regard, it is first submitted that the above **reasons given for need for review are not justifiable. Our submissions in this regard, are as below:**

<u>**Proposed FMT Service of BSNL was illegal and cannot be the basis for an IUC Review**</u>

(i) The **proposed FMT service of BSNL was objected to by industry as being in contravention of licensing conditions,** as it violated the national numbering scheme, went against fundamentals of call routing, modified the calling line identification (CLI) which is not allowed under license, led to arbitrage opportunities, loss to exchequer, etc. It was also pointed out that BSNL had itself objected to such calls in Civil Appeal No. 6706 of 2010 before the Hon'ble Supreme Court, wherein, the Hon'ble Court observed and noted:
.... when the international call(s) lands at the local POI ...., the incoming traffic bypasses the authorized route - .... results in concealment of details which results in reduced payment of IUC charges .... and which reduces the cost of providing services which in turn results in destroying the "principle of level playing" ....."

Our above position has already been shared with the Authority vide our Letter No. PB/VIL/55 dated 23 March 2016 and COAI letters No. RSM/COAI/2016/056 dated 1 April 2016 and RSM/COAI/2016/083 dated 4 May 2016.

(ii) Based on industry's representations, the BSNL's FMT service was not launched. We note that the consultation has surprisingly highlighted only the arbitrage aspect, without alluding to license violation aspects highlighted in the industry's submissions, which were made well before the consultation paper and **we are surprised that they do not form part of the consultation paper, which was necessary not only from the transparency point of view, but also a holistic consideration of the issue**. It is therefore our respectful submission that **an illegal service cannot be used as a basis to initiate a MTC review.**

Scope & framework of Internet Telephony is first to be decided by DoT – Review on this basis is premature

(iii) The consultation on Internet Telephony has just been initiated – where, it is our respectful submission, that the very concept on Internet Telephony mooted in the consultation, is at variance with the scope of Internet Telephony service permitted under license as also the Authority's own earlier recommendations on the subject in 2008.

(iv) In this regard, it is submitted :

a. That **Internet Telephony, as is being currently mooted in the consultation, appears to be app based calling,** which envisages "accessing of telecom services of the TSP by the subscriber through public Internet (internet access of any other TSP) [See Question 3 of the Consultation of Internet Telephony.] Thus, when the present consultation says that RAN of TSP is not used, it is presumably referring to a call made through an app using the internet access of another TSP. We believe that **this is not the meaning of Internet Telephony as permitted under license** and is **also at variance with the Authority's own understanding of Internet Telephony in 2008. We rely on our various submissions on this issue to the Authority, including our response to Consultation of Internet Telephony.**

b. Without prejudice to the above, it is submitted that even in case of the above service, it is the origination that is through an APP, but **insofar as 'termination' is concerned if a call terminates on a PSTN/PLMN network, normal termination charges will apply.** Subscriber will pay data charges for receiving only if the call terminates on an APP.

c. In view of the above, we submit that **the consultation is mixing up between App-to-App calling where data charges apply and PSTN/PLMN call which entail interconnection between 'Networks'** [whether 2G/3G/4G/VoLTE] and where interconnection usage charges apply.

(v) Notwithstanding **the above, we believe that any review of MTC on the basis of an issue raised in another consultation where the service is yet to be defined and**

where a consultation on the same has just been initiated and needs to be completed, recommendations made for a final decision by DoT, is certainly premature and unwarranted.

<u>No technological evolution has taken place to warrant a premature review or a move to Bill & Keep</u>

(vi) As regards the MTC review being justified on the basis of introduction of packet switched RAN in the new networks, it is first submitted that as of date there is only one 4G only network in the country [and that too, which has been launched barely a month ago] and all the other TSPs are operating 2G/3G/4G networks, and using CSFB to toggle between 4G/3G/2G.

(vii) We are also pained to see the contradictory positions being taken in different consultations, as regards investments in 4G or 2G infrastructure, an example of which is given below:

Call Drop Compensation Consultation – alleging need for investments in 2G network	**IUC Consultation 2016 - towards migration to 4G networks**
2016 Call Drop Consultation 2015 • ....prima facie, it appears that lack of investment in network infrastructure by the wireless access providers may be one of the main reasons for the problem of call drops. [See para 2.16]	**IUC Consultation 2016** • Where is the incentive for him [TSP] to migrate towards a more efficient network technology (such as 4G) requiring capital investments in the short run [see para 2.23]

It is an admitted case by the Authority that voice is key part of connectivity and hence the Authority's emphasis on QoS and Call Drop Compensation. Operators have been accused of not investing much in 2G networks, which we respectfully submit is incorrect. However, this underlines the factor that 2G technology, which is providing voice connectivity is presently critical driver for telecommunications along with other technologies. All these technologies will work together for some years to come. As of now, a sunset timeline for 2G technology cannot be predicted.

(viii) It is most respectfully submitted that **all technologies (i.e. 2G/3G/4G) require radio access network (RAN) and investment** therein, which is used for providing access to subscribers, moreover it depends on nature of spectrum. **In fact, 2300MHz band [which is being used for 4G technologies and for an IP based network] requires more sites** as compared to 900 MHz spectrum, therefore, just modification or technology development in a one element of network architecture cannot be reason for review of MTC.

(ix) It is submitted that the substantial cost (about 75%) of total telecom service cost (i.e. Capex +Opex) is in Tower (cement/steel)/BTS, RAN, BSC or equivalent for VoLTE networks that does not change for old or new technology.

(x) We note from OFCOM's final determination on MTC review 2015-18[2] **that RAN is integral part of all technologies whether it is 2G/3G or 4G, therefore, it cannot be ignored.**

(xi) **Even when the Authority was carrying out the IUC 2015 consultation** exercise, it had simultaneously issued a consultation on Migration to Next Generation Networks in June 2014, which **noted that while there is a shift from the traditional Circuit Switched (CS) to Packet Switched (PS) environment,** however the status of telecom networks in India is a combination of the legacy circuit switched (TDM infrastructure) and packet switched (IP based switches) networks [which is still the case]. Even after taking note of such evolution, TRAI estimated MTC based on CS RAN. Further, **in the 2015 Regulation, the TRAI even while noting that developments in technologie**s warrant a periodic recalibration, **had prescribed a time frame of three years** for the next review **in order to 'impart a modicum of certainty** which is in the interest of all stakeholders'

(xii) A conjecture that a 'few' TSPs 'may' carry VoLTE call in 'future', cannot be the basis for a premature review. To review the MTC based on a conjecture, is certainly unwarranted. It may be noted that the **work done principle does not change because of technology changes** - whether call is originating or terminating between VoLTE and TDM i.e. VoLTE to VolTE or VoLTE to 3G/2G Call (TDM interconnection).

Even in case of technological advancements, approach should continue to be cost based

(xiii) We would also like to respectfully submit that as per available information with us, **we have not seen any example that any telecom regulator has changed its wholesale charging approach from cost based to bill and keep, because of any technological developments** in the telecommunication services sector, rather the technological developments/ changes get incorporated into the costing model of IUC/MTC by the respective regulator. Attention is drawn to Annexure in the consultation which shows that even the most advanced countries continue to follow a cost based approach for MTC.

(xiv) Thus, the **technology choice has nothing to do with the choice of the underlying regime/ methodology** (e.g. bill and keep vs cost-oriented). The only

[2] See pages 4 and 11 of annexure 8 of MTC Review 2015-18 (MTC review 2015-18: Mobile network cost modeling ,10th March 2015)

connection is of course the evolution of underlying costs that are affected by technology changes. Therefore, in other jurisdictions, technological changes and/or anticipation of these have been reflected in the rates calculated or estimated (e.g. Most models include 4G now) during the MTC review.

(xv) The Authority in 2009, noted that "*Both the originating subscribers and the service providers would be unable to choose whether a call would terminate on a 2G or a 3G network. The outcome would depend on the technical features within the mobile network and the mobile instrument that the receiving party uses. From consumer's point of view, 3G network would need roaming with 2G networks, consumers may not distinguish whether the network they are roaming in is 3G or 2G.* ***The reasons for regulation of voice call termination services on 2G network apply equally to 3G networks and for same service technological neutrality could be useful guiding force*****"** [See Para 5.12.3]. We believe that a similar technological neutral approach would be applicable in the case of 4G as well.

(xvi) We also draw attention to **the Body of European Regulators for Electronic Communications** (BEREC)'s recent publication on "Case Studies on IP-based Interconnection for Voice services in the European Union" dated November 2015, where it has been noted that **even wherever, regulators have mandated for IP-based Interconnection for voice** services (IPvIC) in such cases also **operators are required to pay regulated termination rates i.e. MTR.**(please refer to Annexure-II)

(xvii) In view of the above, we do not agree with **the Authority's** statement **[See Para 2.10]** in the present consultation **that in IP based networks, there has been no custom of levying termination charges** for traffic arriving in a particular network and that B&K is the natural regime of the public internet. We submit that the **TRAI is mixing up with PLMN networks** [which can be either circuit switched or packaged switched] **and App-to-App calling** and **has nothing to do with Network Interconnection provided under license**. It may also not be out of place to point out that such applications have been defined as 'content' in **the Authority's** Differential Tariff Regulation of 08.02.2016.

(xviii) The **move from circuit switched to packet switched networks is an ongoing evolution,** depending upon many factors like handset ecosystem, penetration of smartphones, affordability etc. It is our submission that **no new technological development has taken place over the last 18 months to warrant an earlier review of MTC, a review of the costing approach and certainly not a move to Bill & Keep by regulatory mandate.**

Cost Based Approach was emphasized by the Authority even in 2015 – must be continued

d) The **Authority has very clearly indicated the reasons for implementation of cost based or cost oriented MTR in India** in its various explanatory memoranda to the various IUC regulations. These reasons are summarized[3] below :

   (i) Tariff flows between the TSPs are significantly asymmetric because of their sizes, age of their networks and profiles of their customers are vastly different.

   (ii) Investment in the rural networks- the investment in rural telecom networks have lacked momentum because of

      a. The Customer-life time –value (CLV) of rural customers is far lower than that of urban customers.
      b. The level of utilization of the radio access network remains much lower in rural area (i.e. cost of servicing per customer is much higher in rural areas for a considerable period
      c. The average rural customer's willingness –to-pay (WTP) for consumption of telecom service 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).
      d. Break-event point (BEP) levels on investment in rural areas come much later than they do in urban areas.

   (iii) Cost based regime is imperative

      a. To serve the marginal subscribers in rural areas, it is desirable that termination charges should be cost based. 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.
      b. 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
      c. The risk is aggravated 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.
      d. Since a large part of rural India is still waiting to be connected5, building and enhancing telecom infrastructure in rural areas continues to be a policy and regulatory priority.
      e. 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.

---

[3] Please refer to Para No 25 to 33 of the explanatory memorandum to the IUC Regulation 2015 (1 of 2015) dated 23rd February, 2015.

Traffic Continues To Be Asymmetric, even more so, in Case of a New Entrant

e) We note that **off-net traffic is still asymmetric** [with operator wise and Circle wise asymmetries being highly skewed] especially **in the rural areas, where 61% of our traffic is on account of off net incoming calls.** Even if we look at total incoming and outgoing traffic, 58% of our traffic in the rural areas is on account of incoming calls.

f) Also, there is no substantial change in traffic pattern over the last year.

Table No.1

Statement of distribution of off-net minutes in the FY 2014-15 and 2015-16						
Particulars	Total	Rural	Urban	Total	Rural	Urban
	2014-15			2015-16		
Incoming - Off net	57%	61%	54%	57%	**61%**	54%
Outgoing - Off Net	43%	39%	46%	43%	39%	46%
Total	100%	100%	100%	100%	100%	100%

Table No 2

Statement of network usage patterns(Minutes of Usages)						
Particulars	Total	Rural	Urban	Total	Rural	Urban
	2014-15			2015-16		
Overall- outgoing	46%	42%	49%	46%	42%	49%
Overall-Incoming	54%	58%	51%	54%	**58%**	51%
Total	100%	100%	100%	100%	100%	100%

g) The traffic asymmetries are starker if one goes to service area wise level, which reflects the differences amongst operators in the investments made and connectivity provided in urban only or urban and rural areas. As explained later, **cost based MTC is the lifeline of rural connectivity**. The Authority will be doing a great disservice to the Government National Digital Agenda if it notifies a regime that discourages rural investments.

h) The traffic asymmetry has been further aggravated qua a new entrant as pointed out above, with traffic flows being asymmetric in the ratio of 8:2 and very high minutes of use.

Rural Investments Require Cost Based MTC - Cost based MTC is lifeline of Rural Connectivity

i) **We note that out of 130 crore population of India, 87 crore reside in rural areas. It is submitted that more than 10.6 crore, from out of 20 crore subscribers of Vodafone, belong to the category of rural subscribers. The total All India wireless rural subscriber base was 44.5 Cr as at end March 2016 out of total subscriber base of 103 Cr.**

j) **At the end of March 2016, there are more than 85,000 BTS of Vodafone in rural areas, which constitute 43% of total BTS of Vodafone. The magnitude of investment made by Vodafone in rural areas can also be assessed from the fact 52% of total sites (GBT+RTT+RTP+IBS) are in rural areas. 74% of GBT sites of Vodafone are in rural areas, which sites entail higher investments and backhaul costs.**

k) **It is submitted that 45% of call traffic (MOUs) is generated in our network by rural areas. The total outgoing traffic in rural areas is in turn only 42% of such MOUs from Rural Areas. Importantly out of 58% of incoming traffic in rural areas, 62% thereof (more than 3/5th) is off net incoming traffic. Thus out of total MOUs in rural area (incoming and outgoing for both off -net and on net) around 37% of traffic is off net-incoming traffic on our networks.**

l) It has been noted that under the National Digital Literacy Mission (NDLM)4, the Government has set a target to digitally literate at least one adult from each of 147 million rural household. In the recent budget 2016, the Government has initiated a dedicated new Digital Literacy Mission Scheme for rural India to cover around 6 crore additional household within the next 3 years.

m) We note that as per media reports5 only 16 percent of all rural households in India are digitally literate. It may be because of digital gap in rural areas, and unviable business etc. We believe that to achieve the targets of digital literacy in rural India, it is necessary that there must be a cost based IUC/ MTC regime based on work done principle.

n) The Table 1 and Table 2 further substantiate that in rural areas, the number of incoming calls are far higher than the number of outgoing calls. In case of off-net calls, the ratio of incoming to outgoing in our network is 61:39 in 2015-16. As mentioned earlier there is recent abnormal increase in incoming calls due to new entrant and hence incoming calls to rural areas will further increase.

o) Further, the ARPU of rural customers continues to be far lower than that of an urban subscriber. In our network it is only Rs.131/- for rural subscriber as against average all India ARPU of Rs.195/-. Further the proportion of voice revenue from Rural areas is 88% as against urban areas which is 78%. Also, considering the overall lower usage in rural areas, the radio network is less utilized in rural areas. The sites are set up at huge costs, but the utilization is far lower.

p) **These investments have been made by TSPs in rural India to meet Government's policy objectives and the TSPs who have shown commitment and rolled out in rural areas should at least be fairly compensated through the IUC regime. Any review that sets the termination charges at below cost/Zero will not only be a reneging of the**

[4] NDLM is an effort to achieve the government's objectives to empower rural citizens by making them digitally literate

[5] http://www.theweek.in/news/sci-tech/report-card-on-india-internet-inclusion.html

express promise on the basis of which rural rollouts were made, but will also lead to TSPs being forced to re-evaluate their business case for rural areas. In case the termination revenues are done away with, the TSP has absolutely no commercial incentive or reason to set up sites in rural areas.

q) The factors leading to decision on approach of having cost based charges for mobile to mobile calls termination in last consultation i.e. low CLV, BEP and WTP and low level of utilization in case of rural subscriber/coverage, remain valid even today and hence there is no valid reason to deviate from the past approach of having cost based charges.

r) We respectfully submit that the important issue of the impact of the MTC regime on rural connectivity has not been considered in this consultation.

s) It is clear from the above that **the business case in rural areas is highly dependent on termination revenues** and **any costing exercise that disregards the case for rural areas or dis-incentivising further investments in the rural areas, may end up jeopardizing the national connectivity objectives in rural areas. Most of the sites will become immediately unviable unless the tariffs of outgoing calls are increased. We submit that forgoing of cost based approach will either impose an additional burden on rural customers or will deprive them of existing services and hamper further growth in rural areas. This will also mean punishing the TSPs who have taken initiatives to connect the unconnected in rural areas. This will have far larger consequences on connectivity for all communication needs of the country in rural areas.**

t) Presently majority of voice traffic is running on 2G/3G networks. It is also submitted that presently about only 27% of our subscribers have smart phones. In the rural areas, the penetration is even lower, with only 18% of our subscribers having a smartphone.

Table No3

Statement of type of handsets on the network							
		2014-15			2015-16		
Type of handsets	Unit	Total	Rural	Urban	Total	Rural	Urban
Non Data Phones	%	34%	40%	27%	30%	35%	25%
DEH (2G only phones)	%	48%	50%	45%	43%	47%	39%
Smart Phone	%	18%	10%	28%	**27%**	**18%**	37%
Total Handsets		100%	100%	100%	100%	100%	100%

u) It is further submitted that **presently 81% of the total revenue is generated from the voice segment** and it is a leading revenue segment in Indian telecommunication market. **In rural areas, the revenues from voice are 88%.**

Table No 4

Statement of revenue share of voice and data during the FY 2014-15 and 2015-16							
Particulars	Unit	Total	Rural	Urban	Total	Rural	Urban
Revenue share		2014-15			2015-16		
Share of Voice to total revenue	%	87%	92%	83%	81%	88%	78%
Share of data to total revenue	%	13%	8%	17%	**19%**	**12%**	22%
Total		100%	100%	100%	100%	100%	100%

v) It is thus submitted that with **82% of our rural subscriber base using feature/2G phones, and with 88% of the rural revenues being from voice services, a costing review ignoring such aspects but based on the presumption of use of 4G technology, use of smartphones and data based calling, is evidently premature.** Thus, MTC determination based on circuit switch cost is still applicable and hence it is premature to discuss the cost of CS RAN vis-à-vis PS RAN for the determination of MTC at this stage.

w) We further note that **the Interconnection Principles contained in the WTO Regulation Reference Paper advise for** *"cost-oriented rates that are transparent and reasonable, having regard to economic feasibility".*

x) That it may also be noted that **DoT has submitted a paper dated 11.04.2015, to the ITU-D** Study Group on "Possible charging mechanism of wholesale pricing i.e. Interconnection Usage Charges (IUC) in developing countries" **where it is stated that Mobile Call Termination Rates (MTRs) are required to be cost-based and compensatory, that is to say, the terminating network should be compensated for the value of the resources it uses when providing the termination service.** Thus, it is the stated view of DoT before the ITU that MTC must be cost based[6].

y) In view of above facts and analysis, we submit that **a "Cost based approach" be adopted** for prescribing termination charges, **for maximization of consumer welfare, adoption of more efficient technologies and overall growth of the telecommunication services sector in the country.**

<u>Bill & Keep is not the correct approach and cannot be introduced by Regulatory Mandate</u>

[6] http://www.itu.int/md/D14-SG01-C-0095/en

z) The **Authority has consistently and strongly advocated against a Bill & Keep regime** in a scenario where traffic flows are asymmetrical and operators are at different stages of development in their networks. It has also stated that Bill & Keep has never been introduced anywhere in the world, by way of regulatory mandate. Attention is drawn to Authority's Regulations of 2009[7] and 2015[8]

aa) It is evident from the above that it has been the clear and consistent view of the Authority that

(i) A cost based approach is the correct approach to follow
(ii) That Bill and Keep have never been mandated by Regulatory fiat
(iii) That Bill & Keep approach has never been adopted where a CPP regime is in place
(iv) That Bill & Keep requires symmetry in traffic flows
(v) That where the BAK arrangement has been adopted, it has, been through voluntary action of the TSPs

bb) We further note that worldwide wherever CPP regime is applied regulators have implemented cost based/ cost oriented costing approaches for interconnect pricing/ IUC. To the best of our knowledge, **we are not aware of any country where CPP regime is in place in the retail market and a Bill and Keep (B&K) regime applies at the wholesale level.** Attention is drawn to the Table published by TRAI in its Consultation Paper on Review of Interconnection Usage Charges, dated 27th April 2011[9].

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.**

Vodafone Response:

a) At the outset it is important that any chosen costing approach should **consider the work done principle** allowing for both CAPEX and OPEX recovery including spectrum costs and common costs, for estimating the costs involved in providing the termination services. Further, **it is also necessary that the costing approach must** provide incentives for investment, innovation and inclusion.

[7] See Paras 5.3.13
[8] See Paras 31-32
[9] http://trai.gov.in/WriteReaddata/ConsultationPaper/Document/cp-27apr2011.pdf (page no.69)

b) **Bearing in mind the need for further investments** in network deployment, increase in coverage and subscribers, we believe that **adoption of a Fully Allocated Cost [**FAC] **is crucial for the future development of the Indian market** and achievement of stated Government policies. It is therefore imperative that the IUC/Termination Charges (Mobile Termination Rate/Fixed Termination Rate) should be cost based and compensatory and that a FAC approach will best suited to meet national connectivity objectives.

c) The TRAI has also noted in 2009 that an **FAC approach 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, **is easy to develop and understand and the results are easy to audit.** The TRAI also noted that it is **possible to make use projections on the historical or current costs to bring in forward looking element in the analysis**

d) We also note that in **all other past costing determinations, the TRAI has used FAC method** for determination of charges/ tariff under the regulations or TTOs **[**Charges for IPLC (Half Circuits, Port Charges, Cable Landing Station (CLS) Access charges, ILD Calling Card – Access Charge (Outgoing)] where TRAI has relied on Historical Cost data from Accounting Separation Reports and has provided for OPEX+ Capex recovery i.e. Depreciation and RoCE.

Table No 5

Name of the Network services/ products	**Costing approach**	**Source of Data**	**Cost base**	**Costs considered**
IPLC (half circuits)	FAC	Accounting Separation Reports (ASR)	Historical cost	OPEX+ Capex recovery i.e. Depreciation and RoCE
Port Charges	FAC	ASR	Historical cost with individual updated cost data	OPEX+ Capex recovery i.e. Depreciation and RoCE
Cable Landing Station (CLS) Access charges	FAC	ASR	Historical cost with individual updated cost data	OPEX+ Capex recovery i.e. Depreciation and RoCE
ILD Calling Card – Access Charge (Outgoing)	FAC	ASR	Historical cost	OPEX+ Capex recovery i.e. Depreciation and RoCE

e) With respect to LRIC and its variances, the Authority had noted in its IUC Regulation 2009 that these are very subjective, complex and time-consuming to develop. They are not based on accounting procedures and therefore difficult to audit. Further[10] that as the LRIC model is based on hypothetical assumptions that require consensus among all stakeholders before being adopted by the Authority. (Para 5.3.8) *TRAI had thus concluded that "…. it would not be appropriate to use a model, which is complex, subjective and does not seem to confer any great advantage for calculating mobile termination charge. On the other hand the top down model taking data from annual report, account separation report etc. of the service providers with proper normalization and adjustment would be less subjective, verifiable* ***and would not lead to of much difference in estimating the termination charge."***

f) Despite the above, the Authority in the last IUC determination i.e. **IUC Regulation 2015, used the LRIC+ model** for estimation of Mobile Termination Charge (MTC), without abiding b**y the very pre-requisites that it had highlighted in 2009**. It is a matter of concern that **despite repeated requests**, the **said model was not shared with stakeholders** and the exercise was carried out in a **non-transparent manner**. The Authority thus departed from its own position taken in 2009 that as the model is based on hypothetical assumptions it requires consensus among all stakeholders before being adopted by the Authority. This lack of transparency was also of concern as the LRIC+ model used by TRAI yielded an MTC that was 60% lower than that arrived at by TRAI using FAC approach [based on the costs shared in the ILD calling card consultation in 2014[11]], when it was the view of the Authority that using a FAC rather than a LRIC model would not lead to of much difference in estimating the termination charge.

g) We also note the following inconsistencies in the LRIC estimations in 2015, that were pointed out to the Authority vide industry letter No. RSM/COAI/2015/043 dated 10 April 2015, viz.
   (i) The model does not carry a mark-up for license fee and spectrum usage charges
   (ii) The spectrum costs allocated and the price at which the spectrum was valued was not disclosed; further the spectrum costs did not take into account the results of the spectrum auctions that were carried out in March 2015. Media reports quoted TRAI as opining that the spectrum costs would lead to a 6p increase in MTC
   (iii) The common costs were not applied on spectrum costs

   It is our submission that the above also led to a severe under estimation of MTC, even as per the LRIC+ model adopted by the Authority.

h) Considering the recent changes in the telecommunication sector where suddenly the incoming traffic has increased manifold, it becomes even more necessary that MTC should be fixed in such a manner which allows the full cost recovery on work done principle,

---

[10] Please refer to Para 5.3.9 of explanatory memorandum to the telecommunication interconnection usage charges (tenth amendment) regulation, 2009 (2 of 2009) dated 9th March 2009.
[11] Please refer to Annexure -V

therefore, FAC is strongly recommended approach for estimation of domestic termination rate.

i) **However, if the Authority has different view then LR(A)IC+ would be the appropriate approach. We however request that:**

(i) in the event that a LRIC model is adopted by TRAI, then, considering the complexities and significant techno-commercial assumptions (whether at Access level or Core level or Transmission level) involved in designing a hypothetical efficient network that would attempt to reflect significant variations of Indian market and geographies; the Authority **must openly share the model so that there is consensus on the assumptions, thus leading to more acceptable outcomes.** We submit that **this is also the practice adopted by enlightened Regulators** and that the same may be adopted by the Authority as well.

(ii) We also request that the **anomalies highlighted by us in paras above, be kindly be addressed by TRAI** including incorporation of the spectrum costs of the 2015 and 2016 auctions in the estimation of MTC. [the current estimations are sub judice before the Delhi High Court in WP (C) 10985/2015 and 10986/2015]

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?

Vodafone Response:

a) It is submitted that as per our estimations, we believe that the MTC was under-estimated in 2011 and in 2014-15. The various flaws in the calculations have been shared with the Authority on both occasions.

b) The key errors/ anomalies observed in the estimation of mobile termination cost of TRAI which were carried out in 2011 and 2015 respectively are tabulated below:

Sl.No	Details of anomalies	Remarks	Remarks
		2011 Model	**2015 Model**
1	Revenue share License fee @ 8% was not loaded in the LRIC models of 2011 and 2015.	Not loaded separately	Not loaded separately

2	Average Spectrum Usage Charge i.e. 5% was also not loaded in LRIC Models of 2011 and 2015.	Not loaded separately	Not loaded separately
3	Cost of spectrum was not included in the LRIC Model	Not included since it is not evident from the report filed with SC.	Included but it was highly undervalued.
4	Accounting treatment of intangible assets (i.e. right to use access spectrum or bundled spectrum cost with entry fee) not consistent with Indian accounting standards which has been used for tangible assets i.e. network elements etc.	Not clear from the report since it was not included. It is also evident from the report that there was no discussion or explanation about the annualized spectrum cost	It is evident from the paragraph 57 (page no26-27) and paragraph 19 of annexure (page no 49) of the IUC regulations 2015, dated 23rd Feb 2015.
5	LRIC model of 2011 and 2015 has not defined the meaning of 'fair share' in the case of equivalent operator in term of percentage.	Not defined	Not defined
6	There was a variance in the rate of common cost. In 2011 model it was about 17% or Rs 0.02 per minute whereas in 2015 it was 10% or Rs 0.0118 per minute. From the records someone can interpret that the common cost rate has been reduced to proportionately to the extent of the cost of spectrum so as to arrive at the same end result. It can be concluded on the face of record that how had TRAI arrived at the cost of spectrum per minute i.e. (0.2000-0.0118= 0.0082) which has been shown as Rs 0.0078	Number has been arrived arbitrarily since there is no logical information provided in the report filed with SC	It appears that rate of common cost has been reduced to find out the cost of spectrum per minutes
7	Details of CAPEX to OPEX Ratio are not provided.	Not provided	Not provided

c) **In view of above observations, we submit that in the both previous models, the MTC was highly underestimated. Therefore, these models cannot be used for present**

exercise. Moreover, if we only do the above corrections in the 2015 costing, the revised MTC would be about 20 Paise per minute.

d) Further, **we do not agree** with the Authority [Para 2.42] that **'intuitively' a cost determination exercise would lead to the same results**. Apart from our submissions above that the costs have been under-estimated in earlier exercises, it is submitted that over the period of time, the cost structure of wireless industry has changed significantly and traffic also continues to be asymmetric as different operators are at different stages of development. In fact, in some circles, there is no change in spectrum quantum but cost of spectrum has been increased in manifold and it has direct impact on overall cost structure of the wireless segment. It is further submitted that during the FY 2015-16 the cost of spectrum was more than 60% of capital employed / investment whereas in 2011 and 2014, it was substantially low if compared with 2016. It is also submitted that cost of regulatory compliances and cost of quality of service have also increased.

e) Therefore, the presumption that a fresh exercise will yield the same results, is not true. This statement of the Authority also once again raises the question, that if it is indeed the Authority's estimation that the results will be the 'nearly the same', then it is not clear why the review is being undertaken ahead of the prescribed schedule.

f) It is submitted that the Authority did not include the cost of spectrum of the March 2015 auctions in the estimation of MTC in 2014-15. Further, recently the Government has concluded spectrum auction value of Rs 65,789.12/- Crore and it is not the case that such spectrum will not be used for voice. Clearly, the results of these auctions will have a significant impact on the costing exercise. There are also a number of consultations that have been initiated by the Authority in the recent months that could have a very major cost impact on the industry.

g) We submit that it is the regulatory mandate/responsibility of the Authority to carry out a proper cost determination exercise. It is submitted that the cost based approach used by the Authority in fulfillment of its statutory function under the TRAI Act should be:
   i. **Accurate** so that the results can be used to support decisions based on the right level of prices;
   ii. **Transparent** so that the methodologies followed for the attribution of costs and preparation of the results can be verified;
   iii. **Credible** so that the telecommunications industry and the market accepts the methodologies and the results of the cost based approach; and
   iv. **Consistent** with established economic principles and regulatory practices.

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?

Vodafone Response:

a) As submitted, it is the regulatory mandate/responsibility of the Authority to carry out a proper cost determination exercise, whenever an IUC review is undertaken estimation of mobile termination should be carried based of latest information available under the accounting separation reports / annual accounts of the TSPs.

b) It is our view that the Authority should adhere to its original schedule and carry out the review in 2017-18, based on **information on subscriber, usage and network cost for F.Y. 2016-17.**

c) As submitted above, we believe that the current stage of network development and the recent change in the market structure and tariffs introduced in the market, adoption of a FAC approach would be most suitable.

d) However, in the event that the Authority decides to adopt a LRIC based approach, we submit that it should be LR(AI)C+ approach and we once again urge that the Authority should share the costing model along with costs and assumptions for discussion and consensus amongst all stakeholders. Also, the anomalies pointed out in the 2015 estimation may kindly be addressed in the present review.

e) In fact, as a first step, we suggest that the Authority may share the model which was used for estimation of Mobile termination charge in 2015 (i.e. excel sheet along with formulas and assumptions) before the collection of relevant data.

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.

Vodafone Response:

a) We submit that setting termination charges at Zero for call to/from fixed line networks goes against the principle that interconnection usage charges must be cost based.

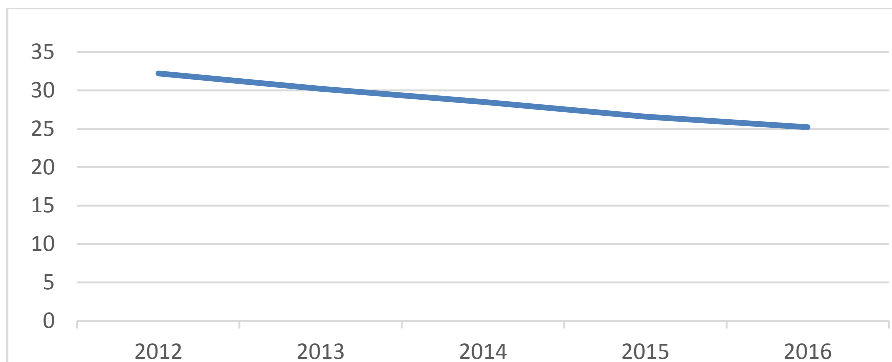
b) We also note that in 2009, when such a proposal was mooted by a TSP, the Authority noted as below:

With regard to comment of a PSU that there is a need to have a zero termination charge for wireline to wireless calls, the Authority recalled that the basic principle of IUC envisages that the total interconnection usage charges for carriage of a call in a multi

operator environment are to be shared for origination, transit and termination on the basis of work done in each segment for the carriage of the call. Since work done in the terminating network for termination of a call is independent of the work done in the originating network for origination of a call, therefore, it would be quite unreasonable to have zero termination charge for the call originating from one particular type of the network. There have to be more economically sound ways of providing support to the fixed line.

c) Further, we question the Authority's analysis and conclusion that its decision of prescribing nil termination charges to/from fixed line in 2015 has been a success; it is our submission that a lower de-growth cannot be called a success, the wireline subscriber base continues to fall, thus, as is evident from the chart below:

Chart No.1



a. In fact even after implementation of ZERO termination rate for wireline network, there is a negative growth in subscriber base of BSNL and MTNL, which can be observed from the chart below. It can be noted that over the period of time (Feb 15 to May 16) **BSNL's wire line subscriber base has been declined by 14% whereas in case of MTNL it was 1%.**

Chart No.2

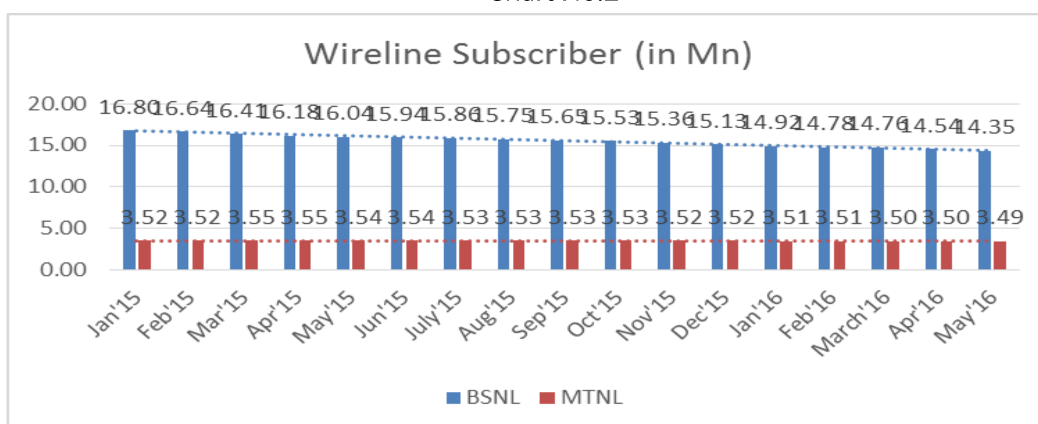
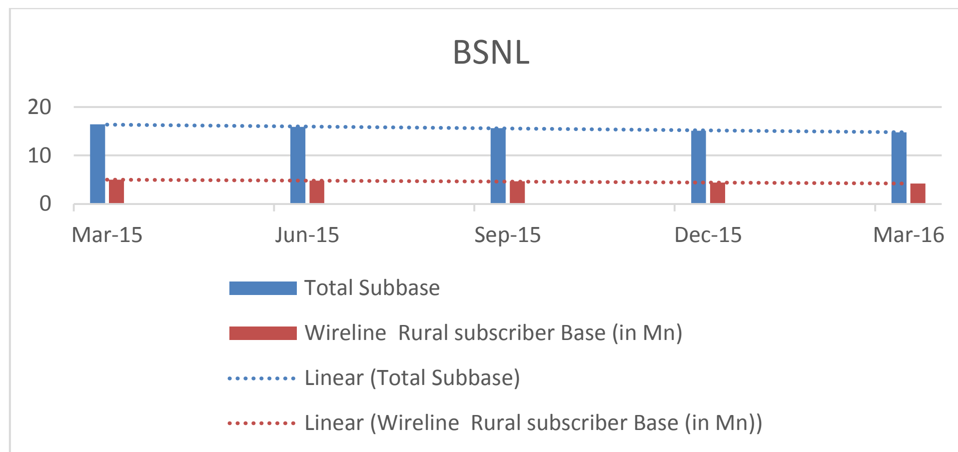


Chart No.3



d) Thus, as shown above, the Authority's decision has not achieved its purported objectives as the wireline services continue to decline. Also, no evidence has been placed on record to demonstrate whether TRAI's 'policy' decision promoted investments in wireline networks, which was the purported objective in 2015

e) We also note that recently, the Government has approved a compensation of Rs 1,250 Crore to support rural landline connections of BSNL which were installed before April 2002. This compensation has been given for deficit incurred by BSNL in operating rural wireline connections. It is submitted that this is a double subsidy which is being given at the cost of the private competitors, and is against a categorical assurance given in 1999 that level playing will be given to all licensees.

f) We thus do not support the decision of TRAI taken in 2015 as we believe that the same has not only resulted in wireless access providers made to cross subsidize their fixed line competitors but that it will also have severely adverse implications for the growth of the Indian telecommunication services sector as a whole. We reiterate the view of the Authority taken in 2009, that it is unreasonable to have zero termination charge for the call originating from one particular type of the network and that there have to be more economically sound ways of providing support to the fixed line.

g) We also submit that the reverse hypothesis of reduction in the tariffs as a direct result of reduction in the MTC rate is an incorrect analysis. It is important that IUC, including MTC, forms the foundation of CPP regime and it has to be cost based. In fact TRAI has enunciated fundamental principle that tariffs have to be IUC consistent so that they are not below cost on weighted average basis. Further, the tariffs are driven by other multiple factors, notably the extent and intensity of competition in the market. Also growth of AGR should not be looked at as an isolated data point, the Authority must look at a range of metrics, including the increase in the underlying costs of providing the service. Therefore we do not agree with the Authority's analysis and conclusion at Para 2.24 and 2.25 since it has ignored the fact of increase in share of non-voice revenue to ARPU and reduction in per subscriber ARPU, etc.

h) **In view of the above, we urge** the Authority **to review its 2015 decision and prescribe cost based termination charges including for calls terminating on wireless from wireline**.

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

Vodafone Response:

a) The Authority had in 2009, taken the view that "…***a non-uniform termination charge for partly substitutable services**, like fixed and mobile telephone calls, **would skew the traffic**, increasing it towards the service with lower termination charge. This reduction of traffic to/from one particular type of the network would further reduce the number of minutes travelling on that network. This reduction in minutes of usage would lead to further increase in cost based termination charge for that network…."*

b) We support the above view and submit that the termination charges should be the same for substitutable services.

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

Vodafone Response:

a) We first submit that the requests from ILDOs to set a floor for international carriage charges/settlement rates, has been a long standing demand of the ILDOs and the Authority, after examining the issues in 2015, had declined to intervene. In the present consultation, no changes or developments have been highlighted to necessitate the review of the position already taken by the Authority and certainly not a need for a premature review.

b) We believe that the present differential pricing approach for international termination calls is reasonable if compared with other jurisdictions ILD pricing approach.

c) We would like to submit that Indian domestic termination rate / MTC is one of lowest in the world and the present termination rate does not recovered the full costs which have been incurred by the TSPs, therefore, the proposal of keeping the same termination rate for international incoming calls means that domestic consumers are subsidizing their foreign counterparts; and, this abundantly clear from the international incoming-outgoing calls ratio (22:1).

d) There is, therefore, a need of upward revision of the international termination charge payable to Access operators for incoming international calls to at least @Rs.1/min from the current termination rate of 53p/min.

e) We draw Hon'ble Authority's attention on the below rationale behind the recommendations to increase the same at the level of at least Rs.1/ per minute. The same was represented by COAI also vide its letter dated 27th December 2013.
   (i) The increased termination rates to at least Rs.1/- per minute will help to reduce the pricing arbitrage currently existing in favour of foreign operators.
   (ii) An increase in termination rates will help our country to earn valuable foreign exchange.
   (iii) An increase in termination rates will also help TSPs to recouped their underpricing of domestic termination rate
   (iv) It will increase the revenue share (License fee & SUC) payable to the government
   (v) It has no financial implication for domestic customers

f) We are of the view that the ILD termination charge should be uniform for all terminating networks in India and it will avoid any kind of potential disputes because of the types of networks i.e. Wireless, Wireline and Internet etc.

g) In view of above facts and analysis, **we recommend that the present differential approach is suitable for the ILD segment, however, there is a need for upward revision to at least @Rs.1/min from the current termination rate of 53p/min. We further recommend that it should be kept uniform for all terminating networks.**

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?**

Vodafone Response:

a) We note that the Authority has not provided any kind of market/regulatory analysis which may demonstrate that the standalone ILDOs are facing regulatory challenges /disadvantages because of the present regulatory regime in the country. Therefore, we are of the opinion that there is no apprehension regarding sustainability of the stand-alone ILDOs in the long run.

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.

Vodafone Response:

a) We **do not suggest any regulatory intervention for revenue share between access provider and ILDOs in view of high competition** in both the categories and thus it best be left to be decided by market forces on mutual agreement basis.

b) We understand that the approaches as given in the question have already been examined by the Authority but it was rejected. Furthermore, we have **not observed any market failure in the international voice segment.**

c) Therefore, it is recommended that the **arrangements between access provider and ILDOs should continue to be left upon mutual agreement basis.**

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

Vodafone Response:

Regulatory Impact Analysis (RIA)

a) We had submitted during the 2014-15 exercise, that in many other jurisdictions, regulators generally publish the results of Market analysis and Regulatory Impact Analysis (RIA) along with their Consultation Paper and that a similar practice may be adopted by TRAI as well. We therefore, request that RIA should be initiated and this is the fit case for the same as this will help in more informed consultation if the Authority were to present market analysis, relevant financial and non-financial data of Industry and Regulatory Impact analysis.

b) A clear and cogent context will firm up stakeholders' view/ suggestions and will lead to effective consultations. To illustrate, in the last consultation, the Authority did not seek the views of stakeholders on whether different approach should be adopted for MTC and for calls to/from fixed line, as a result of which there was no consultation on the subject and stakeholders had no opportunity to make submissions as a result of which, the final regulation was presented to stakeholders as a fait accompli. It is submitted that a

transparent process of consultation requires that the issues are specifically put forth for inviting comments and materials from all stakeholders.

c) We note from OFCOM's recent determination of Mobile termination rate (MCT review 2015-18) , where OFCOM has shared and published all relevant information i.e. financial, non-financial and cost models, etc with the stakeholders.(please refer to Annexure –III)

Financial performance and debt burden of the industry

d) It is well-known fact that Indian voice tariffs are lowest in the world and Indian mobile termination charge (MTC) is also lowest in the world, therefore, any further reduction in MTC or fixation of zero termination charge or BAK proposition have direct impact on overall growth of the industry and an adverse impact on investors sentiments.

e) The industry is in critical condition and sector is barely operating on an average of 1% return on capital employed (RoCE) whereas as per TRAI reasonable ROCE is 15.

f) From the analysis of cost information/data published in the consultation paper on "Valuation and Reserve Price of Spectrum', July,2013, it can be observed that during the FY2011-12, there was a loss/under recovery of cost by as much as Rs 15 per subscriber per month, which was 16% of the ARPU. An analysis statement is attached as Annexure –IV

g) The Industry is laden with debt of more than Rs.3.80 lakh crores and is required to make additional investments to the tune of more than Rs. 5 lakh crores to meet the vision of Digital India. It is also important to highlight that the Indian telecom sector is also subject to one of the highest taxes and levies in the world.

h) Therefore, any regulatory changes i.e. change in IUC/ MTC also requires consideration of all these aspects.

Summing up

i) Domestic Termination rate should be cost based and work done principle, therefore, the termination rate cannot be zero.

j) We have not seen any example that any telecom regulator has changed its wholesale charging approach from cost based to bill and keep, because of any technological developments in the telecommunication services sector, rather the technological developments/ changes get incorporated into the costing model of IUC/MTC by the respective regulator.

k) We have not come across any country where CPP regime is in place in retail market but BAK is applied for domestic termination rate. We do not support Bill& Keep (BAK) for termination charges.

l) Even wherever, regulators have mandated for IP-based Interconnection for voice services (IPvIC) in such cases also operators are required to pay regulated termination rates i.e. MTR.

m) 'Zero Termination Rate' for wireline networks is in violation of best regulatory & costing principles i.e. cost based and work done.

n) The timing of present review is in violation of IUC Regulations, 2015.

o) Proposed FMT Service of BSNL was illegal and cannot be the basis for an IUC Review.

p) Scope & framework of Internet Telephony is first to be decided by DoT – Review on this basis is premature.

q) No technological evolution has taken place to warrant a premature review or a move to Bill & Keep(BAK).

r) Even in case of technological advancements, approach should continue to be cost based.

s) Cost Based Approach was emphasized by the Authority even in 2015 – must be continued.

t) To achieve the coverage and future rural growth, FAC is strongly recommended approach for estimation of domestic termination rate, however, if the Authority has different view then LR(A)IC+ would be the appropriate approach.

u) Cost based domestic termination rate (MTC/FTC) is lifeline of Rural Connectivity.

v) The National Digital Literacy Mission also requires cost based MTC/IUC.

w) Substantial cost (about 75%) of total telecom service cost (i.e. Capex +Opex) is in Tower (cement/steel)/BTS, RAN, BSC or equivalent for VoLTE networks and that does not change for old or new technology .

x) The present differential approach is suitable for the ILD segment

New Delhi
17 October 2016

PB/VIL/77
25th August 2016

Shri RS Sharma
Chairman,
Telecom Regulatory Authority of India
New Delhi – 110001

Sub: **Request for postponing TRAI Consultation on Review of Interconnection Usage Charges (IUC)**

Dear Sir,

This is with reference to the consultation issued on 5th August 2016 by TRAI on the above subject.

We submit that IUC Regulations were reviewed by the Authority in February 2015.

In the Explanatory Memorandum to Eleventh Amendment to the Regulations, dated 23 February 2015, TRAI had stated as follows:

I. that the Authority has always aimed to balance the following twin objectives, viz. (i) to protect the interests of consumers - by way of ensuring adequate choice and affordable services to them by promoting competition and efficiency in the market, and; (ii) to create incentives for TSPs - by way of ensuring adequate (fair) returns on investment so as to stimulate orderly growth and innovation in the sector;
II. that cost based MTC would provide at-least some incentive for TSPs to invest in rural areas. 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.

Sir, TRAI had at that time acknowledged that the termination charges framework (which is part of IUC) plays an important role in the telecom sector. Hence, certainty on this charge and correct determination of the same is critical both for the potential investments in the sector and for the network growth.

TRAI had also mentioned that 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 alongwith consumer benefits and it viewed 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 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.

Vodafone India Limited (CIN-U32200MH1992PLC119108)
7th Floor, DLF Centre, Sansad Marg,
New Delhi - 110 001, India. T +91 11 7171 0766, F +91 11 7171 0767
Regd. Off.: Peninsula Corporate Park, Ganpatrao Kadam Marg, Lower Parel, Mumbai - 400 013, India
T +91 22 7171 5000, F +91 22 2496 3645, Website: www.vodafone.in

At that time TRAI determined a rate of 14 paise per minute for a call originated from a mobile phone and terminating on another mobile phone and said rate is effective from 1st March 2015. This 'cost oriented rate' was determined by TRAI on 'work done' basis. The 'cost of work done' is acceptable by us as a principle. However, we have stated our concerns on the actual determination of rate of 14 paise and in our view it does not fully compensates the cost. We have concern on zero termination rates for mobile to fixed and fixed to mobile calls and in our view it is counter-productive to the objective of investments in the network. Further, the spectrum and other operational costs have increased in recent period and, in our view, some of these costs were not part of the 14 paise determination.

Moreover, at present TRAI has also initiated various other consultations which, depending upon their final outcomes, may have serious impact on cost structures, changes in technology and other market dynamics mandate. Two consultations which will directly have impact on any outcome on the present review of IUC are on Internet Telephony and Review of network related QoS standards for Cellular mobile Telephony Services. Thus, for the sake of consistency it is imperative that decisions on these consultations be taken first by Licensor/TRAI and then only review of IUC should be initiated.

The market dynamics and cost structures will further undergo a major change after the ensuing auctions, which have been announced on 8th August 2016 and which will start on 29th September 2016. The auction results will have long term impact on the cost structures and market dynamics and any such review of IUC should be initiated post such auctions. This auction is the biggest one so far for the spectrum. TRAI has itself acknowledged that the termination charges framework (which is part of IUC) plays an important role in the telecom sector, and hence at this stage all stakeholders, including investors and their lenders, will look forward to certainty and consistency in regulatory framework on IUC for any investments in the ensuing auctions. Any uncertainty on IUC or any indication on IUC getting changed will have adverse impact on stakeholders' sentiments.

It is, therefore, critical that such IUC review should not be held at this stage and be deferred by some months i.e. after end March 2017. By such time there will be more clarity on the many of the issues and result of spectrum auctions will be known. That will provide a good indicator for additional costs of spectrum, corresponding network expansion and market dynamics. Further, in the auction scenario it will be not be possible to do cost and other estimations, which are essential for any such exercise.

We submit that such deferment by few months will be in the long term interest of the telecom sector, service providers and consumers and will do well for the required investments in the sector. We request consideration of the above and earnestly request you to defer initiation of any such consultation at least till April 2017.

Thanking you,

P Balaji
Director – Regulatory, External Affairs & CSR
Vodafone India Ltd

PB/VIL/85
20th Sep 2016

Shri Arvind Kumar
Advisor, BB & PA
Telecom Regulatory Authority of India
Mahanagar Doorsanchar Bhawan
Jawahar Lal Nehru Marg
New Delhi – 110 002

Subject: **TRAI Consultation on Review of Interconnection Usage Charges (IUC)**
Reference: **Our letter no. PB/VIL/77 dated 25th August 2016**
COAI letter no. RSM/COAI/2016/179 dated 31st August 2016
Your Letter No. 10-8/2016-BB&PA dated 14 September 2016

Dear Sir,

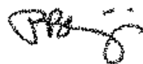
This is with reference to your letter dated 14 September 2016, whereby, the Authority has not accepted our request to defer the IUC Review till April 2017.

In respect of timing of the consultation, we submit that the spectrum auctions scheduled to commence on 1 October 2016, are definitely going to have a significant impact of the proposed review. The auction outcomes will be key on investments in the networks and hence have to be considered for such an exercise. It may be appreciated that in the event that the consultation is carried out prior to the auctions, we will be constrained and unable to comprehensively and correctly respond to the consultation paper.

We respectfully submit that concerns on need for review can be addressed in the response but considering the ensuing auctions we request the Authority to grant us time, at the very least, till end December 2016, to submit our responses in this regard.

We request your kind consideration and support.

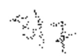
Warm Regards



P. Balaji
Director – Regulatory, External Affairs & CSR
Vodafone India Ltd

Copy to: **: Shri. R. S. Sharma, Chairman, TRAI**
: Shri. Anil Kaushal, Member, TRAI
: Shri. Sudhir Gupta, Secretary, TRAI
: Shri. U. K. Srivastava, Pr. Advisor, (NSL), TRAI

Vodafone India Limited (CIN-U32200MH1992PLC119108)
7th Floor, DLF Centre, Sansad Marg,
New Delhi - 110 001. India. T +91 11 7171 0766, F +91 11 7171 0767
Regd. Off.: Peninsula Corporate Park, Ganpatrao Kadam Marg, Lower Parel, Mumbai - 400 013, India
T +91 22 7171 5000, F +91 22 2496 3645, Website: www.vodafone.in



PB/VIL/90
12th October 2016

Shri R S Sharma
Chairman
Telecom Regulatory Authority of India
Mahanagar Doorsanchar Bhawan
Jawahar Lal Nehru Marg
New Delhi – 110002

Dear Sir,

This is with respect to the recent IUC review that has been initiated by TRAI on 5 August 2016 and our ongoing submissions on the subject.

a) As you are aware, 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. **Certainty on this charge and correct determination of the same is critical both for the potential investments in the sector and for the network growth.**

b) The TRAI, in 2015 had clearly stated 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, on the grounds that **setting a specific timeline** for undertaking such a review **would impart a modicum of certainty** which is in the interest of all stakeholders. The relevant portion of the explanatory memorandum to the regulations is reproduced below;

> *"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."*** *(Emphasis added)*

a) Even in the present consultation, the TRAI has noted [see para 1.16] that even in 2011, "the majority of service providers also expressed their preference during the consultation process **for a 3 year time horizon for IUC as establishment of a clear 3-year outlook** for IUC would **provide regulatory predictability** and enable service providers to plan their networks and businesses accordingly."

b) However, the present review has been initiated when the new regime has been in force for barely 18 months, thus creating great investor uncertainty and concern.

Vodafone India Limited (CIN-U32200MH1992PLC119108)
7th Floor, DLF Centre, Sansad Marg,
New Delhi - 110 001. India. T +91 11 7171 0766, F +91 11 7171 0767
Regd. Off.: Peninsula Corporate Park, Ganpatrao Kadam Marg, Lower Parel, Mumbai - 400 013. India
T +91 22 7171 5000, F +91 22 2496 3645, Website: www.vodafone.in

4|7

c) **Our concern is further aggravated by the recent launch of free voice service by a new entrant, which is in violation of TRAI's own TTO and Clarifications on Regulatory Principle of IUC Consistency, which, we apprehend, may be in expectation of a Bill & Keep regime being introduced.**

d) **In fact due to free services by a new entrant the traffic asymmetry has increased abnormally qua that operator, to levels of around 8:2 and with very high minutes of use of calls originating from its network. This is the direct result of the new entrant offering 'free services' till December 2016 and free voice services for life. It is submitted that these tariffs are clearly IUC non-compliant as per TRAI's own clarification dated 20 May 2003 and 30th Amendment to TTO dated 16 January 2004 [which issue has been raised to the Authority, but has still not been addressed]. We believe that TRAI must address these fundamental issues first and any IUC review without considering these factors may render the entire review process violative of the Authority's own regulatory principles. We respectfully submit that TRAI is bound by the principles, promises and regulations for cost based IUC which as per TRAI's own regulatory principles, are important even for tariffs.**

e) We reiterate that any review of IUC without addressing the fundamental issue of IUC consistent tariffs would undermine the regulatory process and the faith of the industry.

f) Insofar as the correct determination of MTC is concerned, the Authority is aware that **MTC is the single most important determinant in case of rural rollout** as the business case in rural areas, is built almost entirely on revenues from incoming calls, i.e. MTC as the ratio of calls is predominantly incoming.

g) It is our stated position that **termination rate should be based on work done principle and cost based and it cannot be zero.** Nil termination charges is **also against the mandate of the Act,** which requires the Authority to fix the terms and conditions of interconnectivity and regulate arrangements for sharing of revenues between service providers.

h) Further, **the current rate for Mobile to Mobile Termination of 14P is already much below cost. Any further downward review of** MTC at this stage or a possible consideration of Bill and keep **would result in huge disruption, adversely impact our business case in the rural areas, make investments in rural networks unviable, provide no incentives for anyone to offer services in rural areas and will erode the confidence of investors who desire a consistent regulatory framework. This will have far reaching adverse consequences on the telecom sector and marginal/rural subscribers** and the achievement of national connectivity objectives. **Further such high volumes (due to free services) cannot be catered to without augmentation of our radio network for traffic of new entrant, which costs are not covered in the present IUC regime.**

i) **We also most respectfully submit that the reasons given by the authority on Need for review** are not tenable as;

(i) There is no as such technological developments that has happened in the telecommunication service sector during the last 18 months which has affected the overall productivity of the sector,. In fact, all TSPs are same with same set of technologies.

(ii) FMT service of BSNL cannot be basis for review of IUC, since this product is in violation of license agreement and its various conditions. TRAI is well aware about the facts and moreover matter is pending for decision before TRAI / Government.

(iii) Presently India's telecommunication networks are dominated by 2G and 3G mobile technologies for voice segment, therefore, the substantial investment in these technologies cannot be ignored by the TRAI. TSPs are in addition investing in 4G technologies, which also have cost implications. There is at present only one '4G only' operator is the country, which has in fact launched one month after the consultation paper was initiated and such launch by a new entrant cannot be the reason or basis for IUC review.

(iv) RAN is an integral part of all technologies. Therefore, up-gradation of RAN (CS RAN to PS RAN) cannot be basis for urgent review.

j) TRAI has mentioned that generally a comprehensive regulatory exercise takes six to nine months. It is respectfully submitted that in such exercises, TRAI usually first seeks the costs from all operators and thereafter issues a consultation paper. In the 2015 exercise, the data collection exercise was initiated by TRAI on 30.04.2014 and the consultation was issued on 19.11.2014.

k) In the present exercise no such cost data has been sought from the operators, directly a consultation has been issued. Rather the consultation questions the need for a costing exercise opining that it "would yield nearly the same results" [See Para 2.42]. Under these circumstances, we question the need for a review at this stage.

In view of the above, we once again urge the Authority to

(i) **First decide on our contentions that that the Free Voice services being offered by the new entrant are IUC non-compliant and against the well-established regulated principles adopted by the Authority since January 2004 as reiterated as recently as December 2015.**

(ii) **Adhere to the cost based approach which compensates TSPs adequately for the work done by them in terminating off-net incoming calls and incentivizes investment in rural areas**

(iii) **Seek the cost data of all operators as has been done in previous exercises**

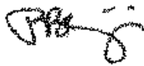
(iv) **Share the cost model transparently with all operators meeting the standards of transparency required under the TRAI Act and as highlighted by the Hon'ble Supreme Court in its judgment dated 11.05.2016 in Civil Appeal No. 5017 of 2016.**

We respectfully submit that TRAI must look into interest of both service providers and consumers under the TRAI Act and must follow a transparent process which is consistent to its own regulations /orders. The present situation warrants that TRAI addresses all the issues in a timely manner, which is the essence and not take up the issues in a piecemeal manner.

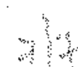
We, therefore, once again earnestly request that the present review be deferred till the fundamental issues highlighted by us are addressed and further that the review is carried out as per committed time frame and as per the regulatory principles highlighted above.

We look forward to your kind support in the matter.

Kind regards,



P Balaji
Director – Regulatory, External Affairs & CSR
Vodafone India Ltd



Annexure –II

Statement of Number of EU Countries with an obligations on operators to offer IP-based inter connection for voice services (IPvIC)					
Sl. No.	Name of the country	Imposed Obligation			
		Fixed Network Incumbent (FNI)	Other Fixed Network Operators (OFNO)	Mobile Network Operators (MNO)	MTR (Euro cent)
1	Austria (AT)	Yes*	Yes*	Yes*	0.8049
2	Switzerland (CH)	Yes	Yes	Yes	5.9897
3	Denmark (DK)	Yes	Yes**	Yes**	0.7252
4	France (FR)	Yes*	Yes*	Yes*	0.7600
5	Sweden (SE)	Yes*	Yes*	Yes*	0.8138
6	Bulgaria (BG)	Yes	Yes	No	0.9715
7	Germany (DE)	Yes	Yes**	No	1.6600
8	Spain (ES)	Yes	Yes**	No	1.0900
9	Croatia (HR)	Yes	Yes	No	0.8265
10	Italy (IT)	Yes	Yes	No	0.9800
11	Slovenia (SI)	Yes	Yes	No	1.1400
12	Cyprus (CY)	Yes*	No	No	1.0089
13	Greece (GR)	Yes	No	No	Not Available
14	Belgium (BE)	No	No	No	1.1800
15	Czech Republic(CZ)	No	No	No	0.9979
16	Estonia(EE)	No	No	No	1.0000
17	Finland (FI)	No	No	No	1.2500
18	Former Yugoslavian Republic of	No	No***	No	1.4612

	Macedonia (FYROM)				
19	Ireland(IE)	No	No	No	2.6000
20	Liechtenstein(LI)	No	No	No	6.8174
21	Lithuania (LT)	No	No	No	1.0400
22	Luxembourg(LU)	No	No	No	0.97
23	Montenegro(ME)	No	No	No	1.18
24	Netherlands(NL)	No	No	No	1.861
25	Norway(NO)	No	No	No	0.8032
26	Poland(PL)	No	No	No	1.0062
27	Portugal(PT)	No	No	No	0.83
28	Romania(RO)	No	No	No	0.96
29	Serbia (RS)	No	No	No	2.8382
30	Turkey(TR)	No	No	No	0.8257
31	Slovakia (SK)	No	No	No	1.226
32	United Kingdom (UK)	No	No	No	0.9418
Note	* Only in case of (reasonable) request				
	** Only OFNO with customers directly connected to an NGN (DE) or with VoIP end users have the obligation to offer IPvIC (DK, ES). In Denmark, MNO have the obligation to offer IPvIC only under specific conditions.				
	*** In FYROM, OFNO have the obligation to offer IPvIC from 01.01.2017.				
Source: BEREC - BoR(15) 196 dated Nov 2015 and BoR(16)90 May 2016 and Vodafone-India analysis					

Annexure -III

Consultation framework of Ofcom in its recent determination of MTC

1) A draft MTC model was released to industry in January 2014 for comments of the industry.
2) A public consultation was published on 4 June 2014; documents available here: http://stakeholders.ofcom.org.uk/consultations/mobile-call-termination-14/summary
3) Draft decision was published 6 February 2015; documents here: http://stakeholders.ofcom.org.uk/consultations/mobile-call-termination-14/draft-statement/
4) And final decision was published 17 March 2015; documents: http://stakeholders.ofcom.org.uk/consultations/mobile-call-termination-14/statement/

Annex to OFCOM's final regulations on Mobile call termination market review 2015-18

Annex	Particulars
1	The Regulatory framework
2	General analytical approach to market definition and SMP assessment
3	SMP conditions
4	Smaller MCPs
5	Analysis of the effects of the cost standard on consumer prices and usages
6	Equality impact assessment
7	MCT Cost Model approach and design
8	Analysys Mason report (MCT review 2015-18: Mobile Network cost modelling)
9	Calibration of the 2015 MCT Model
10	Cost of Capital
11	Other Modelling issues
12	Model outputs and sensitivities
13	Brattle report (Estimation of equity and asset betas for UK Mobile Owners)
14	Sources of evidence
15	Glossary

Excel sheets of cost model (Shared with all stakeholders)

Sl.No.	Particulars	Size of Excel file
1	Annexure – Scenario control module for Ofcom's2015 MCT model Which provides descriptions about the costing models, parameters and its outputs etc.	676KB
2	Annexure-1 – Traffic Model for Ofcom's 2015 MCT Model Which provides the descriptions about various parameters , Geotypes , subscribers , Traffic forecast and outputs etc.	15866KB
3	Annexure-2- Network Module for Ofcom's2015 MCT Model Which provides the descriptions about scenario selection, Map, ref tables, utilization and planning assumptions , Network	9630KB

	Parameters (2G,3G and 4G), spectrum parameters ,cost drivers , network design (2G,3G, and 4G), assets demand , Network Element outputs etc.	
4	Annexure-3- Cost Module for Ofcom's2015 MCT Model Which provides the descriptions about map of module, linked inputs, parameters, assets demand for costs , Unit investment (Capex), total annual investment (Capex), unit expenses (opex), total annual expenses (Opex) etc .	14511KB
5	Annexure-4- Economic modules for Ofcom's 2015 MCT Model Which provides the descriptions about active linked inputs, inputs without any incoming , inputs with incoming, linked inputs, economic depreciation , service costing , service cost breakdown and economic cost calculation etc.	16953KB
6	Annexure -5- HCA/CCA Module for Ofcom's Mobile LRIC Model Which provides the descriptions about linked inputs from other modules, HCA cost calculation and CCA cost calculation etc.	3979KB

Annexure -IV

Statement of Revenue and cost Analysis per user basis

Statement of Revenue and cost Analysis per user basis							
Sl.No.	LSA	LSA Category	ARPU (Rs)	ACPU (Rs)	EBIDTA Margin (%)	Loss per User (LPU) (Rs)	LPU as % of ARPU
1	Delhi	Metro	116.54	128.03	17.62%	11.49	9.86%
2	Kolkata	Metro	79.68	108.36	-6.01%	**28.68**	**35.99%**
3	Mumbai	Metro	132.02	**186.48**	-7.45%	**54.46**	**41.25%**
4	AP	A	106.14	106.53	21.38%	0.39	0.37%
5	Gujrat	A	85.59	101.18	5.40%	15.59	18.21%
6	Karnataka	A	100.91	119.13	8.70%	18.22	18.06%
7	MH	A	93.23	100.06	16.91%	6.83	7.33%
8	TN	A	97.89	110.94	14.60%	13.05	13.33%
9	Haryana	B	70.49	94.85	-9.46%	**24.36**	**34.56%**
10	Kerala	B	112.66	115.80	16.30%	3.14	2.79%
11	MP	B	72.13	88.17	0.34%	16.04	22.24%
12	Punjab	B	93.08	103.82	11.96%	10.74	11.54%
13	Raj	B	81.58	88.40	12.22%	6.82	8.36%
14	UP- (E)	B	73.70	81.20	8.98%	7.50	10.18%
15	UP- (W)	B	72.41	94.37	-4.99%	21.96	**30.33%**
16	WB	B	64.26	81.48	-3.17%	17.22	26.80%
17	Assam	C	111.64	**127.09**	7.59%	15.45	13.84%
18	Bihar	C	68.13	85.43	-2.46%	17.30	25.39%
19	HP	C	71.43	85.56	8.50%	14.13	19.78%
20	J&K	C	137.53	**171.33**	3.34%	**33.80**	**24.58%**
21	NE	C	109.59	116.08	16.65%	6.49	5.92%
22	Orissa	C	69.45	94.27	8.55%	**24.82**	**35.74%**
Source: TRAI							

Annexure -V

Statement of computation of access cost of outgoing and Incoming per Voice minute basis				
Sl. No	Particulars	Amount allocated to outgoing calls (O/g)	Total access cost wireless Industry FY 2012-13	Amount allocated to incoming calls (I/c)
		(Rs in Crore)		
A	**Costs :**	**46035**	**80854**	**34819**
	(i) Sales & Marketing Cost	12581	12581	0
	(ii) All other Costs	33454	68273	34819
B	Capital Employed	57873	118108	60235
C	Return on Capital Employed (RoCE) @15%	8681	17716	9035
D	**Total Access Cost including RoCE---(A+C)**	54716	98571	43855
E	**Minutes of Usages (in Crore)**	178490	364265	185775
	Access Cost per Minute (Voice) (in Paisa)			
F	**Access cost (O/g and I/c) including RoCE ---- (D/E)**	0.31		0.24
	Access cost per minute after loading LF (8%) & SUC (5%)	0.35		0.27
G	Mark-up allowed by TRAI	15%		15%
H	Final charges fixed by TRAI for outgoing call	0.40		
Charges estimated by Vodafone based on TRAI's principle for incoming call (Voice Minute)				0.32
Source: TRAI's Regulation on International Calling Card Services dated 19th August 2014 and Vodafone Analysis				