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Ref No: RP/FY 19-20/062/759

Dated: 18th October, 2019

To,
Shri Sunil Kumar Singhal,
Advisor (Broadband and Policy Analysis),
Telecom Regulatory Authority of India,
Mahanagar Doorsanchar Bhawan,
Jawahar Lal Nehru Marg,
New Delhi - 110 002.

Subject: Response to Consultation Paper on "Review of Interconnection Usage Charges"

Reference: TRAI Consultation paper dated 18th September, 2019

Dear Sir,

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

Thanking you,

Yours Sincerely,
For **Bharti Airtel Limited**

A handwritten signature in blue ink, appearing to read 'R. Gandhi', with a horizontal line extending to the right.

Ravi P. Gandhi
Chief Regulatory Officer

Enclosed: As mentioned above

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

At the outset, we would like to thank the Authority for providing us the opportunity to express our views on the matter of "Review of Interconnection Usage Charges."

The primary purpose of the consultation paper is to assess whether there is a need to review the applicable date for migration of Bill and Keep (BAK) based on the current trend of adoption of new technologies vis-a-vis the expectation framed in 2017.

We firmly recommend that the applicable date for BAK regime be moved by at least 3 years for reasons briefly summarized as below:

- **Massive investments have been made by Airtel to deploy latest technologies:**
 - The Capex to revenue ratio has been steadily increasing over the past few years and has reached an all-time high of approx. 42% in FY 2018-19 i.e. for every Rs. 100 revenue earned, around Rs. 42 have been invested as CAPEX
 - Airtel alone has deployed 3.5 Lakh e-Node-B's during the last 3-4 years and the area covered by 4G-LTE is almost same as the area covered by 2G network
 - Deep engagement with all device manufacturers to ensure that almost all handset manufacturers selling 4G handsets in India support Airtel VoLTE
 - Massive refarming of spectrum in 900/ 2100 MHz band has been undertaken within Airtel Network to deploy greater quantum of spectrum for 4G-LTE.

- **Despite massive deployment of 4G, the assumption regarding the adoption of technologies not proven:**
 - More than 400 million customers across all operators continue to be on 2G network.
 - 49% of customers in Airtel's network are still using 2G handsets. This percentage is further skewed in states with low financial and digital literacy viz. Bihar, West Bengal, Orissa and West Bengal where more than 60% of customers are on 2G handsets.
 - Only 17% of voice traffic in Airtel's network is being carried on VoLTE in June, 2019 despite having deployed the same since last 2-3 years.
 - Further, the limitation of Dual SIM 4G handsets to support only one 4G SIM forces the customers to keep their Airtel SIM in the 2G Slot.
 - The projections by GSMA for India also predict that 12-13% of customers will continue to be on 2G handsets till 2025.

- **Traffic symmetry has not been achieved:**
 - Traffic from 4G-only operator continues to be on the higher side, both in terms of absolute magnitude and percentage.

- **Cost of Terminating a Call:**
 - The cost of completing a call is much higher than 6 paise/min. Also, the cost of power, rental for the tower, spectrum etc. have nothing to do with whether there is an IP network or not.

In this context, please see our detailed response to the issues raised in the consultation paper as below:

- Q1** Is there a need to revise the applicable date for Bill And Keep (BAK) regime i.e. zero mobile termination charge from 01.01.2020? If yes, then what parameters should be adopted to decide the alternate date? Give your suggestions with justification.
- &
- Q2** Any other issue related with the domestic wireless termination charges.

Bharti Airtel's Response:

Yes, there is a dire need to move the applicable date for BAK regime by at least 3 years due to the following grounds:

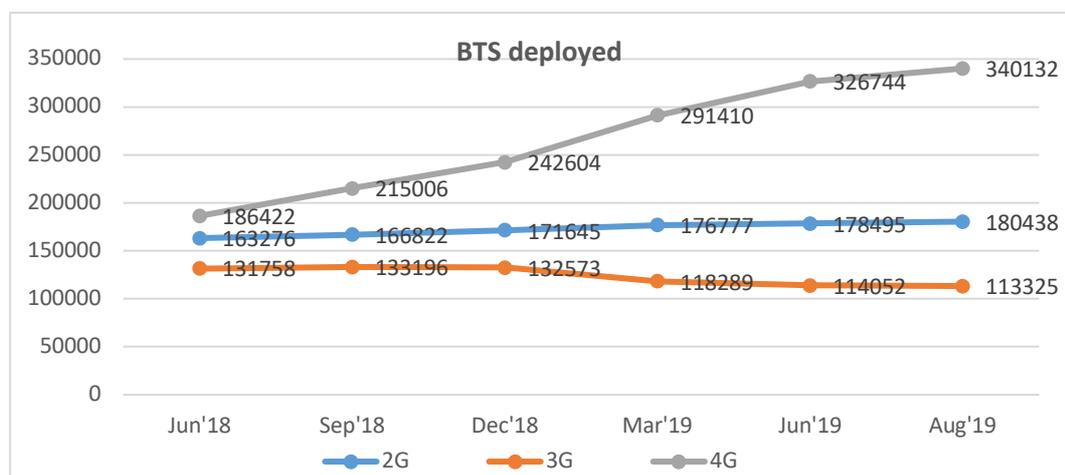
A) Massive investments have been made by Airtel to deploy latest technologies:

(i) CAPEX as percentage of revenue:

The Capex to revenue ratio has been steadily increasing over the past years and has reached an all-time high of 41.8% in FY 2018-19 i.e. for every Rs. 100 of revenue earned, around Rs. 42 have been invested as CAPEX. On an absolute basis, approx. 40,000 crores have been invested into the network only in the last 2 years.

(ii) Number of BTS deployed

- To meet the growing demand for high speed data, Airtel has deployed a large number of 4G-LTE base stations during the last 3-4 years. In fact, Airtel alone has deployed a total of 3.5 Lakh eNode-B's (4G BTSs) during the last 3-4 years.
- The graph below provides a snapshot of total e-Node-B's viz-a-viz other technologies in the last 1.5 years:



- Presently, Airtel covers approx. 93% population with 4G-LTE network as compared to the 94.5% population covered by 2G.
- Geographically, the area covered by 4G-LTE is almost same as the area covered by the 2G network.
- **Airtel has invested heavily on the deployment of 4G-LTE and continues to deploy additional 4G-LTE sites country-wide to gain a better coverage and make it more expansive than the existing 2G network.**

(iii) Massive focus on VoLTE:

- Deployment of VoLTE not only requires investment in terms of network but also a deep engagement with the device manufactures for rollout of TSP specific VoLTE updates.
- Almost all handset manufacturers selling 4G handsets in India support Airtel VoLTE. Many such manufacturers have also released updates for their previous models to support Airtel VoLTE.
- The percentage of handsets supporting Airtel VoLTE has risen to more than 80% of the total 4G handsets being used by the customers.
- **Such deep engagement has led to an increase in VoLTE traffic from 2% of total voice traffic in Q1 2018-19 to 17% in Q1 2019-20. However, it will take a significant number of years for 100% of the traffic to migrate to VoLTE.**

(iv) Spectrum Refarming in 900 MHz and 2100 MHz band

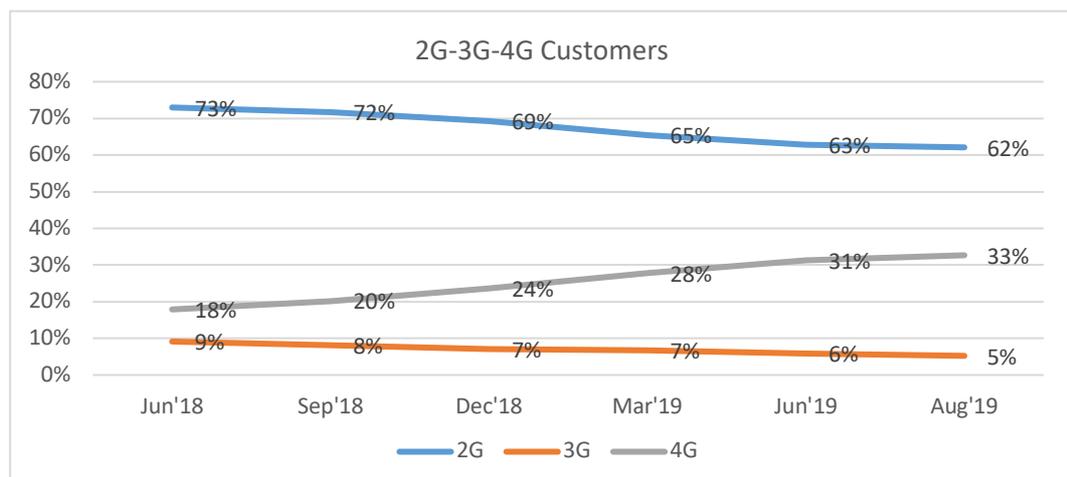
- Massive refarming of spectrum has been undertaken with Airtel Network to deploy greater quantum of spectrum for 4G-LTE.
- All 900 MHz spectrum, which was earlier deployed in 3G network, has been refarmed for 4G-LTE.
- More than 70% spectrum available with Airtel is deployed for 4G-LTE technology, which clearly indicates our intent to promote and incentivize customers to avail 4G-LTE services.
- With the decrease in 3G handsets with customers to a bare 5%, 2100 MHz spectrum deployed for 3G network is also being refarmed for 4G-LTE.

- Post refarming of spectrum deployed in 2100 MHz from 3G to 4G-LTE, more than 80% of the total spectrum held by Airtel will be deployed for 4G-LTE in the upcoming quarters, again, displaying our readiness to migrate to new technology.
- It is our endeavour to refarm all our spectrum to 4G. But due to large number of 2G devices and traffic on Airtel network, we are forced to use part of the expensive spectrum for 2G services, to continue supporting these customers.

B) Despite massive deployment of 4G, the assumption regarding the adoption of technologies not proven:

(i) Distribution of customers on different technologies:

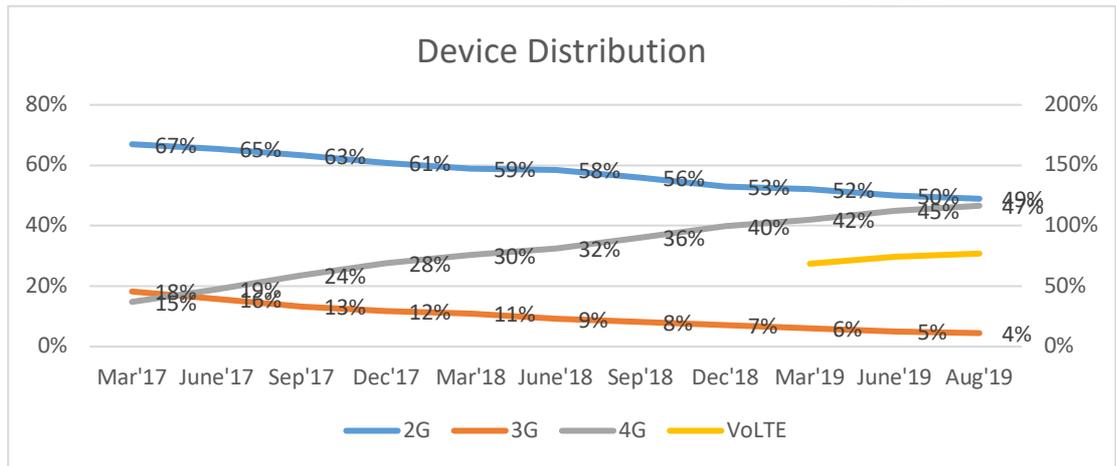
- Out of total 328 million Airtel customers, only 107 million (33%) are using the 4G-LTE data network. The remaining (67%) are still using non-4G (2G/3G) handsets, as these handsets are more affordable.



- Despite widespread availability of Airtel 4G-LTE network, the share of customers on 2G continues to be the largest and makes up a significant quantum of our customer base.
- More than 400 million customers across all operators, i.e. approx. 40% of the total customer base, continues to be on 2G network.

(ii) Device Distribution among the customers:

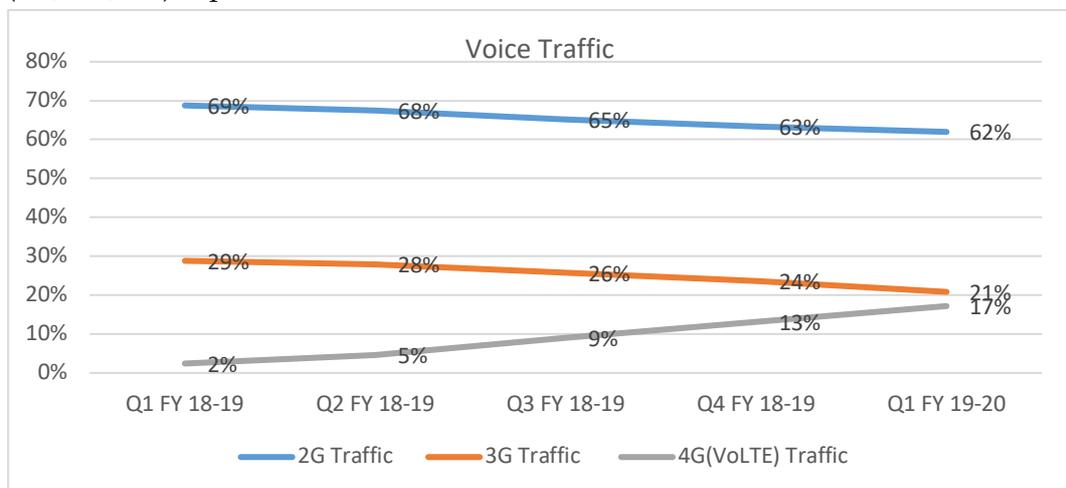
- 49% of the customer base is using 2G handsets.
- While the number of users on 4G-LTE handsets continues to rise, the present trend of migration of customers to 4G, as shown below, indicates that it is likely to take a substantial time frame for all customers on 2G handsets to switch to 4G-LTE handsets.



- Further analysis on device distribution indicated that in states with low financial and digital literacy, such as Bihar, Uttar Pradesh (East), Orissa & West Bengal, 60% and more customers are on 2G devices as against the national average of approx. 47%. The adoption of 4G is low and it is likely to take a significant time owing to the affordability of devices as well as customer literacy in such areas.

(iii) VoLTE as percentage of total voice traffic:

- VoLTE, the packet-based voice service, has been deployed on a PAN India basis since the last 2-3 years.
- However, as on date, only 17% of the voice traffic of Airtel network is being carried out on the VoLTE network. This again is due to a large number of customers continuing to use non-VoLTE handsets, as these handsets are much more affordable.
- A brief comparative analysis of traffic carried on different types of networks (2G/3G/4G) is provided as below:



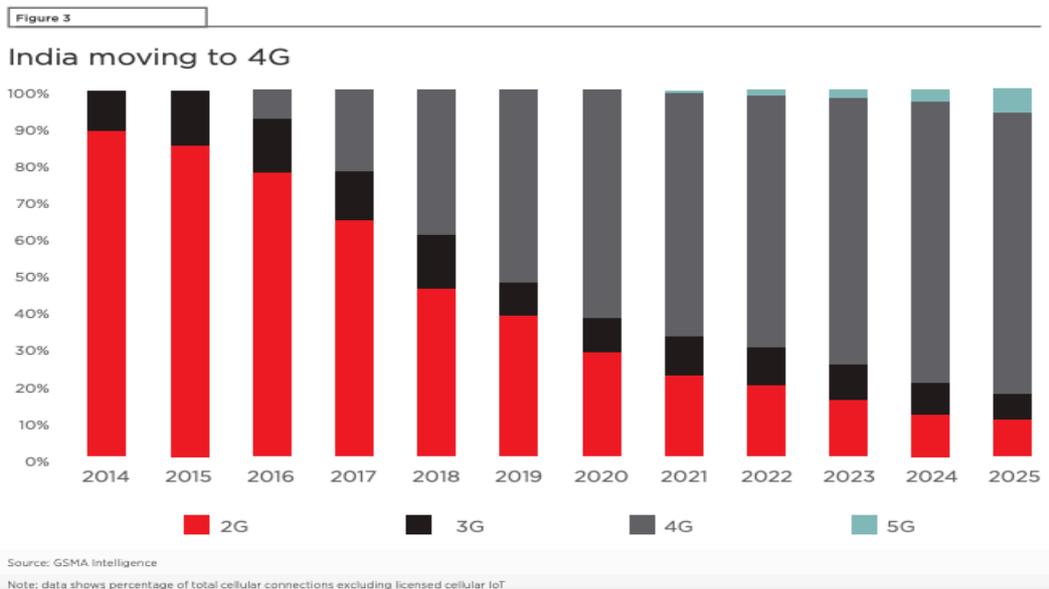
- It is evident that only 50% of voice traffic of customers, who are also 4G customers (33%), is currently being carried on 4G network.

(iv) Multi SIM behavior of customer - Only 2G supported in second slot:

- The migration to 4G is also limited as a majority of dual SIM handsets only support one 4G SIM
- Since one of the largest operator only operates on 4G network, their SIM cannot be put in the second /2G only slot). This almost forces the customers to keep their Airtel SIM in the 2G Slot as Airtel supports both 2G and 4G networks.
- Therefore, despite aggressive 4G and VoLTE network rollouts by Airtel and even the handset capability of users to support 4G, the multi-SIM behaviour of customers has led to the use of more circuit switched network instead of VoLTE.

(v) 2G/ GSM is likely to continue for some time - Projection by GSMA

- Because of devices, 2G is likely to continue for many more years, and therefore, the operators will be required to continue with their 2G services.
- *GSMA Report on India: Becoming 5G-ready*, released in May 2019, had also indicated that approx. 12-13% of customers will continue to be on 2G handsets by 2025.



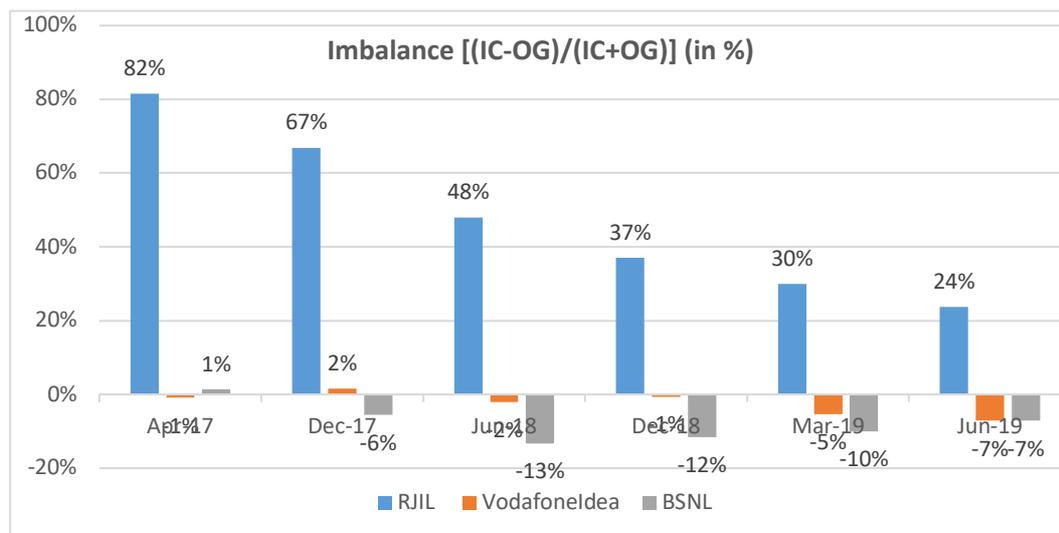
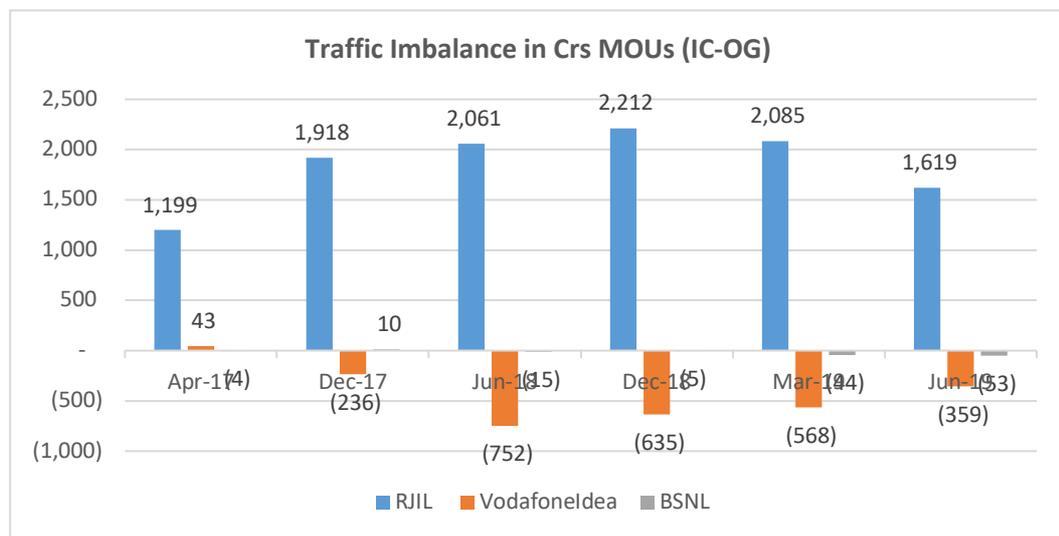
- At present, the TSP with one of the highest market share provides only 4G technology to its customers, whereas older TSPs like Airtel, despite having deployed multiple technologies including 4G, continue to provide 2G technology to a significant number of customers who cannot afford costlier 4G handsets. For such TSPs, a technological shift of voice from circuit switch to VoLTE would

entirely depend on the migration of customers to 4G handsets and on the advancement in existing 4G dual SIM handsets to support dual 4G slots.

C) Traffic symmetry not achieved:

(i) Traffic highly asymmetric from 4G only operator:

- The 4G only operator started its operation in September, 2016. Within 3 years, the operator gained a 32% market share.
- Despite being one of the largest operator in terms of market share, the asymmetry of traffic from the said operator continues to be high both in terms of absolute magnitude and percentage as indicated below:



- Even as on June 2019, the incoming to outgoing ratio with the 4G only operator is as high as 62:38. While, in terms of percentage, the imbalance may seem to decrease over a period of time, but in absolute terms, the amount of net incoming calls continues to be significant.

(ii) **Gaming of Ringer time which led to artificial reduction in imbalance by 6%**

- Lately, we have also observed the gaming of IUC regime by the 4G-only operator, which has reduced the originating ringing timer to 20 seconds.
- In telecom network, there are two types of timers, i.e. originating ringing timer (*time after which the originating operator exchange terminates the call in case of no answer*) and terminating ringing timer (*time after which the terminating operator exchange terminates the call in case of no answer*). Generally, calls are terminated as per the terminating ringing timer, so the timer is set around 45 seconds by various operators and the originating ringing timer is set between (60-120 seconds).
- It also appears that the 4G-only operator has started gaming the IUC regime. Sharp reduction in the originating ringing timer (time after which the originating operator terminates the call in case of no answer) to other network calls from 45s to 20s since July 2019 has resulted in a lot of customer inconvenience, since the calls are terminated by the 4G-only operator before the receiving customer answers the call. Network statistics confirm that out of the 100 calls, which would have got answered in 45 seconds, only 82 gets answered as a result of reduction in the originating ringing timer. This is a reduction in answered calls by 18%.
- The suo-moto reduction in originating ringing timer by the 4G-only operator since 6th July 2019 has also led to the terminating customer being deprived of some basic services such as Call forwarding on No answer, forwarding to voice mail, etc.
- On seeing a missed call, the receiving customer naturally calls back to the originating operator's network. The sharp reduction in the originating ringing timer by the 4G-only operator has resulted in a significant number of Airtel customers calling back customers of the 4G-only operator, thereby turning an incoming call to an outgoing call with the sole objective of earning the IUC revenue/ reduction in IUC payout.
- Owing to such reduction in release timer, the incoming to outgoing call ratio between Airtel and the 4G-only operator has changed by an overall approx. 6%. This action of 4G only operator has not only caused huge inconvenience to the customers, but has also resulted in a loss of approx. **Rs. 25-30 Crores per month** due to an additional 132 million MOUs/day getting terminated in the 4G only operator's network from Airtel's network.
- It is evident that by doing this, the 4G only operator intended to achieve its dual objective of:
 - Reduction in IUC payouts to other operators
 - Reduction of asymmetry of traffic with other operators to convince the Authority to mandate BAK from 01.01.2020

(iii) Tariff and IUC completely different

- The 4G only operator has claimed vide various media reports that the reason for continued traffic imbalance is due to the higher tariffs charged by Airtel and other operators from a majority of their customers.
- We would like to submit that Tariff and IUC are completely different. IUC is simply a cost that a mobile operator pays to another operator for carrying through/ terminating a call. If a customer of mobile operator A calls a mobile operator B, then A has to pay a charge to B for carrying this call. In case of total symmetry of calls, the IUC becomes irrelevant since it can get squared off between the operators.
- Tariff on the other hand, is charged by the operators for the services provided by them. The tariff would involve packaging, bundling, segmentation etc. and would also involve various components such as fixed fee/rental, component directly associated with services such as data, voice, messaging, etc. Tariffs can be in form of the bundled pack involving fixed monthly commitments or can be in the form of pay per use without any fixed commitment.
- The imbalance of traffic may occur due to different customer profiles, tariff plans, differential tariffs for onnet-offnet, etc.
- For instance, in case of the 4G-only operator, voice while being unlimited, is only provided once a customer subscribes to data. There is no voice only plan. All the customers taking service from this operator have 4G handsets and are 4G customers.
- On the other hand, other operators also have 2G/ 3G customers who continue to enjoy lower monthly tariffs, which allow them to only pay for voice. The lowest monthly tariff available to the customer to subscribe to services by the 4G-only operator is much higher (including the handset cost as the customer has to upgrade their handset) as compared to tariffs set by other operators such as Airtel, VodafoneIdea, etc.
- Since all the customers of the 4G-only operator continue to have unlimited voice, they tend to call more as compared to customers on pay per use tariff plans which leads to asymmetry. It does not reduce the cost of terminating operator and hence, the termination operators are compensated in the form of IUC.
- In view of above, it is clear that claims made by the 4G-only operator with respect to higher tariffs of Airtel and VodafoneIdea as the reason for imbalance of traffic is unfounded and are only meant to further confuse the authority.

D) Cost of Terminating a Call:

- We believe the cost of completing a call is much higher than 6 paise/min while the 4G only operator claims that the cost is lower because of their IP network.
- Whereas, it is known that the cost of power, rental for the tower, spectrum etc. have nothing to do with an IP network.
- Further, the cost of terminating the call has been challenged and is presently sub judice, hence, we are not reopening the same here and limiting ourselves to the question raised with respect to revision of applicable date for BAK.

To summarize,

- The adoption of 4G by customers both in terms of migration to 4G handsets and use of VOLTE for voice has been slow primarily due to costlier 4G hand.
- Airtel has invested significantly in deployment of 4G network, refarming of 900/ 2100 MHz spectrum to 4G.
- The traffic asymmetry continues to be high, leading to a much higher number of terminating calls in Airtel's network, and hence, multifold efforts by Airtel, compared to 4G only operator. Therefore, the cost based termination charge (IUC) can be considered as a legitimate compensation for the work carried out by the terminating operator.
- The cost of completing a call is much higher than 6 paise/min.

In this reference, it is worthwhile to mention that even the Authority in the consultation paper has acknowledged the facts as indicated below:

- *TSPs are adopting packet-based technologies in the network and the number of eNode-B's i.e. 4G Base Transceiver Stations have more than doubled in the past few years.*
- *Trends with respect to Mobile phones being shipped to India indicate that the change towards adoption of new technology (4G) is gradual and is likely to take some more time before the majority of IUCs start using 4G enabled devices.*
- *The share of 4G data subscribers stands at approximately 45% of total wireless subscription including the 4G data subscribers held by the 4G only operator.*
- *The voice call traffic for one private sector 4G-only TSP is fully handled on 4G RANs. In case of remaining two private TSPs, in terms of voice minutes, only 5% and 18% of their total voice call traffic is being handled on 4G RANs, as of now.*

- *The imbalance in inter-operator off-net terminating voice call traffic, over a period of last two years, is gradually reducing. The huge imbalance, which occurred initially between the 4G-only operator and other operators, is also reducing. The trends indicate that while the adoption of new technologies by service providers and customers is progressing, many of the calls made by the customers are getting terminated on the circuit switched networks. Further, although the imbalance in the inter-operator off-net traffic is reducing for some time now, it still exists. This is despite the fact that the 4G-only operator has gained a greater market share as compared to all other older operators.*

In view of the above submissions, the assumptions/expectation of TRAI before migration to Bill and Keep are still far from being realized. Hence, the said migration to Bill and Keep may be kept in abeyance/postponed for a period of at least 3 years.