



Reliance Jio

Infocomm Limited

RJIL/TRAI/2014-15/4169
29th December 2014

To,
Sh. Arvind Kumar,
Advisor (NSL),
Telecom Regulatory Authority of India,
Mahanagar Doorsanchar Bhawan,
Jawaharlal Nehru Marg,
New Delhi - 110002

Subject: Counter Comments on TRAI's Consultation Paper on 'Interconnection Usage Charges' (Consultation Paper No. 13/2014) dated 19.11.2014.

Dear Sir,

This is in continuation to our letter No. RJIL/TRAI/2014-15/4152 dated 11.12.2014. As submitted earlier, Reliance Jio Infocomm Limited appointed two internationally renowned telecommunication expert firms, namely, M/s. Ovum, UK and M/s. Detecon International, Germany to provide their independent opinion on the issue after taking into account the Indian telecom landscape, economic principles and international best practices. Their reports have already been submitted to the Authority vide RJIL's Letter No. RJIL/TRAI/2014-15/4152 dated 11.12.2014.

M/s. Ovum, UK and M/s. Detecon International, Germany were also engaged by RJIL to analyse the comments submitted by other service providers and provide their counter comments. Counter comments provided by them are enclosed for kind consideration of the Authority.

Thanking You,

Yours sincerely,
For **Reliance Jio Infocomm Limited,**


Kapoor Singh Guliani
Authorised Signatory



Encl.: As above.

Interconnection Usage Charges (IUC) Consultation – Counter- Comments



Introduction

Ovum has been asked by Reliance Jio Infocomm Ltd. to provide our independent counter comments to the responses that were submitted to the TRAI's Consultation Paper on Interconnection Usage Charge (IUC) taking into account the current regime, economic principles and international best practices.

The main issues that we will cover in detail in these counter comments are:

- Cost recovery is most effectively done through competitive mechanisms
- Bill and Keep (BAK) is compatible with Calling Party Pays (CPP)
- CPP is not the reason that BAK has not been mandated by regulators
- The introduction of IUC was not the cause of growth in subscribers nor investment in rural areas
- Introduction of BAK does not lead to retail price increases
- Rural area deployment is not hindered by BAK, and further, the introduction of BAK will not lead to:
 - Networks being dominated by inbound calls
 - No incentive to enhance capacity
 - Collapse in tariffs and overall industry loss
- FAC including spectrum costs should not be the basis for determining IUC if the transition to BAK is delayed

Throughout this analysis, it is important to consider the context of why regulators need to control telecommunications access network termination. Termination is a natural bottleneck monopoly as the terminating network completely controls the access for traffic that is destined for its customers and, absent regulation, can set the termination rate at monopoly prices or refuse/obstruct access to the service.

The purpose of regulators enacting wholesale interconnection regulation and setting prices is to control this monopoly power. Over time, the academic literature and the industry practice of cost allocation has developed substantially from the early simplistic views of FAC, to more economically efficient pure LRIC models. A substantial body of work (referenced below) has also been written demonstrating the benefits of moving to full BAK, and regulators have acknowledged that this is the way forward.

In the words of the Australian regulator:

“Rapid technological advancements and the growth of mobile data services will continue to drive down the cost of voice termination. As the cost per minute comes close to zero, the difference between cost-based pricing methodologies and BAK will diminish. In these circumstances, the benefit of setting cost-based rates may be outweighed by the higher regulatory cost of determining an appropriate price and the substantial regulatory burden on MNOs in collecting the information required by the regulator in making that decision.”

Cost recovery is most effectively done through competitive mechanisms

Vodafone states *“In the present multi-operator multi-service environment, it is necessary to define an effective Interconnection Usage Charges (IUC) regime that enables interconnection at a fair charge. Providing interconnection network service involves costs for which telecom service providers need to be adequately compensated.”*

Idea states *“Any revision in MTC in the current context would [be] tantamount to extending subsidy to competing and originating operators at the cost of the terminating operator.”*

We agree that the IUC regime needs to enable interconnection at a fair charge. Terminating network service is a natural bottleneck monopoly, and absent regulatory control, will result in the terminating either hindering the termination service and/or charging above competitive pricing.

Telecom service providers need to be adequately compensated for the service they provide, however, cost recovery is most effectively done through competitive mechanisms. Regulatory cost setting attempts to replicate competitive outcomes, but is a time-consuming and costly exercise, that is open to dispute and legal challenge. A Bill and Keep methodology allows telecom service providers to recover the costs of providing service within their network from their own customers. Customers can then respond to pricing and other market signals to select the provider offering the best value for money. Thus, Bill and Keep is a cost-based methodology that employs competition and market pressure to determine the efficient cost level rather than regulatory imposed cost determination.

BAK is compatible with CPP

The responses from Bharti Airtel, Vodafone India and Uninor (Telewings Communications) stated either that retail level CPP requires an IUC, or that BAK is not compatible with retail level CPP (or equivalently that BAK can only be implemented in conjunction with retail level RPP) and that regulators have not mandated BAK due to having CPP in place. Both these statements are incorrect.

The Body of European Regulators for Electronic Communications (BEREC – a working group of European national regulators established by European Parliament regulation as part of the Telecom Reform package) published a common statement in 2010¹ that assessed which interconnection regime is appropriate as network technology converges and moves to an IP basis. While the BEREC paper is not a formal EU Recommendation, it highlights current thinking of European telecoms regulators and foreshadows the likely direction of future Recommendations. In their discussion, **BEREC specifically stated that CPP and BAK are compatible:**

¹ “BEREC Common Statement on Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues”, June 2010

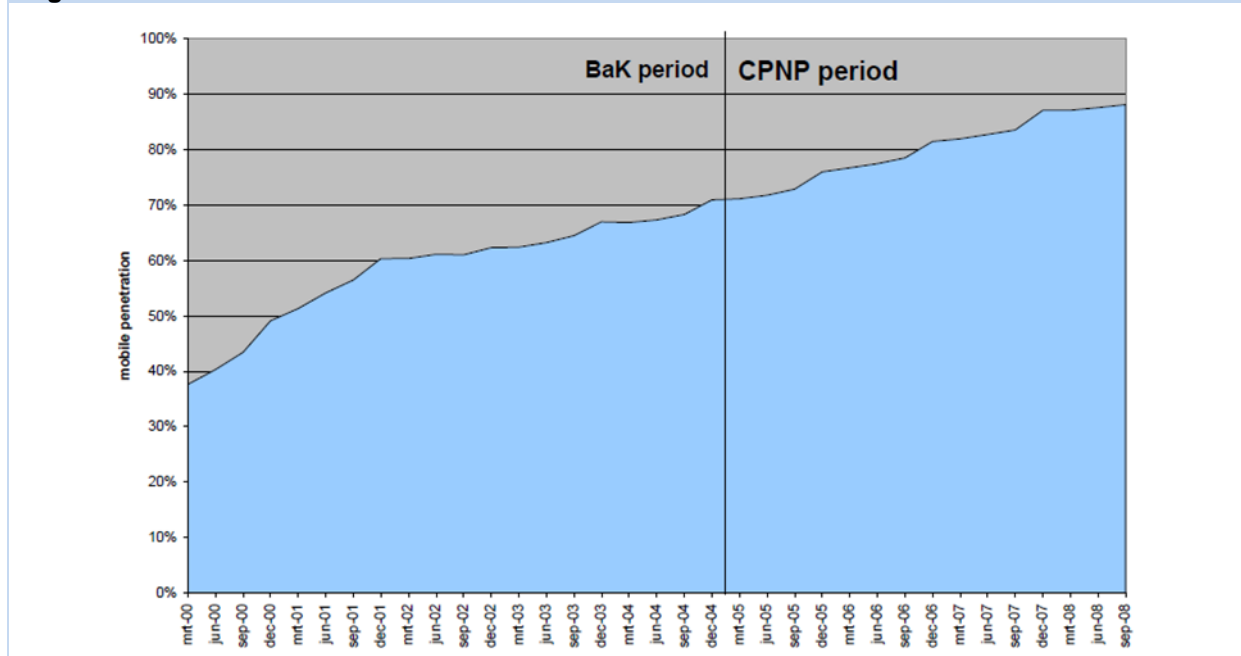
“Retail billing mechanisms can be CPP structurally corresponding to CPNP² in which the calling party bears all the cost of a call or RPP, in which the receiving party pays part of the call rather corresponding to BaK. Nevertheless these structural similarities do not preclude flexibility in combining different wholesale and retail regimes. (...) the use of a particular wholesale mechanism does not preclude application of different retail pricing regimes. Both CPNP and BaK provide flexibility at the retail level to offer retail schemes based for example on minutes, bits, or as buckets of minutes or bits plans as well as flat rates.”

The BEREC paper is also of note for **providing empirical evidence against the claim** often made by mobile operators that a reduction in the mobile termination rate (typically in response to large reductions in moving from FAC to LRIC in the EU) **will require raising prices for low usage users with net incoming calls**, leading to a lower overall mobile penetration rate. BEREC cited three empirical sources:

- *“it first is useful to look at the effect of the past decrease in termination rates. This decrease has been significant. Mobile termination rates have come down from above 20 eurocent to the current European average between 8 and 9 eurocents. This significant decrease has not led to higher prices of low usage offers and lower penetration and ownership. This is in contradiction with claims of mobile operators in the past that they would.”*
- *“A second source of empiric information to predict the effect of BaK are market shocks, i.e., cases where the regime changed from CPNP to BaK, or vice versa. An example of this is the change from BaK to CPNP in France in 2005. If BaK would be detrimental to low usage offers or penetration, a structural break in the market trends for France should be expected. In other words, the theory that BaK leads to lower penetration would - after the move from BaK to CPNP - predict a stronger growth of penetration. However, a structural break in the growth of penetration does not seem to have occurred.”* – Figure from BEREC paper repeated as Figure 1 below.

² BEREC uses CPP to refer to the retail level Calling Party Pays and CPNP to refer to the wholesale level Calling Party Network Pays

Figure 1: Shift from BAK to CPNP in France in 2005



Source: ARCEP

- *“A third source of information is a comparison of countries that use BaK and CPNP. (...)The results of this section can be summarized as that BaK countries on average have twice as much usage per capita at half the retail price per minute. Also there is no clear indication that BaK results in lower mobile penetration and ownership based on the average result in the BaK countries”*

There are examples of wholesale BAK and retail level CPP existing together. While BAK has typically been mandated in countries which have historically operated on a retail level RPP basis (or at least mobile party pays), the combination of competition and falling costs due to technology improvements and spectrum availability has seen mobile operators in these countries move from a retail level RPP to CPP for their customers.

Examples include Nextel in United States which used CPP as a competitive advantage introducing it in 2003. When StarHub entered the mobile market in Singapore it adopted CPP for its customers. SingTel mobile followed suit a day prior to the introduction of mobile number portability, with the third mobile operator, M1, later also moving from RPP to CPP for its customers.

In Uninor’s response, it is stated that Ofcom in the UK considered and rejected the introduction of BAK. This is in reference to Ofcom’s 2009-2011 Wholesale Mobile Voice Call Termination Market Review³.

³ “Wholesale mobile voice call termination market review,” Volume 2 – Main Consultation, Ofcom 2010

Ofcom recognized that **BAK is generally the most efficient and appropriate regime** for wholesale interconnection charging out that

“Several recent theoretical papers have advocated the adoption of B&K as the most appropriate regime in the presence of (uninternalised) call externalities. The general conclusion from this literature is that there is no wholesale regime that can be expected to be efficient under all circumstances (or for all types of calls), but B&K is likely to perform better than average.”

Ofcom stated, however, that they will **not be implementing BAK at this stage due to an absence of data quantifying the size of the benefit from BAK.**

“We are not aware of any empirical work systematically assessing the size of call externalities or the degree of possible internalisation of call externalities by consumers, or by CPs on behalf of consumers. Such data would be critical in reaching any conclusion on the desirability of a mandated B&K regime.”

While Ofcom acknowledged that there will be some practical but addressable issues (such as renegotiating commercial contracts) in transitioning from a wholesale MTR to a BAK regime, they did not see BAK as incompatible with retail level CPP. Apart from relying on a lack of quantification of the benefits from BAK, Ofcom also noted that there was uncertainty related to whether BAK legally met the requirements of Article 8 (2) of the Framework Directive, and was not willing at that stage to test this. In India there is no regulation or law which prevents introduction of BAK. There is not an impediment for adoption in India, as EU regulations only apply to EU member countries.

The ACCC in Australia conducted a review of their Mobile Termination Access Service (MTAS) in 2011. In their discussion paper⁴, the ACCC began by acknowledging that **BAK is more efficient than wholesale MTR:**

“A growing body of academic literature suggests that BAK is more efficient than CPNP and has the potential to send signals on on-net/off-net price discrimination whereas cost-based pricing incentivises MNOs to set off-net prices higher than on-net prices. This is because under BAK, the calling party and receiving party’s networks share the total costs of the call, regardless of whether the parties are on the same network, fixed or mobile. BAK recognises that theoretically both the caller and the recipient derive utility from a call in most cases, and imposes some of the cost of a call on each of the calling and receiving networks, thereby improving allocative efficiency.”

The ACCC stated that regulated MTAS pricing is becoming less relevant for mobile to mobile interconnection. Despite Australia being a retail level CPP country, the ACCC did not raise any concern regarding potential incompatibility between retail CPP and BAK.

While Singapore already has a BAK regime in place for mobile interconnection, the IDA considered the issue of BAK for fixed calls as part of its 2008 consultation on wireless broadband and

⁴ “Domestic Mobile Terminating Access Service (MTAS) Discussion Paper,” June 2011, ACCC

interconnection⁵. This consultation was initiated as part of IDA's strong industry push for network investment and upgrades to IP-based fixed and mobile networks and forward looking consideration of appropriate regulation. IDA observed that:

"The BAK model will be able to work regardless of whether voice traffic is capacity-based or minutes-based. As each operator bears its own costs, the BAK arrangement also helps to steer operators to more efficient technologies to keep their costs low. It also avoids the problem of terminating network monopolies and relieves the industry of the transaction costs associated with interconnection billing and settlements. Hence, IDA is of the view that the BAK regime may be an appropriate long term solution that could apply to all interconnection settlements, whether between fixed or mobile, PSTN, cellular or IP, and regardless of the devices used and the number levels assigned."

In their decision⁶, the IDA decided to not yet mandate BAK, but to allow the industry more time to transition to IP-based networks.

In light of the IDA decision in 2008 (which is now six years ago), it is interesting to highlight Cisco's submission to the TRAI's 2014 consultation paper on Migration to IP Based Networks⁷ which demonstrates that it is only regulatory constraints that is holding Indian telecommunications operators back from moving to all IP based networks (which carry voice as a stream of packets) with their significantly lower OPEX and CAPEX requirements:

"In India, most Service providers have to a large extent curtailed investing on the TDM-based network infrastructure and network expansions are being predominantly planned with NGN Voice over IP network. However, as it appears today, it is only due to requirements of regulatory compliance, that IP is being converted into TDM in the Media gateway at the POI."

It is clear from the above material that BAK is not incompatible with retail level CPP, and it would be possible for Indian mobile operators to maintain retail level CPP once BAK is adopted. A BAK methodology allows mobile operators to recover the costs of providing service within their network from their own customers. Customers can then respond to pricing and other market signals to select the mobile operator offering the best value for money.

In fact, the majority of mobile operators globally have been moving away from pure per minute pricing (or linear pricing) to flat rate (or bucket) plans. These plans involve a set spend per month and include up to a certain number of minutes (and SMS, data and other VAS). Often the higher level plans have

⁵ "Proposed Regulatory Framework For Telephony Services Over Wireless Broadband Access Networks And Interconnection Framework For Telephone Services," 2008, IDA

⁶ "Discussion and Explanatory Memorandum on the Regulatory Framework For Telephony Services Over Wireless Broadband Access Networks And Interconnection Framework For Telephone Services," 2008, IDA

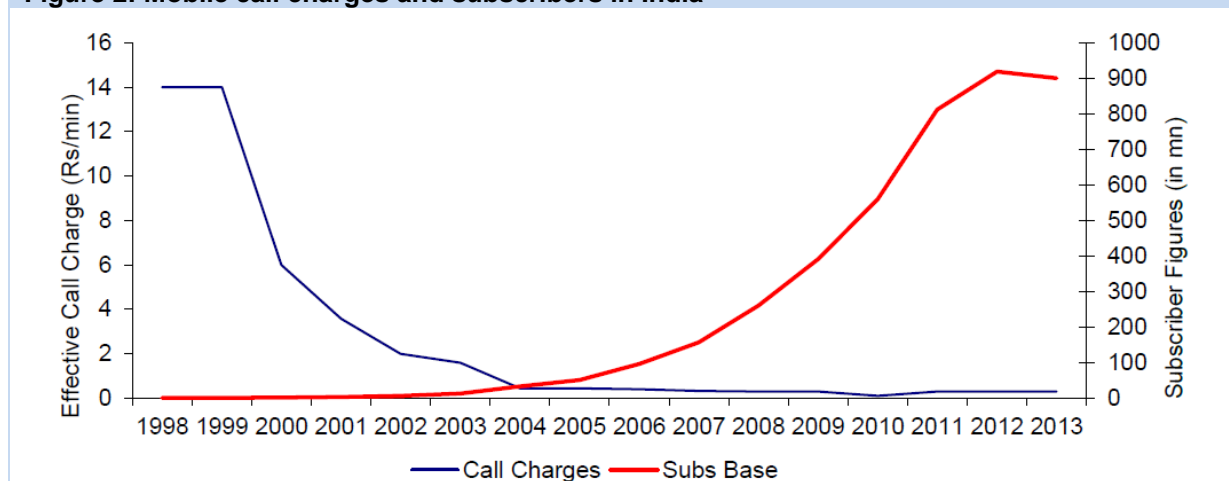
⁷ "Consultation Paper on Migration to IP Based Networks," June 2014, TRAI

an unlimited allowance for calls or SMS, effectively moving away from a pure retail level CPP approach as the customer now faces a zero incremental retail cost for each additional call minute.

IUC did not lead to mobile industry growth in India

In their response, Vodafone India attributed the growth in mobile subscribers and usage within India to the introduction of retail level CPP and IUC in 2003. Chart 1 from Vodafone's own response, repeated below in Figure 2, **clearly shows that effective call charges fell dramatically prior to the 2003 regulatory change**, and hence was independent of that event.

Figure 2: Mobile call charges and subscribers in India



Source: Vodafone India

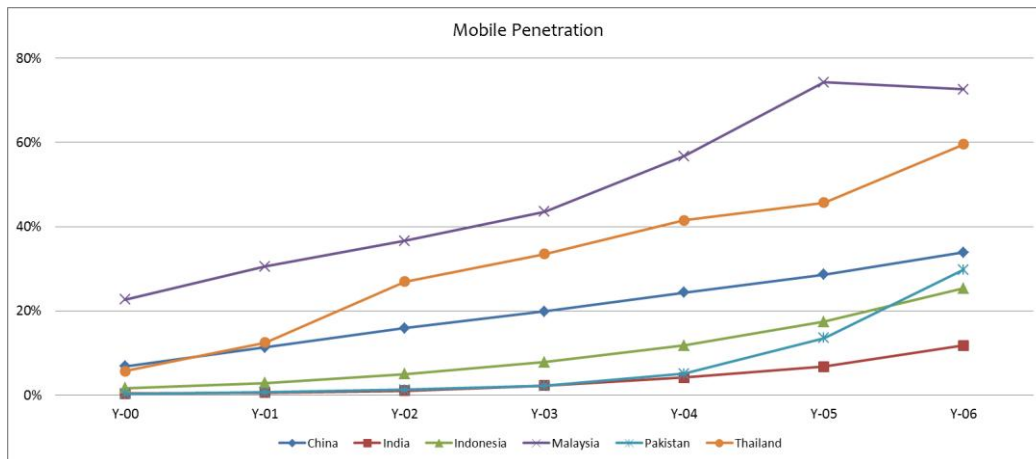
Over the last decade, the mobile industry globally has seen

- huge improvements in mobile technology improving both capability while also lowering costs,
- smart phone growth exploding following the launch of the iPhone in 2007, and
- more recently the introduction of tablets such as the iPad.

Within India, the government has released more spectrum to the market with spectrum now available to telco service providers in the 800MHz, 900MHz, 1800MHz, 2.1GHz and 2.3GHz bands. Additional spectrum has not only allowed the increase in aggregate capacity with lower incremental network costs, it has also been a key mechanism for introducing additional competition into the market.

The **combined impacts of technology, spectrum availability and competitive market pressure far outweigh the impact of introducing CPP and IUC in 2003**. In international markets, the reduction of the local MTR rate has not seen the stifling of the mobile market, but rather the increase in network usage and increased consumer welfare. Figure 3 below compares the mobile penetration level between India and several similar developing countries. The Indian market growth tracks the other markets around the period of the introduction of CPP and IUC, ruling this out as a driver of change.

Figure 3: Mobile penetration levels



Source: Ovum, WCIS data

Introduction of BAK does not lead to retail price increases

In their Vodafone India's response, they stated a concern that the introduction of BAK could lead to retail price increases as service providers begin charging for receipt of calls. In opposition to this view, the response claimed the wireless sector is under financial pressure, and Bharti Airtel's response claimed that the introduction of BAK will lead to a collapse in tariffs and overall financial loss to the industry (Bharti Airtel's issue is addressed separately in the section below).

In addition to multiple academic studies (cited below), the European regulatory group BEREC stated in their 2010 common statement (cited above) that:

"BaK is expected to lead to higher average usage per capita and a lower average price per minute. (...) estimated on the basis of both empiric data and on analytical reasoning. From the section on empirical evidence (limited to mobile services) it seems evident that countries that use BaK regimes – or with very low (mobile) termination rates – have far higher usage per capita and a lower average price per minute."

The BEREC paper stated that that these two effects suggest that BAK is likely to deliver a material welfare gain to consumers overall. Note that this welfare gain is largely driven by better efficiency through economies of scale, and competition driving out inefficient investment.

The consumer welfare effect of lowering MTRs was also studied by in 2010 using econometric methods to study the impact of MTRs on retail prices and demand over 5 years for 61 MNOs from 16 European Member States⁸. The research showed that:

“lower MTRs tend to result in a lower average retail unit price (...) lower MTRs lead to increased mobile call initiation in terms of minutes of use per month per subscription (...) efforts to drive MTRs to lower levels are appropriate and will tend to increase consumer welfare”.

Rural deployment is not hindered by BAK

In their responses, Bharti Airtel and Vodafone India stated that the introduction of BAK will remove the incentive to deploy networks in rural and remote areas. Idea stated a similar concern for both rural and low income users, emphasizing that the business case for a new operator expanding into rural areas is particularly hampered. Supporting this argument, the responses additionally stated that the introduction of BAK would lead to:

- Networks being dominated by inbound calls
- No incentive to enhance capacity
- Collapse in tariffs and overall industry loss.

Vodafone states *“An efficient interconnection and charging regime is central to efficient and seamless connectivity between various networks, but more importantly a facilitator for rural investment and connectivity due to the usage profiles of rural customers, many of whom can only be connected in an economically feasible way with the recovery of their costs through IUCs. Considering the ambitious government goals in connecting rural areas, it is key that the IUC regime balances public and private interests so that the continuous investments in network expansion and upgrades are incentivized while at the same time competition and consumer welfare is enhanced. Therefore, the IUC regime should be established in such a manner so that it promotes the closing of the existing digital divide in India while, promoting operators’ investments “*

If the IUC is set according to costs, then it will facilitate only minor incremental network deployment, even accepting that rural customers predominantly receive calls instead of initiating calls. If the IUC is set above costs (a likely possibility if FAC is used) then this distorts the overall market. A more effective method of promoting national policy objectives of rural network deployment is through an open, transparent and market neutral method, such as the USOF administered by the Department of Telecommunications.

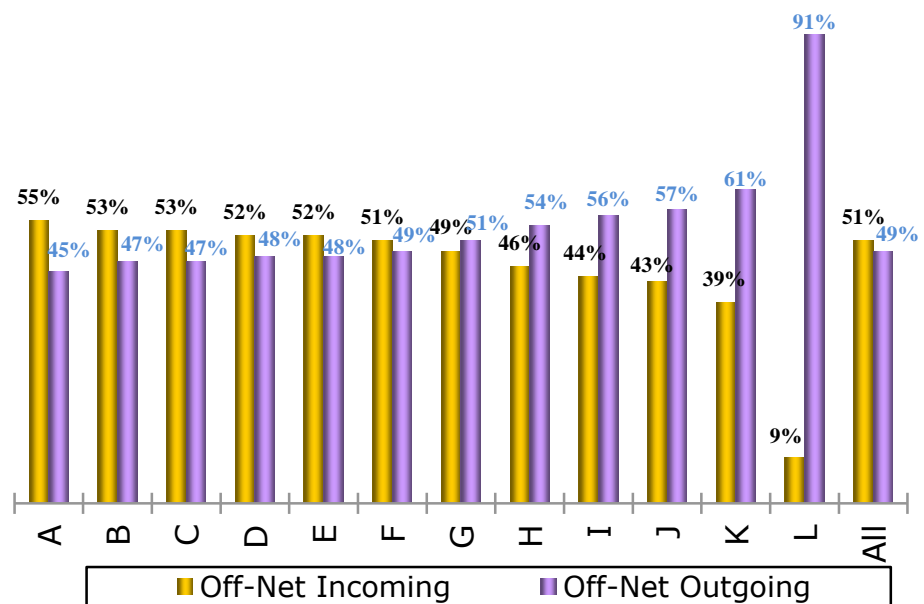
Addressing these supporting arguments in turn and beginning with the stated concern that BAK would lead to networks being dominated by inbound calls. Currently, the Indian mobile networks have almost

⁸ *“The effects of lower mobile termination rates (MTRs) on retail price and demand”*, Christian Growitsch, J. Scott Marcus, and Christian Wernick, published in “Communications and Strategies”, Q4 2010

balanced incoming and outgoing traffic and the imbalance is mainly with some smaller operators. This was evidenced in the TRAI's submission to the Supreme Court in their 2011 affidavit, shown below in Figure 4.

Figure 4

Distribution of Off-Net Incoming and Off-Net Outgoing Minutes of mobile service providers (2009-10)



A to L : Mobile Service Providers

Source: TRAI's report submitted to Hon'ble Supreme Court on 29.10.2011

Under a BAK regime, it is unlikely that the best networks will become dominated by inbound calls, notwithstanding consumer preference to utilize multiple SIMs. In fact, under BAK it is likely that inbound and outbound calls will be better balanced, as mobile network operators will not be able to earn regulatory arbitrage from the margin between network costs and the IUC.

Coverage and network quality is an important competitive advantage for mobile networks, with larger networks also benefiting from economies of scale and being able to spread out the fixed coverage costs across a wider subscriber base allowing them to offer lower retail prices. Since BAK requires network operators to recover their own network costs from their own customers, network operators will have competitive pressure to be more cost effective in their network deployment and operations.

If customers are selecting networks on a per call basis, they will be selecting on the basis of price and network quality for both inbound and outbound calls. Not only do customers want to be able to receive calls, they will also want to make calls. Therefore, they are most likely to be making calls on the same network they receive calls in the majority of cases. Given the current retail pricing structure of mobile

plans in India, the main reason for customers to swap networks would be as they move from one circle to another and the network availability and pricing rates change.

Related to the issue of inbound calls, Bharti Airtel, Vodafone India and Uninor (Telewings Communications) stated concerns in their responses that the introduction of BAK would result in increased marketing and SPAM calls.

Setting a high IUC is a very blunt instrument for controlling SPAM that creates other negative and economic externalities. If the IUC is set to the efficient cost level, it provides only a minimal barrier to bulk marketing and SPAM calling. The more effective and efficient way of dealing with this issue is through a Do Not Call Registry. Countries such as the US, UK, Canada and Australia (amongst others) have successfully run such schemes for an extended period of years. The TRAI enacted the "Telecom Commercial Communication Customer Preference Regulations, 2010", which came into effect from September 2011 and controls the National Customer Preference Register (NCPR). The NCPR has been very successful in curbing SPAM and unsolicited commercial communications, however, if some operators believe that marketing and/or SPAM calls are, or potentially will become, a problem, then this is best addressed through the existing mechanism in place for this issue.

The impact on investment and innovation of reducing or removing mobile termination rates has often been claimed by mobile operators. In particular, the responses of current operators have argued that industry losses and debt levels will increase on removal of IUC.

However, the empirical evidence and regulatory decisions show that this is over stated. For example, the ACCC in Australia in their consideration of this issue in their 2009 review of the decision to regulate the mobile terminating access service stated⁹ that despite the regulation of and reduction over time of the MTR that vigorous mobile network investment and innovation was still occurring:

"the ACCC is satisfied that continuing declaration of an essential bottleneck service such as the MTAS is likely to encourage the economically efficient use and investment in infrastructure. (...)The ACCC has also observed the continued growth in infrastructure investment by MNOs, particularly in upgrading and expanding their 3G networks. The ACCC noted in 2008 that all 3G networks were either upgraded to, or in the process of being upgraded to, the high speed packet access (HSPA) protocol."

Also of interest to this consultation is the ACCC's view that data services were currently being carried on a commercially agreed BAK basis and that as developing services, it was not necessary to impose wholesale termination to support these services:

"The ACCC acknowledges that data interconnection is carried out differently to voice termination services, effectively with no data termination fees. In the process of sending and receiving data over mobile networks, both the sending and receiving parties effectively pay for the data transfer through their own mobile data allowances. The ACCC

⁹ "Mobile Terminating Access Service: An ACCC Final Report on Reviewing the Declaration of the Mobile Terminating Access Service," May 2009, ACCC

notes that mobile data services remain immature services and, whilst they are growing, are yet to be widely adopted by the market. (...)The ACCC is of the view that it is not necessary, at this stage, to include SMS, MMS and other data services in the MTAS service description as they are still exhibiting significant growth”.

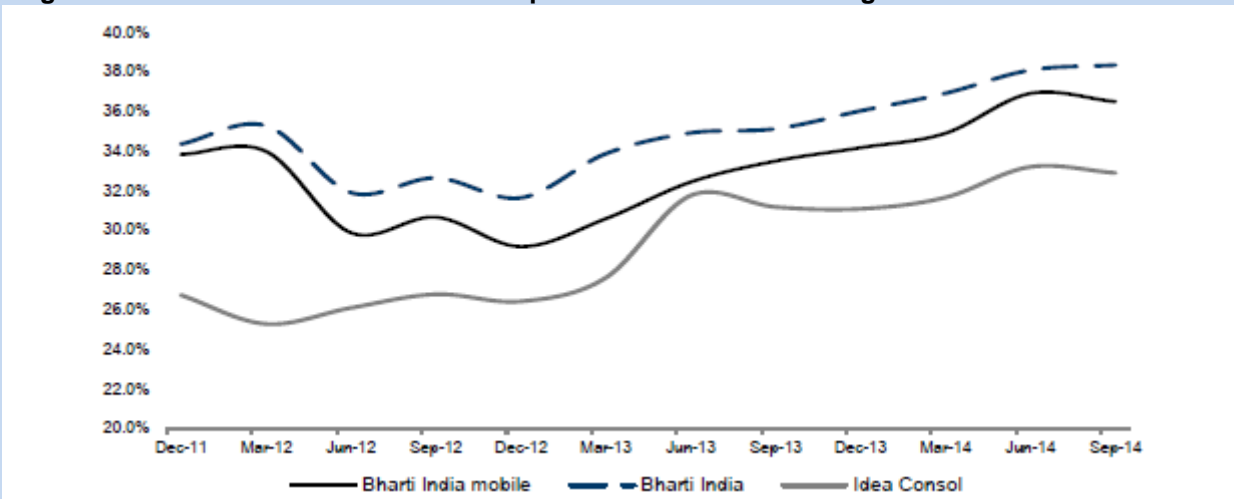
With both regulatory support and commercial pressure, mobile infrastructure sharing is well developed in India. This significantly reduces the costs and commercial risks for a new operator to expand mobile network coverage and capacity.

Related to the perceived issue of insufficient incentive to invest, is the statement that moving to a BAK regime will lead to a collapse in tariffs and overall industry loss. While the BEREK and Growitsch et al. studies (cited above) demonstrated a consumer welfare benefit from the introduction of BAK, this welfare gain is largely driven by better efficiency through economies of scale, and competition driving out inefficient investment.

In countries where BAK is active, such as the US, Canada, HK and Singapore, the mobile operators are profitable and have not faced financial problems from the wholesale interconnection charging.

In Vodafone India’s response, Table 2 stated that the Indian wireless industry’s EBITDA margin was 15.41% for the 2012-2013. This figure seems to be for the industry as a whole including established operators and new entrants (some of whom are undergoing extensive network build prior to launch in early 2015). The established mobile network operators naturally have much higher EBITDA margins. For example, a recent Credit Suisse report¹⁰, shows that Bharti India mobile and Idea have had approximately 600 basis point increase in EBITDA margins over the past two years as shown in Figure 5. This is not the picture of an industry sector under financial pressure.

Figure 5: Bharti India mobile and Idea improvement in EBIDTA margins



Source: Credit Suisse from company data

¹⁰ “Global Telecoms and Asian Internet Daily”, 3 December 2014, Credit Suisse

The inefficient way to promote investment and rural expansion is through setting the IUC above costs (a likely possibility if FAC is used) as this distorts the overall market. Competition remains the most effective driver to promote network efficiency, innovation and inclusion. The best way of addressing rural expansion and low income inclusion is through improved consumer welfare, which is linked by competition to a lower (or zero) IUC (as discussed and cited above). Therefore BAK is compatible with network investment to increase capacity, expand coverage and to upgrade to newer technologies.

If there is a government level desire to promote national policy objectives of rural network deployment expansion beyond the level of economic feasibility, the most effective approach is through an open, transparent and market neutral method, such as the USOF administered by the Department of Telecommunications.

FAC including spectrum costs is not appropriate for IUC

The responses from Bharti Airtel, Vodafone India and Idea stated that FAC should be the basis of setting the IUC and that spectrum costs should be included in the cost base.

Vodafone India's response in the introduction section stated that:

"There is a consensus amongst economists, accountants, engineers, experts, operators and regulators that interconnection prices based on cost are most likely to lead to desirable outcomes."

This statement is both without evidence and misleading. In fact, the current consensus amongst economists and regulators is to move away from FAC based approaches towards BAK for wholesale interconnection. While regulators that have studied the issue acknowledge the need to move to BAK, they are preferring to approach this through a decrease in the regulated MTR over time.

In addition to the regulatory decisions that considered BAK cited above, some of the other literature that discusses the benefits of BAK includes:

- *"BEREC Common Statement on Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues"*, June 2010
- *"Mobile Termination charges: Calling Party Pays versus Receiving Party Pays"*, Telecommunications Policy, Vol. 30, Stephen C. Littlechild, 2006
- *"The Future of IP Interconnection: Technical, Economic, and Public Policy Aspects, Final Report"*, Study for the European Commission, 29 January 2008, WIK-Consult
- *"Efficient Inter-carrier Compensation for Competing Networks When Customers share the value of a call"*, Journal of Economics & Management Strategies, 12(2), 2003, P. DeGraba
- *"Bill and Keep at the Central Office as the Efficient Interconnection Regime"*, OPP Working Paper Series, No. 33, FCC, December 2000, Patrick DeGraba
- *"Interconnection in an NGN Environment"*, ITU/02, March 2006, Scott Marcus

- “*On-net / Off-net Price Discrimination and ‘Bill-and-Keep’ vs. ‘Cost-Based’ Regulation of Mobile Termination Rates*”, 2008, David Harbord and Marco Pagnozzi
- “*Bill-and-Keep vs. Cost-Based Access Pricing Revisited*”, Economics Letters, 86(1), 2005, U. Berger

Vodafone India’s response stated:

“In the present multi-operator multi-service environment, it is necessary to define an effective Interconnection Usage Charges (IUC) regime that enables interconnection at a fair charge. Providing interconnection network service involves costs for which telecom service providers need to be adequately compensated.”

We agree completely that the wholesale interconnection regime needs to enable interconnection at a fair charge. The terminating network service is a natural bottleneck monopoly, and absent regulatory control, will result in the terminating either hindering the termination service and/or charging above competitive pricing.

Telecom service providers need to be adequately compensated for the service they provide, however, cost recovery is most effectively done through competitive mechanisms. Regulatory cost setting attempts to replicate competitive outcomes. A BAK methodology allows telecom service providers to recover the costs of providing service within their network from their own customers. Customers can then respond to pricing and other market signals to select the provider offering the best value for money. Thus, BAK is a cost-based methodology, that employs competition and market pressure to determine the efficient cost level rather than regulatory imposed cost determination.

If the TRAI decides to delay the introduction of BAK and continue with a regulated IUC for a period of time, then it would be best to adopt a pure LRIC cost methodology rather than FAC or LRAIC. One of the major concerns with FAC (and to a lesser extent LRAIC) is the high risk of overstating costs, leading to market distortions. The IUC creates a cost floor for retail pricing. As Ovum stated in our response, India has a relatively high ratio of mobile termination charge relative to retail price with almost 40% of the retail price being the IUC.

The FAC cost methodology requires a subjective division of a large pool of common costs, treating these as traffic volume sensitive whereas few, if any, mobile telecommunications costs are traffic-sensitive. Of particular concern is the inclusion of spectrum costs. Spectrum costs are related to the provision of wide area coverage and the ability to make and receive calls and other services. The marginal costs are incurred from providing additional capacity over and above what can be provided by the coverage network.

If an IUC based, regulatory calculated cost recovery approach is used, then it is critical that only the long-run marginal cost of carrying the increment of inbound terminating calls (the traffic sensitive costs) is incorporated into the wholesale termination cost charge. Both Ofcom (UK) in 2011 and the European Commission in 2009 considered that spectrum costs should be excluded as they are not traffic sensitive, or (in an efficient market) are substitutable for traffic sensitive network equipment, and including spectrum costs would effectively be double counting.

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Position Paper on Interconnection Usage Charges – Response to COAI submission

for

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1 Introduction

On 19th of November 2014 the Telecom Regulatory Authority of India (TRAI) has issued a Consultation Paper on Interconnection Usage Charges. Detecon has submitted a position paper as a response to the consultation paper on the 12th December. Additionally, also COAI has provided a position statement and with this response Detecon provides its response to the COAI response.

2 Response on COAI response to question Q1 and Q2

Detecon would like to inform TRAI that it disagrees with COAI on the statement regarding Q1 and Q2 based on profound reasons:

- As stated in the Detecon position paper, Bill and Keep (BAK) is the preferred regime and not a CPNP (calling party's network pays) cost based model.
- Detecon disagrees that the cost based charges can be determined in India based on an accurate cost model or the ASR (separation reports). As written in the Detecon position statement, section 4.1., (FAC) cost models based on the ASR or other operator cost accounting systems result in arbitrary allocations of costs and hence, the cost results are inaccurate.
- The major problem is that in legacy networks about 40-50% of total cost can be directly allocated to a service, in all IP networks this share drops to 10-15% only. It is well known from economic theory that there is no "right" or "accurate" allocation system of common and overhead costs to a service. FAC models just shift the direct price negotiation between operators to an indirect negotiation about allocation keys, number of cost elements included etc. International experience shows that larger operators artificially increase the "off-net costs" as an argument for predatory pricing by artificially low on-net retail tariffs.
- The critique from COAI on BAK due to imbalances in traffic is not shared by Detecon in case of India:
 - In case the BAK is implemented, each operator has to cover its network costs through revenues from its own retail customers. Hence, imbalances in interconnection traffic become irrelevant as there are no financial streams related to the imbalances. Instead, each operator must implement the sufficient retail tariffs to cover its own costs.
 - Imbalances in traffic are derived from the different customer bases of the operators. These imbalances are an outcome of the strategic decisions / strategic positioning of the operator. An operator with more incoming than outgoing traffic has chosen a strategy which aims at customers with more incoming traffic than outgoing traffic. Either, such an operator needs to reflect this in the retail pricing to cover the costs related to its own customer base, or he should aim at winning customers with another traffic

balance. Hence, imbalances are an outcome of the strategy of the operators and should not be influenced by IUC regulation.

- Implementing IUC leads to the problems regarding on-net and off-net calls and the related negative welfare effects.¹ The imbalances in traffic perpetuate the problems of on-net and off-net calls related to IUCs. With BAK, these problems simply do not exist.
- As the operators in case of a BAK regime will cover their costs from retail revenues, this regime is not suffering from any problems regarding lack of investments. For the operators making investment decisions, it is irrelevant if the investments are covered by retail revenues or IUC revenues. In no country it has been observed that introduction of BAK regime has led to disincentive for investments.

Based on these and further arguments as stated in the Detecon position paper from 12th December, Detecon is convinced that BAK is the optimal regime in India.

3 Response on COAI response to question Q3

Detecon principally agrees that the economic lifetime should be the right period for depreciations.

The issue which TRAI has on deciding on the right depreciation periods (whether based on economic lifetimes or not) shows though, how arbitrary a cost based regulation is. If a BAK regime is implemented, decisions such as the appropriate lifetimes are not relevant and hence, the risk of regulatory failure is minimized in a BAK regime.

4 Response on COAI response to question Q4

If, as COAI writes, the WACC is 15% to 20% depending on the capital structure of the operators, then the IUCs will have to be different for different operators in a regime with cost based IUCs. Detecon would like to ask TRAI how this fits to the overall cost based IUC regime.

Further, the issue of choosing the right WACC shows how arbitrary the cost based regulation of IUC is, as there is no right or wrong WACC and this changes each second based on the very short term developments in the financial markets (i.e. in case of CAPM based on constantly changing risk-free interest rates, the beta values and the average returns in the financial markets).

¹ See e.g. Scott Marcus, Lorenz Nett, Ulrich Stumpf, Christian Wernick, "Competitive Implications of On-Net/Off-Net Price Differentiation", in: WIK Discussion Papers, No. 329 / December 2009

5 Response on COAI response to question Q5-Q10

As stated in the minority view of COAI members by M/s Reliance Jio and M/s Videocon, BAK is the preferred charging regime for India.

The implementation of cost based IUCs derived from the ASR (accounting separation reports) as proposed by COAI implies that the historic costs would be used. This means that different IUCs for different operators would be the consequence as each operator has different costs. Further, older operators with parts of the network fully depreciated would have lower costs than new entrants, where all network assets are still being depreciated.

As stated in the Detecon position paper from 12th December, a regulatory cost assessment based on cost information from the operators has significant fallbacks (intransparency for the regulator, information asymmetries, arbitrary allocation keys), which leads to arbitrary cost assessments and an inaccurate regulation of IUCs.

6 Response on COAI response to question Q14

As stated in the Detecon statement from 12th December, BAK is the preferred charging regime for India. If a cost based approach is decided, Pure LRIC is the second best alternative. Hence, Detecon agrees with COAI response on the questions Q14 that the MTC and FTC should be uniform, but argues that this should be set to "0" paisa.

7 Response on COAI response to question Q15-Q18, Q19 and Q20

Detecon omits to respond to the COAI response on ILD, Domestic Carriage Charge and TAX transit charge, but would like to ask TRAI if a regulation on these tariffs is the optimal solution for India, i.e. producing the most positive welfare effects for the India economy.

8 Response on COAI response to question Q21-Q22

Detecon agrees with COAI that the transit carriage charge should be abolished, but would also here like to state that BAK is the optimal charging regime for the termination charges.