Public

Macquarie Telecom Pty Ltd
Level 20, 2 Market Street
Sydney, NSW 2000

Call 1800 676 272
Fax 1800 676 373

ABN 21 082 930 916

3 September 2014

Australian Competition and Consumer Commission
MTASFADInquiry@accc.gov.au

Mobile terminating access service:
Final access determination discussion paper

Macquarie Telecom Pty Limited ("**Macquarie**") welcomes the opportunity to make this submission to the Australian Competition and Consumer Commission ("**ACCC**") in response to the ACCC's discussion paper concerning the above.[1]

On 17 June 2014, the ACCC released its final decision on the MTAS declaration. The ACCC determined that the MTAS declaration would be extended for a period of five years and varied to include SMS termination services.

The *Final access determination discussion paper* ("**Discussion Paper**") represents the next step in the declaration process. The Discussion Paper seeks views on approaches to pricing the MTAS rate, with non-price terms the subject of a separate consultation. This includes a discussion of the appropriateness of different cost-based pricing approaches, the importance of benchmarking against global MTAS rates, and the issue of mandated pass-through of MTAS reductions.

The Discussion Paper includes 20 questions for consideration. Macquarie's response to these questions is included in Appendix A of this submission.

Macquarie is of the view that, since the last MTAS final access determination ("**FAD**") in 2011, developments in technology, market structure and consumer behaviour have led to significant reductions in the cost of providing MTAS. Along with these recent developments, Macquarie also considers that the deployment of 4G/LTE voice and SMS services will lead to a further dramatic reduction in the cost of MTAS in the near future.

There is no question that these developments must be reflected in the final price determination. The question, therefore, is how best to ensure that the long-term interests of end-users ("**LTIE**") are maximised through the choice of pricing approach and the various assumptions involved. As outlined in this submission, Macquarie believes that the pure LRIC approach is the most appropriate for Australia and the most likely to ensure the LTIE is maximised. However, within this framework, Macquarie stresses the importance of benchmarking global MTAS rates as a vital step in the price-setting process.

Macquarie considers it essential that an effective benchmarking study be conducted by the ACCC, with sufficient weight given to the results in informing the final price determination. This will ensure that the final regulated price is both robust and realistic, and that market participants are confident that the price is founded on strong assumptions that take account of the market realities facing all operators.

Macquarie's conclusions presented in this submission can be summarised as follows:

---

[1] ACCC, Mobile terminating access service: Final access determination discussion paper, August 2014 ("**Discussion Paper**")

- The cost of providing MTAS is likely to have fallen significantly since the ACCC's last FAD in 2011;
- Deployment of 4G/LTE networks is occurring with significant pace in Australia and throughout the world. VoLTE services are available in some parts of the world, and will soon be available in Australia (certainly no later than within the next two years). It is our view that the MTAS process is a key factor in the delay of VoLTE implementation in the Australian market;
- A forward-looking MTAS pricing approach based on an efficient network is required to ensure that operators have an incentive to deploy 4G/LTE services as quickly as possible;
- A pure LRIC pricing methodology is the most appropriate approach for the pricing of voice and SMS terminating services. A pure LRIC approach will be most likely to promote the LTIE by ensuring operators do not over-recover costs, with resulting distortions in wholesale and retail prices;
- Benchmarking of MTAS rates globally should be undertaken by the ACCC, with substantial weight given to the results to inform the final price determination;
- The ACCC should implement an immediate reduction in voice and SMS MTAS through an Interim Access Declaration ("**IAD**") based on benchmarked MTAS rates[2]; and
- Mandatory pass-through of MTAS reductions imposed on dominant integrated operators will ensure that consumers are able to benefit from reduced costs in the form of lower retail prices that better reflect the cost-structure of providing services.

Macquarie also considers that the issue of cost reduction pass-through is critical. For MVNOs such as Macquarie, there is no guarantee that the reduced costs of providing MTAS will be passed through in the form of lower wholesale prices for voice and SMS services. When MTAS prices for voice and SMS are lowered, Macquarie believes that wholesale prices offered to it and other MVNOs should be commensurately reduced to reflect competitive market conditions.

These conclusions are discussed in more detail in Macquarie's response to the ACCC's questions. Macquarie would be pleased to engage directly with the ACCC going forward to elaborate on its thinking on these important matters. Should you have any queries concerning this submission, please feel free to contact me.

Yours sincerely,

Matt Healy
National Executive – Industry and Policy
Macquarie Telecom Pty Ltd

T 03 9206 6847
E mhealy@macquarietelecom.com

[2] Macquarie notes that s.152BCG of the *Competition and Consumer Act* 2010 does not provide for interim access determinations where a declaration is a "*fresh declaration that replaces a previous declaration*". In Macquarie's view, this does not prevent the ACCC from making an interim access determination in this case. This is because, the current MTAS declaration, rather than being a declaration that "*replaces*" a previous declaration, is in essence a new declaration by virtue of the significant changes that have been made to the service description of the declared MTAS service. Macquarie considers that this, in effect, renders the current declaration a declaration of a new service. It is incontestably the case that the SMS element of the current MTAS declaration is a newly declared service. The service was not covered by the previous MTAS declaration. Accordingly it is clear that, at least in relation to the SMS component, it is open to the ACCC to make an interim access determination.

APPENDIX A

MACQUARIE RESPONSES TO SPECIFIC ACCC QUESTIONS IN THE FINAL ACCESS DETERMINATION DISCUSSION PAPER

In this Appendix, Macquarie has responded to each of the ACCC's questions as set out in the Discussion Paper. Macquarie is a mobile virtual network operator ("**MVNO**") providing mobile services to its customers on the networks operated by all three of Australia's mobile network operators (MNOs) (i.e. Telstra, SingTel Optus and Vodafone Hutchison Australia). As such, there is a practical limitation on the extent to which Macquarie is able to respond to some of these questions, as it is not a MNO.

Consultation Questions

1. Are there different factors that should be taken into account in determining the pricing approaches for FTM termination and MTM termination?

FTM and MTM are technically identical and therefore Macquarie submits that cost-based pricing for both services should be based on identical methodology. The LRIC and TSLRIC models and their variants are based on network element costs. An off-net incoming call enters an interconnecting mobile network at one or more gateways, then uses the same mobile network to terminate on a customer's mobile phone.

Because FTM and MTM termination use the same network elements, the calculated mobile termination cost is also the same. If FTM and MTM calls are treated differently in terms of the regulated MTAS rate, this could create an artificial arbitrage situation and create added operational complexity, which would be detrimental to the LTIE. Therefore, FTM and MTM should be costed, priced and treated the same.

Macquarie shares the ACCC's concerns that competitive dynamics are different in the fixed and mobile retail markets, with retail prices for FTM termination failing to fall in line with reductions in the regulated MTAS rate, thereby denying the benefits of lower terminating costs to consumers.

Macquarie believes this situation may warrant regulatory action at the wholesale level, either in the form of a different cost model for FTM termination or some form of mandated pass-through for regulated FTM prices. Applying different approaches for pricing FTM and MTM termination could potentially distort consumer preferences or lead to integrated providers engaging in arbitrage by routing FTM traffic through their mobile networks.

As discussed in Macquarie's response to Questions 16 and 17 below, we believe a pass-through measure on dominant integrated operators would be more effective in promoting the LTIE while adhering to a consistent cost-based pricing methodology. Additionally, we believe a pass-through measure would provide greater flexibility by allowing mandated pass-through to be imposed only on dominant integrated operators.

2. Are there different factors that should be taken into account in determining the pricing approaches for voice termination and SMS termination?

As mentioned above, the LRIC and TSLRIC models and their variants are based on network element costs. An off-net incoming SMS first enters an interconnecting mobile network at one or more gateways, then uses the same mobile network to terminate on a customer's mobile phone.

Under the previous WIK model, the single traffic increment modelling approach did not identify

any fixed or common costs. These costs were directly allocated to network elements. This meant that SMS messages or General Packet Radio Service ("**GPRS**") megabytes had to be converted into capacity equivalents for voice minutes.[3]

Using the WIK model, the cost differences between, for example, voice and SMS termination were determined at the network element level, meaning there was no need to allocate fixed or common costs across different services. SMS traffic uses some separate network elements to voice traffic, for example SMS routers.

Therefore, an SMS termination rate is made of two parts. The first part is the same as the FTM/MTM termination rate, adjusted by the equivalent number of SMS messages that can be sent per minute of a voice call (even though SMS are transited via the 'control channel' of the mobile network). The second part is the cost associated with the directly attributable network elements for SMS, divided by the total traffic volume of SMS on the network. This second part is a relatively small number compared to the first part, so an easy estimate would involve simply the first part.

The ACCC must determine an appropriate cost for SMS termination based on the cost of transmission, which is unique for SMS. This cost must then be incorporated into a single traffic increment model that includes voice traffic.[4]

3. How have developments in the mobile services market impacted on the pricing of the MTAS? Please give details and supporting evidence.

Macquarie agrees that recent market developments since the previous 2011 MTAS FAD, including consumer and technology changes, mean that the cost of MTAS is likely to have substantially fallen. As indicated in the discussion paper, mobile voice termination rates globally have declined over the past decade, which has been driven by increased demand for mobile services and advances in technology.

Several factors would have affected the price set for MTAS by the ACCC in 2011:

The volume of subscribers, average calls per user, average SMS per user, and average data use per user have all increased. This means that the total cost base is distributed across a larger number equivalent voice minutes, leading to a greatly reduced MTAS.

The cost of provisioning the underlying technology in the mobile network and common data transmission network (eg with fiberisation of base stations) has also fallen. This means that the cost of any capacity extensions would be lower, with reduced unit cost per minute.

The cost of physical tower and mast cost and associated labour would be expected to increase in line with inflation. However, only extending geographic coverage requires new large towers (e.g. between 10 to 50 meters in height), with *inter alia* pico cells able to deliver more cost-effective capacity. Moreover, physical towers and masts are increasingly being used as shared facilities and re-purposed. So any increase in infrastructure costs would be small.

The weighted average cost of capital ("**WACC**") for mobile operators in Australia is decreasing as the mobile market is achieving saturation and technological and market trends have become more predictable, with lower risks. The WACC is a key factor influencing the cost recovery of the asset investment and a major part of the MTAS. Reduced risk means a lower WACC and a lower MTAS.

Macquarie notes that the decrease in underlying unit costs associated with delivering these

[3] www.accc.gov.au/system/files/Mobile%20termination%20cost%20model%20for%20Australia%20-%20WIK%20report.pdf

[4] Interestingly even for international roaming on Singtel Optus, for AUD10 per day in Zone 1 countries (ie Asia, Europe and North America), roamers enjoy unlimited voice and unlimited SMS plus 50 MB. This would suggest that the cost of providing voice and SMS services is relatively low. See www.optus.com.au/shop/mobilephones/international-roaming/postpaid#add-roaming

services have been recognised in other global markets. This is reflected in substantial decreases in mobile termination rates including in Europe with the adoption by many EU member countries of the European Commission's 2009 recommendation to move to prices based on pure LRIC.

4.	*When will voice and SMS termination services be offered over 4G networks? How should the ACCC take this into account for the purposes of the MTAS FAD?*

Macquarie considers that 4G voice and SMS termination services will be provided soon – certainly within the next two years, on the basis of current technological and commercial developments in Australia and overseas. These developments have important ramifications for the forward-looking cost model. In particular, the model must ensure that costs are based on the most efficient network technology, with an appropriate adjustment timeframe in place to account for investment, commercialisation and rollout on a mass scale.

Macquarie agrees that the expected timing of MNO offerings of 4G voice and SMS services is a key consideration for the development of an effective forward-looking cost model. In particular, assumptions regarding 4G voice and SMS availability must be balanced. On the one hand, operators must be given sufficient time to roll out 4G networks and migrate existing 3G customers to the new technology. On the other hand, these assumptions should provide an incentive for rapid deployment of 4G services, or at least remove incentives for delay.

For an LTE network, the unique network element for voice call provision has a small directly attributable asset and operating cost. Over the volume of equivalent voice calls carried, the MTAS for voice and SMS services over LTE is close to zero, and certainly a small fraction of the current MTAS declared cost of 3.6 cents per minute. A similar situation exists for SMS/MMS provision via LTE. Over the volume of equivalent megabits carried, the MTAS for SMS would be similarly close to zero. Therefore, it is critical to determine the MTAS for data usage in an LTE environment (e.g. MTAS per 1 megabit of data delivered).

The ACCC must also recognise that it is imperative that MTAS regimes are set and available for voice calls, SMS and data on 3G and on 4G/LTE data termination. This is vital for the LTIE. Consumers need choice and the opportunity to take advantage of bundled service packages, so MVNOs should be allowed to have commercially agreed deals on both 3G and 4G/LTE networks.

Developments in LTE network deployment

Macquarie notes that voice over LTE technology ("**VoLTE**") is already deployed commercially by eight MNOs in Hong Kong, Singapore, South Korea and the United States,[5] with VoLTE having established itself as the industry standard for the provision of voice and SMS over 4G. See for example, in Exhibit 1 Singtel's deployment on VoLTE deployment in Singapore. Importantly, VoLTE provides a framework for optimum support for voice and SMS over an IP Multimedia Service ("**IMS**") using LTE.

Exhibit 1: SingTel launches world's first full-featured VoLTE in Singapore

SingTel on 19 May 2014 launched its VoLTE service called ClearVoice in collaboration with Samsung and Ericsson[6]. Singtel claims that ClearVoice is the world's first commercially available full featured VoLTE service with features even for call waiting and call forwarding. The service has been available to Singtel post paid customers since 31 May with no additional charges and talk time is deducted from existing subscription plan of the users.

[5] GSA, June 2014. See: http://www.gsacom.com/news/gsa_407.php
[6] info.sintel.com, 19th May 2014, [http://info.singtel.com/about-us/news-releases/singtel-samsung-and-ericsson-unveil-worlds-first-full-featured-voice-over-lte]

ClearVoice is supported on Samsung Galaxy note 3 with a software update. It can also fall back to 3G automatically when users lose connection to 4G with Single Radio Voice Continuity (SRVC) functionality. Samsung Galaxy note 3 sold from 31 May 2014 come loaded with the update for VoLTE.

Quality of the calls is claimed to be of pristine quality, significantly clearer than conventional voice calls with noticeably reduced background noise. A key benefit also includes the ability to connect calls in less than 2 seconds, which is 5 times faster than conventional calls.[7]

VoLTE will enable 4G networks to offer voice services using IP data packets. Macquarie understands that 4G networks in Australia will inevitably cater to voice and SMS over LTE in the very near future, and therefore believes that this should be taken into account while developing MTAS FAD. In Australia, 4G networks are already used for data services. Indications of the timeframe for the mass deployment of 4G services provided by the three major MNOs suggest that these services will be available within the next 1 to 5 years. Exhibit 2 below provides a summary of the indicated 4G deployment timelines for Australia's MNOs. However, Macquarie is of the view that the MTAS review process means that certain MNOs may be indicating to the ACCC longer lead times than are the case.[8]

Mass deployment of VoLTE by the MNOs means that an overall reduction of their network costs, especially because VoLTE is spectrally efficient than traditional circuit switched voice and SMS. Studies have shown that by moving from HSPA to LTE technology, operators can achieve a reduction in the cost of delivery per megabyte of more than 50 per cent.[9] These costs reductions should be reflected in the MTAS rate.

Exhibit 2: Stated Indication of VoLTE deployments by Australia's MNOs

Operators	Offering of VoLTE services
Telstra	LTE was first launched by Telstra in 2011 and is currently being used for IP data traffic. Laboratory tests have been conducted for VoLTE and deployments are expected around the end of 2014, as per earlier reports. However, in its response to the ACCC, Telstra has indicated launch of commercial VoLTE only over the next 3 to 5 years.
Singtel Optus	Optus had also been following Telstra in conducting trials for VoLTE, conducting trails for both HD Voice and VoLTE. As per response to ACCC in the MTAS FAD discussion paper, Optus has indicated VoLTE deployments will take place by the end of 2015. Optus launched its first commercial 4G network using 700 MHz spectrum in July 2014.[10] In accordance with Exhibit 1, Singtel has launched VoLTE in Singapore. Optus launched its first commercial 4G network using 700 MHz spectrum in July 2014. In accordance with Exhibit 1, Singtel has launched VoLTE in Singapore.
VHA	On 20 August 2014, it was announced that Vodafone has engaged Ericsson for a period of five years to work on the operators network making it VoLTE capable. This will include virtualisation of the core network, incorporating IP Multimedia subsystem and Evolved packet core as well as policy control, network robustness, performance and resiliency. VoLTE is scheduled to be available in 2015 on that network.[11] VoLTE is scheduled to be available in 2015 on that network. Furthermore, corporately in March 2014, Vodafone indicated that it will be enabling VoIP in Europe from H1, 2014 and deployed in many markets in the next 12 months.[12]

Developments in IP interconnection

At present, IP interconnection generally takes place either over the public Internet, or via IP Exchange ("**IPX**") interconnection. Of the two, IPX is more common on a large carrier commercial scale. IPX is a set of common technical and commercial principles developed by the

[7] hardwarezone.com.sg, 9 June, [http://www.hardwarezone.com.sg/tech-news-singtel-samsung-and-ericsson-unveil-worlds-first-full-featured-volte-service-updated-scree]

[8] Another factor may be the need of the MNOs to write down the carrying value of their 3G networks if VoLTE is introduced.

[9] www.analysysmason.com/About-Us/News/Newsletter/Mobile-data-cost-Nov2013/

[10] https://media.optus.com.au/media-releases/2014/optus-turns-on-its-first-commercial-700mhz-4g-network-in-darwin-and-perth/

[11] See www.afr.com/p/technology/vodafone_picks_ericsson_to_build_rqgEXzIbQ1j8cYbHhm1PKO

[12] See www.vodafone.com/content/dam/group/investors/downloads/presentations/vodafone-4g-webinar-presentation.pdf

GSMA starting in 2004. It allows for traffic exchange by providers by connecting them to each other via an IPX peering point.

IPX offers both bilateral and multilateral interconnection options, although clearly multilateral is optimal for large operators who would have to conclude bilateral agreements with potentially hundreds of partners. As of 2014, more than half of the world's major operators have moved to IPX networks in order to deal with increasing demand for 4G/LTE connectivity.[13] Korean and Chinese operators have undertaken testing of international IP-based interconnection with some success based on the IPX framework.[14]

IPX covers both interconnection and roaming and is completely separated from the public Internet. IPX traffic is not visible or addressable from the public Internet. IPX is an all-IP architecture, but covers only Network-Network-Interfacing, with User-Network-Interfacing beyond the scope of IPX.

IPX has a key potential flaw from the point of view of operators. IPX does not naturally force Session Initiation Protocol ("**SIP**") data to pass through the same IPX path as the voice data to which it relates. This means that the operator of the IPX through which the voice data passes is not able to utilise a time-based charging mechanism for the voice data. This is particularly the case for roaming, as an IP-based system allows the voice data to pass directly between the subscribers without needing to pass through the caller's home network.

In response to this issue, the 3GPP added a work item to Release 11 titled *Roaming Architecture for Voice over IMS with Local Breakout (RAVEL)*. This item was to investigate whether it was possible to develop an architecture which ensured that SIP data and voice data followed the same path, allowing for time-based charging by operators of IPXs through which the voice data passes.

RAVEL achieved this outcome by introducing the Transit & Routing Function ("**TRF**"), which brings the SIP signals back from the network where the caller is currently connected to the home network that is performing call processing. It provides an anchor function that routes the voice data and SIP signals over the same path.[15]

5.	*Will the use of a TSLRIC or TSLRIC+ methodology to price mobile voice or SMS termination services promote the LTIE? Please explain your answer.*

Macquarie submits that the TSLRIC+ methodology is not the most appropriate choice available for determining the regulated price of wholesale mobile voice or SMS termination services. Macquarie believes the pure LRIC method would best promote the LTIE.

The purpose of an incremental cost model is to determine the cost a mobile operator would avoid if it did not have to provide a particular wholesale mobile terminating service. This can be understood conceptually using wholesale mobile voice termination as an example. Here, the incremental cost is the cost of a full network providing all services, including wholesale mobile voice termination, less the cost of a network providing all services except wholesale mobile voice termination.

The costs of wholesale mobile voice termination cannot be considered to be independent of the cost of providing associated services due to the large number of network elements required to support mobile termination, which are also used by other services. The main issue in choosing an appropriate incremental cost model, therefore, is the extent to which common or

[13] http://lteconference.wordpress.com/2014/04/17/ims-roaming-and-interoperability-for-volte-and-rcs/

[14] www.techzone360.com/topics/techzone/articles/2013/12/04/362513-china-mobile-korean-carriers-interconnect-hd-voice-video.htm

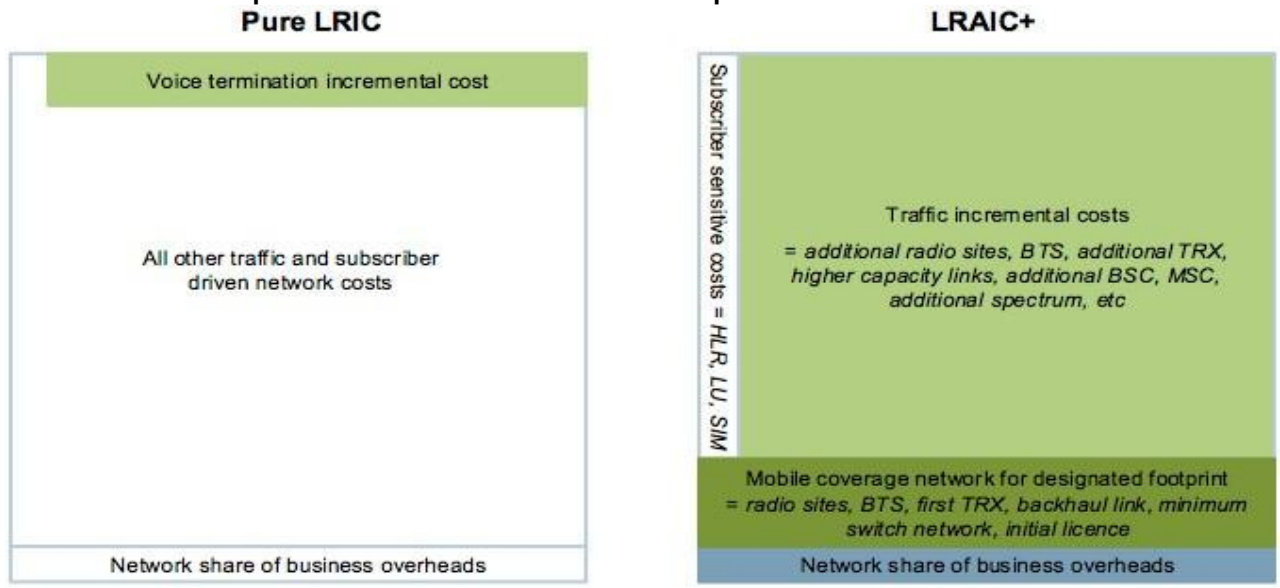
[15] www.nttdocomo.co.jp/english/binary/pdf/corporate/technology/rd/technical_journal/bn/vol15_2/vol15_2_037en.pdf

organizational level costs involved in providing all network services are or should be realized in the incremental cost of a particular regulated service.

The question is therefore the extent to which the operator would be able to use the benefits from providing the new service to subsidize its common costs under competitive market conditions. Even if the provision of the new service does not involve any increase in the operator's common costs, a competitive market may nevertheless allow some of the operator's existing common costs to be subsidized through the new service.

Exhibit 3 below shows how different cost bases are used to calculate the increment for pure LRIC and LRAIC+ (which is conceptually similar to TSLRIC+) for voice termination. The "+" in the LRAIC+ and TSLRIC+ designations indicates that common or organisational-level costs are included in the incremental cost of providing the voice termination service.

Exhibit 3: Comparison of cost increments used for pure LRIC and LRAIC+



Source: Analysys Mason, 2011

Macquarie notes that the rationale behind the ACCC's selection of the TSLRIC+ method was to allow operators to realise some common and organisational level costs when determining the price of the regulated MTAS. However, this is not always a simple or transparent process. As the ACCC stated in its *MTAS Pricing Principles Determination* of November 2007, "As common costs are not directly attributable to the production of any one service, the allocation of these costs across services is somewhat arbitrary.[16]

In 2007, the ACCC developed four key criteria that it considered needed to be satisfied when implementing a TSLRIC+ model. These were:

1. The total costs of providing the service should not exceed the stand-alone costs;
2. Common costs should not be 'over-recovered';
3. Common costs must be common to (shared by) the declared service and not unduly allocated to that service; and
4. The inclusion of common costs (incorporated into the access price) in the internal transfer price of a vertically integrated firm.

Macquarie submits that the TSLRIC+ model adopted by the ACCC does not avoid the possibility

[16] www.accc.gov.au/system/files/MTAS%20pricing%20principles%20determination%20report.pdf

that common costs are 'over-recovered' or unduly allocated to the MTAS (criteria 2 and 3 above). Macquarie believes that by allocating these costs in an "arbitrary" way, the TSLRIC+ model risks an MTAS rate that is higher than what would otherwise exist under competitive conditions. The TSLRIC+ method is therefore less likely to maximise the LTIE than a pure LRIC approach.

Macquarie stresses that all appropriate costs and all services should be used to determine the final MTAS rates (excluding for example non-interconnected such as LTE-B services – see Exhibit 4 over). This will then mean that an MNO can fairly and completely recover costs through a reproducible and transparent analysis, with assumptions and outputs that can be verified by all stakeholders. If all services are not included or full cost allocation is not achieved, then an MNO would either:

'Double dip' and over-recover costs against declared and non-declared costs, which will mean a higher MTAS cost for other interconnecting MNOs and MVNOs, and higher costs passed through to customers; or

Under-recover costs, which would penalise the MNO, prevent future recovery of investment and impede innovation.

It is therefore critical that all services are included: voice, SMS, and data. For voice services, this includes all forms of call termination (on-net to on-net, off-net to on-net, and on-net to off-net) across domestic and international calls, value-added information and operator calls, emergency calls, and voicemail calls. Comprehensive inclusion of all services means full traffic is counted and hence a lower MTAS is produced for each service.

Exhibit 4: Developments in LTE-Broadcast

LTE-Broadcast uses multicasting technology to broadcast content to multiple users at the same time. It has achieved significant growth in 2014, as reported by the GSA's latest LTE-B status report. In 2013, video accounted for more than 40 per cent of mobile data traffic [17] and is expected to increase by between 66 and 70 per cent by 2017. Major operators such as Korea Telecom have already made commercial deployments of LTE-B, starting in January 2014, with many other countries trialing LTE-B, including for live sporting and other major events.[18]

The possibility to take advantage of growing data traffic can be achieved by LTE-B using electronic Multimedia Broadcast Multicast Service ("**eMBMS**") technology, which can efficiently manage network assets. It supports all specified bandwidths and formats of LTE including both FDD and TDD. The eMBMS is a 3GPP specification, which was included to MBMS specification from Release 9 onwards for commercial deployment. It provides an enhancement to LTE specification using Single Frequency Network ("**SFN**") to enhance features for point to multi point distribution enabling multiple users to receive the same content simultaneously.

SFN technology enables operators to use LTE spectrums assigned to it to broadcast video to multiple users over a defined area where all cells contributing to this SFN send exactly the same data over the same time slot and appear as a single large cell. Operators can create service differentiation and deliver video contents such as live sports events, popular TV channels etc to multiple users. Off-peak capacities can also be utilised to deliver new service offerings such as media caching or managed software updates.

[17] Ericsson Mobility Report, June 2014

[18] LTE Broadcast Market Status Report, August 2014

6. If a TSLRIC or TSLRIC+ methodology is used to price mobile voice or SMS termination services:

(a) Which cost allocation method should be used for allocating traffic-related common or costs?

(b) Which cost allocation method should be used for allocating organisational- level costs?

As discussed in Macquarie's response to Question 5 above, we believe a pure LRIC methodology would best promote the LTIE.

The standard cost allocation basis has been to date the allocation of costs based on equivalent minutes of use. So all services, including SMS, MMS and data, are converted to equivalent call minutes. This has worked well, up until the advent of smart phones and increasing data use by mobile users.

Historically, data usage per subscriber was low on GRPS/EDGE networks. However, with smart phones and tablets, average 3G data usage per month is growing exponentially and is predicated to be over 1 gigabit per user per month in the near future, if not more. In the 4G/LTE world, converting all services to equivalent megabits per second makes more sense, plus perhaps some refinement in the allocation of mobile radio front end based on the number of TCP/IP sessions, and the physical base station structure holding antenna systems, based upon physical usage across 2G, 3G and 4G.

7. Will the use of a pure LRIC methodology to price mobile voice or SMS termination services promote the LTIE? Please give reasons.

As discussed in Macquarie's response to Question 5, we submit that the pure LRIC methodology to price voice or SMS MTAS would better promote the LTIE than using a TSLRIC or TSLRIC+ pricing methodology.

Factors to consider for effective benchmarking is discussed further in Macquarie's response to Question 12.

8. If a pure LRIC methodology is adopted, are there risks that the prices of other services offered by MNOs may increase? If so, how significant are these risks? Please give reasons and any supporting evidence.

As explained in Macquarie's response to Question 5 above, we believe that the risks associated with the introduction of a pure LRIC methodology, including the risk of price increases for other retail and wholesale services, are low. As explained above, Macquarie considers that the most significant risk is 'over-recovery' of costs by MNOs, which undermines the objective of maximising the LTIE.

9. If the ACCC adopts a LRIC pricing methodology (i.e. TSLRIC, TSLRIC+ or pure LRIC), should it use an FLBU or actual costs model, or some combination of the two? Please give reasons.

Macquarie considers that a FLBU model is appropriate. Because a FLBU is based on a hypothetical efficient operator, it removes incentives for MNOs to engage in inefficient practices that increase the costs of delivering services.

Macquarie stresses the importance of the efficiency principle, which underlies the necessity of a forward-looking approach that takes account of behavioural, commercial and technology trends. As the ACCC and other stakeholders have noted over many years, these trends have changed significantly over relatively small periods of time, and have had a significant impact on the cost

of providing terminating services. A FLBU model is therefore essential for dealing with a dynamic and fast-moving industry.

The objective of a cost-based MTAS price is to establish the efficient costs of service delivery, representing efficient network design and deployment, avoiding over-capacity build-out, and taking into account changing technology and market prices. MNOs often benefit from accumulative volume purchase discounts over time, which translates to lower prices for geographic expansion and capacity in-fill. Most electronic and software based mobile technology products and equipment substantially reduce in time. Only the cost of physical towers and masts (comprised of material and labour costs) may increase over time.

Therefore, a forward-looking capital expenditure unit cost is likely to decrease over forward-looking years. Likewise, forward-looking subscriber and traffic volume projections increase over time, which means the unit cost of each MTAS will decrease over time. It is important to have forward-looking costs and forward-looking traffic projections to encourage the MNO to build efficient network systems and to right-size the network with appropriate capacity.

10. If the ACCC uses a FLBU model, should actual costs be used to cross check the outputs from the model? If so, how would any discrepancies be resolved in determining the costs to be used in setting prices?

As the ACCC mentions in the Discussion Paper, a top-down model based on actual costs would capture all of the MNO's costs, whether efficient or inefficient, and would provide little incentive for the MNO to provide services as efficiently as possible. However, Macquarie agrees that actual costs could be used as a basis for crosschecking the results of a FLBU model. This would ensure that all relevant costs are included and promote greater transparency in the model's assumptions.

However, as discussed in Macquarie's response to Question 9 above, actual costs provide a disincentive to provide services as efficiently as possible and are not appropriate for a dynamic industry such as telecommunications. Actual costs should be used only to provide a crosscheck and greater transparency, and should not serve as an input to the final price determination.

Macquarie submits that the ACCC needs to maintain a watching brief on this issue. The development of a FLBU model and a forward-looking cost base, along with the forecast traffic base, is a priority. These are critical inputs for effective MTAS pricing. MNO 3G network capacity has already been constructed and deployed. An MNO's choice to build a 4G/LTE network could mean that voice, SMS and data services are deliberately moved from the 3G network to the lower-cost 4G/LTE network. However, that means that the traffic volumes on the existing 3G network could fall over a longer period (e.g. two to eight years), which would result in an increase in the cost of MTAS on the 3G network.
It is the MNO's choice to build and operate a more efficient 4G/LTE network, yet the substitution from 3G to 4G/LTE could potentially force up the price of MTAS for MNOs and MVNOs. It is therefore imperative that forward and efficient cost base analysis is undertaken. A solution might be to set the MTAS for voice calls, SMS/MMS and data services at the lower of the 3G or 4G/LTE cost, or take a volume-blended 3G and 4G/LTE hybrid (but only for a finite time).

11. How will regulated pricing for voice termination and SMS termination in Australia be assisted by:

(a) an international benchmarking study of regulated mobile termination prices adopted in other jurisdictions,

(b) an international benchmarking study of mobile termination costs in other jurisdictions?

Please give reasons.

Macquarie stresses the importance of benchmarking as a fundamental and necessary step in the process of determining a final MTAS price for voice services and SMS. Benchmarking is an essential exercise for a number of reasons. Namely, benchmarking:

- Highlights potential weaknesses in the pricing model by comparing the modelled price with outcomes in similar markets using similar methodology;
- Ensures that market participants and regulatory authorities have a clearer understanding of the main drivers of regulated MTAS prices domestically and overseas;
- Ensures that market participants are confident that the price represents a good estimate of the relevant costs involved in providing MTAS and that these costs are allocated appropriately;
- Draws attention to MTAS pricing trends in other markets that may be relevant domestically; and
- Provides a 'reality check' on the modelled price.

Macquarie considers it essential that an effective benchmarking study be conducted by the ACCC, with sufficient weight given to the results in informing the final price determination. This will ensure that the final regulated price is both robust and realistic, and that market participants are confident that the price is founded on strong assumptions that take account of the market realities facing all operators.

Macquarie considers that global MTAS rates for voice calls are widely available and provide a useful input for the price determination process. European country MTAS rates in particular provide a good benchmark to inform the ACCC. Equally, looking at countries with large area coverage like India, Brazil and China also provides useful insights for the ACCC in benchmarking MNO coverage across Australia.

Furthermore, for MNOs and MVNOs, looking at the cost to terminate a call or SMS via IP applications such as Viber, Facebook, Skype etc, linked to the known regulated MTAS rates in those countries, provides yet another useful benchmarking tool for the ACCC. International benchmarking is an essential tool that the ACCC should use to ensure that MTAS rates are fair and reasonable for operators and that they maximise the LTIE.

As the ACCC notes in the Discussion Paper, the regulated MTAS rate appears to be high in comparison to termination rates in many other countries.[19] Further, the ACCC stated in its press release of 1 August 2014: "The ACCC recently found that the prices mobile operators were charging each other to receive mobile calls and SMS messages were too high, which meant higher bills for consumers or reduced product offerings." Macquarie agrees that, based on the evidence, Australian MTAS rates for voice services and SMS are too high and do not reflect the cost of providing these services.

12. What are the important factors that need to be taken into account in developing a robust and effective benchmarking study?

Macquarie considers that an effective benchmarking study must ensure that the benchmark set is both sufficiently expansive and sufficiently comparable. This means that countries used in the benchmark study must have similar characteristics to the Australian market to ensure that the benchmark value is relevant and applicable.

[19] ACCC, Discussion Paper, page 8.

In particular, Macquarie considers that countries selected for the benchmark study must have similar characteristics with respect to:

- Legislative and regulatory frameworks;
- Economic growth and development;
- Network infrastructure and technology;
- Competition and consumer trends; and
- The cost-pricing methodology employed.

Macquarie notes that the pure LRIC methodology reflects only the incremental costs of wholesale termination volumes. As a consequence not all cost elements contribute to the pure LRIC of termination and therefore the pure LRIC unit cost tends to be sensitive only to characteristics that affect the increment. Therefore, it is expected that a pure LRIC model will be sensitive to fewer country-specific variations.

13. Is it appropriate to restrict the benchmark set to jurisdictions that have adopted a particular pricing methodology, and if so, which methodology would be appropriate? Please give reasons.

As discussed in Macquarie's response to Questions 5 and 7 above, we consider that a pure LRIC methodology would best promote the LTIE. We therefore consider it appropriate for any benchmarking study to focus on those jurisdictions that have adopted a pure LRIC or similar methodology for the determination of regulated terminating access prices. However, if the ACCC intends to also study the costs of providing terminating services in other markets, then Macquarie considers that any jurisdiction with similar regulatory and market structures as Australia could be included for this purpose.

14. Will a BAK arrangement for MTM voice or SMS termination services promote the LTIE? Please give reasons.

The ACCC noted in its 2011 Discussion Paper on the MTAS determination that implementing a BAK arrangement for MTM termination only may give rise to concerns about arbitrage activities specifically designed to take advantage of differential regulatory pricing. If BAK arrangements were to be adopted, the ACCC would need to work with the industry to ensure that these concerns are adequately addressed as part of the FAD.

Macquarie does not believe a BAK arrangement will ensure the promotion of LTIE. We believe that the ACCC needs visibility of the MTAS rate to ensure that cost-based recovery, and not over- or under-recovery, is achieved across all the declared and non-declared services that share the MNO network.

15. Are there other options for determining the price of mobile voice termination and SMS termination that the ACCC should consider? If so, please explain why.

Macquarie considers that a pure LRIC approach augmented with robust benchmarking of global MTAS rates will provide a price that is transparent and that best promotes the LTIE.

Macquarie notes that another possible alternative is to align the price of MTAS with the price of the Fixed Terminating Access Service ("**FTAS**"). This would provide a simpler solution that would avoid complex modelling of MTAS costs and price benchmarking. This approach would mean there would be no price distinction between mobile and fixed terminating services.

16. To what extent have reduced regulated MTAS rates been passed-through to retail prices for fixed to mobile calls? Please provide evidence.

In addition to comments made in earlier submission to the ACCC, Macquarie considers that, based on an analysis of Telstra's PSTN EBITDA, it appears that reductions in the cost of providing MTAS are not being passed through to retail customers in the form of lower prices for FTM. To illustrate, Telstra reported that its PSTN EBITDA margin increased to 63 per cent while fixed broadband increased by four percentage points to 42 per cent over the financial year 2013. In 2014, Telstra's PSTN EBITDA margin fell marginally to 60 per cent while fixed data increased to 44 per cent. PSTN remains one of Telstra's highest margin services (along with data and IP) as shown in Exhibit 5 below.

Exhibit 5: Telstra's Product Profitability EBITDA Margins

	FY14	FY13	2H14	1H14	2H13
Mobile	40%	38%	41%	39%	39%
Fixed voice[ii]	60%	62%	59%	61%	63%
Fixed data[ii]	44%	41%	46%	42%	43%
Data and IP	65%	65%	66%	65%	64%
Telstra Group	42%[iii]	42%	42%[iii]	42%	43%

(i) The data in this table includes minor adjustments to historic numbers to reflect changes in product hierarchy.
(ii) Margins exclude NBN voice and data products.
(iii) Profit on the sale of CSL has been excluded from these figures.

	FY14	FY13	2H14	1H14	2H13
Mobile	40%	38%	41%	39%	39%
Fixed voice[ii]	60%	62%	59%	61%	63%
Fixed data[ii]	44%	41%	46%	42%	43%
Data and IP	65%	65%	66%	65%	64%
Telstra Group	42%[iii]	42%	42%[iii]	42%	43%

(i) The data in this table includes minor adjustments to historic numbers to reflect changes in product hierarchy.
(ii) Margins exclude NBN voice and data products.
(iii) Profit on the sale of CSL has been excluded from these figures.

Source: Telstra 2012 Annual Report

17. Should integrated operators (i.e. operators of both mobile and fixed networks) be subject to a mandated pass-through of MTAS reductions? If so, how would this be implemented? Please provide reasons for your answer, including by reference to the LTIE.

Macquarie stresses that, without intervention, it is unlikely that reductions in the MTAS for voice and SMS will be passed through to retail and wholesale customers, including MVNOs.

Macquarie submits that, in a competitive market, reductions in the MTAS would be passed through at the wholesale level, allowing wholesale customers to benefit from prices that are commensurately lower.

However, where there is a lack of competition, these reductions will not be passed through and the benefits for retail and wholesale customers will not be realised, which is not in the LTIE. This is of particular concern for a MVNO such as Macquarie, which must rely on the network infrastructure of MNOs.

As Macquarie has highlighted on a number of occasions, MVNOs provide significant benefits to the Australian mobile market. MVNOs provide greater service choice at a retail level and can target specific segments within the market that would otherwise be commercially unattractive or non-viable for a typical MNO. MVNOs provide an additional source of competition for the host MNO to target customers of other MNOs with a wholesale proposition. This additional competition is becoming more important in a post-NBN world, where there is less emphasis on facilities-based competition.

Macquarie considers that the lack of FTM pass-through demonstrates inherent structural issues in the fixed line services market. Consumers who acquire a variety of services such as voice, data or pay TV tend to select integrated operators so as to obtain bundle discounts and a single bill.

The lack of competitive pressure means that integrated operators have little incentive to pass through savings from reductions in the MTAS directly to consumers in the FTM price. Dominant integrated providers also have the ability to use their savings from the regulated reductions in the MTAS rate to subsidize price reductions in services or geographic areas where competition does exist.

Macquarie believes that the MTAS for both FTM and MTM should be passed through to all wholesale service operators and fixed and mobile virtual network operators. There should be an even playing field to ensure all operators have an opportunity to compete and deliver the highest possible value to customers. Macquarie therefore considers it essential that a form of mandated pass-through for MTAS price reductions should be applied to dominant integrated operators.

18. What, if any, transitional arrangements should apply to potentially lower voice termination and SMS termination rates? Should there be different implementation times for potential reductions in regulated voice termination and SMS termination? Please give reasons, including by reference to the LTIE.

Macquarie submits that the shortest possible transition is necessary for voice and SMS MTAS prices. Given the significant likely reductions in the cost of supplying MTAS, it is essential that these reductions be reflected in the MTAS rate as soon as possible. Transition arrangements that effectively delay the implementation of an appropriate forward-looking cost-based price would result in the over-recovery of costs, which would be detrimental to the LTIE.

Macquarie does not consider that any transition arrangement is necessary for voice MTAS. However, since SMS has been declared for the first time in the ACCC's June 2014 final decision, temporary transition arrangements are appropriate to ensure that SMS termination services are priced during the ACCC's FAD review process and in the lead up to a final price determination. We believe this should involve an initial regulated price for SMS termination, which would transition to the final regulated price upon the ACCC's completion of the FAD review.

Macquarie considers that it is possible to set an SMS price based on the relative network capacity used by a voice call and an SMS. Macquarie notes that the ACCC is currently in possession of information from both Optus and Vodafone as regards the number of SMS messages that can be terminated by the network capacity used to terminate a one-minute voice call.[20] Therefore, the ACCC is in a position to set an initial regulated price for SMS before it has completed its inquiry into what the updated cost of voice termination should be. Once the ACCC has completed this inquiry, the initial regulated SMS termination charge could be updated accordingly.

[20] Domestic Mobile Terminating Access Service Declaration Inquiry Report of the ACCC's Draft Decision 13 December 2013, at section 5.1.

Given that the ACCC has found that current commercially negotiated SMS termination prices are well above cost and Macquarie is able to provide further evidence of this given the terms and conditions of its MVNO agreements with the MNOs[21], Macquarie would strongly suggest to the ACCC that effectively leaving SMS termination unregulated until 2015 or 2016 does not promote sector competition or LTIE.

19. What is an appropriate regulatory period for primary prices relating to mobile voice termination and for SMS termination?

As discussed in Macquarie's response, given the likelihood that VoLTE will be deployed by the major MNOs in Australia in 2015, of 4G networks for mobile voice termination, and a potential further drastic decrease in termination costs in the future, Macquarie believes that the ACCC should take a two-stage approach to setting the MTAS price.

Stage one would see the ACCC to set prices for a interim regulatory period. This term should be 1 to 2 years. We consider that MTAS price for stage one should be aligned with the price of the FTAS. The next best approach would be to use international benchmarking restricted to jurisdictions that use a pure LRIC methodology. At the end of the first or second year, depending on the term of the interim period determined the ACCC would then review the position with a view to moving to stage 2.

Stage 2 to the year 2019 involves the adoption of an MTAS price path with an end point of close to zero (which is the cost of termination on a LTE-LTE-A network).

20. Should there be different commencement and expiry dates for mobile voice termination and SMS termination?

There should be no different commencement and expiry dates for mobile voice and SMS termination services. However, transition arrangements are appropriate for the SMS termination price, as discussed in Macquarie's response to Question 18 above.

- END -

[21] Domestic Mobile Terminating Access Service Declaration Inquiry ACCC's Final Decision June 2014, at p.39.