
CONTENTS • INHOUD

<i>No.</i>	<i>Page No.</i>	<i>Gazette No.</i>
GENERAL NOTICE		
Independent Communications Authority of South Africa		
<i>General Notice</i>		
1627 Independent Communications Authority of South Africa Act (13/2000): Findings pursuant to section 4C of the act of an inquiry conducted in terms of section 4B of the ICASA Act.....	3	30449

GENERAL NOTICE

NOTICE 1627 OF 2007



Independent Communications Authority of South Africa

Pinmill Farm, 164 Katherine Street, Sandton
Private Bag X10002, Sandton, 2146

PUBLICATION OF THE FINDINGS PURSUANT TO SECTION 4C OF THE INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA ACT NO. 13 OF 2000, AS AMENDED ("THE ICASA ACT") OF AN INQUIRY CONDUCTED IN TERMS OF SECTION 4B OF THE ICASA ACT

The Independent Communications Authority of South Africa ("the Authority"), pursuant to section 4C of the Independent Communications Authority of South Africa Act No. 13 of 2000, as amended ("the ICASA Act"), hereby publishes the findings regarding the Wholesale Call Termination market definition process conducted pursuant to section 4B of the ICASA Act.

PARIS MASHILE
CHAIRPERSON

TABLE OF CONTENTS

List of Figures	5
List of Tables	5
1. EXECUTIVE SUMMARY	6
2. INTRODUCTION	10
3. MARKET DEFINITION FOR CALL TERMINATION	15
3.1. Summary of ICASA finding on market definition	15
3.2. Market definition methodology	17
3.3. Wholesale demand side substitution	20
3.4. Wholesale supply-side substitution	21
3.5. Retail demand-side substitution	23
3.5.1. Hypothetical monopolist test in the context of Indirect Substitution	24
3.5.2. Percentage increase faced by customers	30
3.5.3. Pass through	33
3.5.4. Network awareness	35
3.5.5. Price awareness	39
3.5.6. Retail demand side substitutes for mobile call termination	41
3.5.7. Retail demand side substitute for fixed line call termination	74
3.6. Retail supply-side substitution	82
3.7. Common pricing constraints and bundling	83
3.8. Geographic market for call termination	83
3.9. Non-transitory entry barriers and other dynamics	85
3.9.1. Non-transitory entry barriers	85
3.9.2. Dynamic functioning of market: Waterbed effects	86
3.10. Markets defined by ICASA	87

LIST OF FIGURES

Figure 1. Subscriber shares per fixed and mobile operator for voice services: 2000-2006	57
---	----

LIST OF TABLES

Table 1. Five factors which lower expected switching ratios	25
Table 2. Required switching ratios for different relative margins on call termination and substitute products	28
Table 3. Percentage price increase faced by mobile contract users for off-net mobile-to-mobile calls given a 10% increase in the price of mobile call termination.	31
Table 4. Percentage price increase faced by mobile pre-paid users for off-net mobile-to-mobile calls given a 10% increase in the price of mobile call termination.	31
Table 5. Percentage price increase faced by fixed line customers for fixed-to-mobile calls given a 10% increase in the price of mobile call termination.	31
Table 6. Percentage price increase faced by mobile users for mobile-to-fixed calls given a 5% to 10% increase in fixed call termination	33
Table 7. Pass through from mobile call termination to retail prices of off-peak off-net mobile-to-mobile calls for contract packages	34
Table 8. Pass through from mobile call termination to retail prices of peak off-net mobile-to-mobile calls for contract packages	34
Table 9. Networks that can be called from Telkom fixed line and associated numbers	36
Table 10. Percentage price increase faced by mobile prepaid users for off-net mobile-to-mobile calls, given a 5% to 10% increase in mobile call termination	44
Table 11. Illustrative example of required switching to PCMs, given a 5% to 10% increase in mobile call termination	46
Table 12. Illustrative example of relative profitability of on-net prepaid calls and call termination	50
Table 13. CST and prepaid off-net mobile call prices and impact of a 5% increase in termination	55
Table 14. Effective required switching ratio as a proportion of those that can switch from calling mobile to calling fixed lines	58
Table 15. Penetration of fixed and mobile usage and of both	58
Table 16. Can retail alternatives provide a joint constraint to mobile call termination?	73
Table 17. Can retail alternatives provide a joint constraint to fixed line call termination?	81

1. EXECUTIVE SUMMARY

Call Termination is a wholesale input, used by providers of calls from fixed-line and mobile networks to complete calls to subscribers connected to other networks. It is one of the larger costs to operators associated with providing telecommunications services to subscribers.

The market definition process undertaken by the Authority is specified in Section 67(4) of the EC Act. Section 67(4)(a) of the Act states in relevant part, that the Authority must:

“define and identify the retail or wholesale markets or market segments in which it intends to impose pro-competitive measures in cases where such markets are found to have ineffective competition”.

Wholesale call termination is the first of five broad categories of markets to be defined by the Authority (there are numerous markets within each category, potentially up to 41, although not all markets will be a focus of regulation).

To inform the development of these regulations, the Authority released a Discussion Document in January 2007, held hearings in May and is mandated to publish its findings in terms of a section 4B inquiry not more than 180 days after the conclusion of such an inquiry (18 November 2007).

The essence of the Findings Document is for the Authority to consolidate the responses and perspectives regarding the intricacies of the issues listed within the Discussion Document and the public hearings and propose a progressive manner of dealing with the issues arising from such a process. Where appropriate, the Authority's observations and preliminary conclusions are detailed.

It is repeatedly emphasised throughout this document that the views expressed regarding wholesale call termination do not represent the conclusive opinions of the Authority. The intent of this document, very simply, is to provide a stake in the ground as to the current state of affairs regarding call termination market definitions and to provide the parameters of that market, which will still require definition in terms of section 67 of the EC Act.

There are a myriad of arguments considered in this document. This executive summary highlights what the Authority views as the most important of these. Naturally, a full appreciation of the complexity of the arguments (and their linkages) can only be appreciated by reading the document in full.

In regard to call termination, the following markets have been explicitly proposed in the inquiry:

- Wholesale call termination on Vodacom's network in South Africa;
- Wholesale call termination on MTN's network in South Africa;
- Wholesale call termination on Cell C's network in South Africa;
- Wholesale call termination on Telkom's network in South Africa;
- Wholesale call termination on Neotel's network in South Africa;
- Wholesale call termination on all other ECNS providers' networks in South Africa, so long as they provide call termination on their networks. This will include call termination on USAL networks;
- Wholesale call termination on all other ECS providers' networks in South Africa, so long as they are in a position to set call termination rates on their networks. This will include call termination on VOIP networks.

Since this is the final step prior to the release of draft regulations regarding market definitions, the Authority is cognisant that it must provide a roadmap for the market definition process in general and specifically the number and form of the regulations to be released in the future. This is done in the introductory section of this document.

The Authority is also required to respond to substantive arguments made in response to the Discussion Document released in January and the oral presentations in May of this year. The remainder of this document seeks to do that.

The Authority argues that of the major forms of substitution, wholesale demand and supply side substitution are seen as insignificant. Retail supply side substitution is seen, at the current stage in the market definition process, also as insignificant. In short, due to the technological/commercial constraints discussed in the document, retail demand side substitution constitutes the only current potential avenue through which substitution may occur.

Thus the primary focus of the document is in response to arguments regarding retail demand side substitutes. The document provides evidence that retail customers do not face termination fees directly because they do not purchase call termination services directly. Rather their service providers purchase these services and use them as one of a number of inputs in order to provide customers with an off-net call service (which allows their customer to call a customer of the termination provider). Any substitution in response to termination price changes at the retail level is therefore "indirect" and is based on consumers reacting to any feed-through to off-net retail prices, not directly to the wholesale price of call termination.

The indirect nature has various implications for the application of the hypothetical monopolist test ("SSNIP") and the Authority identifies these. The Findings Document also identifies a number of conditions that must hold in order for indirect substitution to occur in the first place, and which at the very least weaken the link between price increases and consumer substitution. It then proceeds to test these conditions in the context of call termination on mobile and fixed line operators.

The fact that there are no direct demand-side or supply-side substitutes significantly reduces the likelihood of identifying effective substitutes. Indirect substitutes at the retail level suffer from three fundamental problems. First, expected switching ratios in response to a small but significant price increase in termination rates will be lower due to a lower percentage price increase realised by the final customer (because termination is only one input to price faced by customer and because there may be limited pass through). Second, there will be more limited awareness of the relative price changes that do occur (based on limits to network and price awareness). Third, the critical switching ratio required to make a small but significant price increase unprofitable is bound to be high because many of the retail switching alternatives will usually entail the termination provider earning revenue on the alternative retail product. In this regard 'please-call-me's' or call-backs, multiple SIM cards, least cost routing and CSTs are considered, and rejected as potential substitutes.

The so-called "Waterbed effect" is also taken into account. This is when price increases for one service result in decreases in others (namely, that forcing price reductions in a regulated retail product might have unintended consequences in the prices of other, associated or complementary unregulated products). ICASA does wish to signal at this stage that the waterbed effect will not necessarily hold perfectly in imperfectly competitive markets.

ICASA also notes that most of the stakeholders' arguments were concerned with the impact of remedial action, not market definition. No stakeholders have provided substantial reasons as to why general linkages between wholesale and retail markets means that they should be defined as the same market. Just because overall competition will be based on dynamics in both markets does not mean that they form a single competitive market. Even if retail services were fully competitive, this would not in any way mean that wholesale call termination would also be competitive. In particular, each mobile operator would still be the only supplier of call termination on their network, and callers would not be able to switch to constraining substitutes.

The Authority then looks at particular substitute products for mobile and fixed line calls. Regarding mobile calls, the Authority considers the possibility that mobile-to-fixed and fixed-to-fixed calls are a substitute for fixed-to-mobile calls and off-net mobile calls. The Authority argues that it is highly unlikely that the required

switching will be generated out of the small customer base that can in fact switch to warrant expanding the market.

In considering off-net mobile calls as substitute for fixed-to-mobile calls the Authority argues that off-net mobile cannot constrain fixed-to-mobile and vice versa because the both face the same call termination fee. Similarly, the Authority argues that on-net mobile calls are highly unlikely to be able to constrain call termination rates, for various reasons including the high relative profitability of on-net calls. The Authority then considers the possibility of changing networks as a potential substitute and argues that consideration of changing networks to avoid higher off-net rates does not warrant expanding the market definition as it is unlikely to constrain the profitability of a SSNIP in call termination rates. Finally, the Authority considers joint constraints because of the interaction of substitute products in constraining a price increase in call termination.

Regarding substitutes for fixed calls, the Authority first looks at on-net fixed-to-fixed as a substitute for mobile-to-fixed calls. ICASA considers it highly unlikely for on-net fixed-to-fixed calls to constrain fixed line call termination. In fact, ICASA considers that this type of switching behaviour may encourage high termination rates rather than constrain them. Overall, given the revenue earned on on-net calls, required switching ratios will need to be very high for these types of services to constrain fixed call termination, if it is possible at all. Regarding mobile-to-mobile calls as substitute for mobile-to-fixed and off-net fixed-to-fixed calls the Authority argues that mobile-to-mobile calls are unlikely to constrain fixed termination rates to a competitive level, for various reasons including significant cost differences.

The Authority looks at common pricing constraints and bundling and argues that the relevant market can be broadened to call termination to all subscribers on a particular network. The Authority also argues that operators do not differentiate pricing due to terminating the call in a different geographical location and as such, there is one geographical market.

This document defines the individual wholesale call termination market, namely that there is a separate market for wholesale call termination on each service provider's network, where each market is national in scope.

The Authority identifies 5 markets specifically (call termination on the following networks: Telkom, Neotel, MTN, Cell C, Vodacom) but other termination is also defined in general terms (and referred to as call termination provided by any ECNS or ECS provider's network).

As this process has been conducted as a section 4B inquiry in terms of the ICASA Act, the Authority only seeks to define the market. No pronouncement is made on the effectiveness of competition in this market. This pronouncement and any remedies that may flow from such a determination will be done by regulation in a process envisaged by section 67 of the Electronic Communications Act.

2. INTRODUCTION

This document follows a consultative process undertaken by the Independent Communications Authority of South Africa ("ICASA/Authority") in terms of section 4B of the ICASA Act. It sets out the findings on the subject matter of the inquiry contained in Government Gazette No. 29568 published on 29 January 2007 in terms of section 4C(6)(a) of the Independent Communications Authority of South Africa Act No. 13 of 2000, as amended ("ICASA Act"). Pursuant to section 4C(6)(b)(i), the Authority is mandated to publish its findings in terms of a section 4B inquiry not more than 180 days after the conclusion of such an inquiry.

ICASA published a Discussion Document on the 29 January 2007 seeking comment from interested parties on questions and issues contained in Annexure A entitled "Wholesale Call Termination Market Definition" (the "Discussion Document"). Interested parties were required to submit written responses to the Discussion Document no later than 31 March 2007. On request by interested parties, the closing date was extended to 2 April 2007. Fifteen (15) written responses were received. The Authority held public hearings on the consultation document from 16 - 18 May 2007 at the ICASA offices in Sandton.

This Findings Document consolidates the responses and perspectives regarding the intricacies of the issues raised in the Discussion Document and the public hearings and proposes a progressive manner of dealing with the issues arising from such a process. Where appropriate, the Authority's observations and preliminary conclusions will be detailed. Such preliminary conclusions and observations ought not to be interpreted as representative of conclusive determinations made by the Authority regarding any future substantive findings on the issues canvassed in the Discussion Document.

This Finding Document is also intended to provide clarity with regards to the manner in which the Authority has interpreted the exercise of its statutory powers and the pertinent enabling legislative provisions that the Authority relies upon. The Authority is of the view that by embarking upon an inquiry, through the publication of a Discussion Document and posing pertinent questions relevant to market dynamics serving to characterise the broader call termination market, it has met this obligation. Such consultation is framed by section 4B of the ICASA Act read with section 67(4) of the Electronic Communications Act 105 of 2005 ("the Act"). Section 4B of the ICASA Act provides that:

The Authority may conduct an inquiry into any matter with regard to—

- a. the achievement of the objects of this Act or the underlying statutes;
- b. regulations and guidelines made in terms of this Act or the underlying statutes;

- c. compliance by applicable persons with this Act and the underlying statutes;
- d. compliance with the terms and conditions of any licence by the holder of such licence issued pursuant to the underlying statutes; and
- e. the exercise and performance of its powers, functions and duties in terms of this Act or the underlying statutes.

The Authority is cognisant that section 67(4) of the Act envisages regulations prescribing the following, the number and sequence, which will be determined in due course:

Regulation(s) as envisaged by section 67(a) of the Act

Section 67(4)(a) regulations are intended to define and identify the retail and wholesale markets segments within which the Authority determines whether or not such markets are characterised by ineffective competition. The Authority will also detail the manner in which Significant Market Power (SMP) may be determined pursuant to section 67(4)(d) read together with section 67(5) of the Act.

Regulation(s) as envisaged by section 67(4)(b) of the Act

This regulation anticipates the detailing of the methodology which the Authority will use in determining whether or not a relevant market as defined pursuant to the regulation promulgated under section 67(4)(a) of the Act is characterised by ineffective competition. The factors to be considered in giving effect to the regulation are detailed in section 67(6)(b) of the Act. Within this regulation, the Authority will extrapolate on the substantive essence of the factors detailed in section 67 (6)(b) of the Act.

Regulation(s) as envisaged by section 67 (4)(c) of the Act

This regulation anticipates detailing the potential pro-competitive measures that the Authority, in exercising its discretion pursuant to section 67(4) of the Act, may impose where it is of the view that a relevant market is characterised by ineffective competition. The Authority is guided by factors detailed in section 67(7) of the Act.

Regulation(s) as envisaged by section 67 (4)(e) and (f) of the Act

This regulation anticipates the Authority detailing both a schedule where the Authority will undertake periodic reviews of the relevant markets as defined, and providing for procedures for the monitoring and investigation of anti-competitive behaviour in the relevant markets as defined.

While section 4B of the ICASA Act provides the Authority with considerable latitude in the scope and substance of inquiries to be conducted, the Authority has sought to invoke section 4B in this instance so as to canvass certain propositions regarding the dynamic characteristics of the broader call termination market. In this regard, the Authority is of the view that the complexities of the market dynamics and the intricacies of several considerations regarding the imposition of ex ante regulatory remedies necessitated that an exhaustive consultative process be undertaken so as to solicit as many pertinent perspectives as possible. Further analysis of the call termination market, and indeed other markets, would be sustained through the regulations that are to be promulgated pursuant to section 67(4).

While the Authority understands that there might have been an impression created through the issuance of a Discussion Document that the Authority had made conclusive determinations regarding the definition of the relevant call termination market, the determination of the effectiveness or ineffectiveness of competition, the assignment of SMP and the imposition of pro-competitive conditions, such an impression would be erroneous as the Authority is particularly cognisant that such conclusive determinations cannot be made absent the promulgations of the regulations envisaged by section 67(4).

It is therefore imperative that the findings of this inquiry be removed from any conclusive determination that the Authority may arrive at after promulgation of the regulations pursuant to section 67(4). However, in postulating the general contours of the relevant call termination market, and in discerning the common characteristics of the functional dynamics of such a relevant market, it is reasonable that the Authority would have recourse to the observations and preliminary conclusions discernible from the findings of the inquiry. It is precisely the utility of having conducted such an exhaustively consultative inquiry that the Authority ought to be in a position to materially rely upon certain observations discernible from the inquiry in seeking to better sustain its understanding of the dynamic characteristics of the broader call termination market.

Outline of findings

Having considered potential demand-side and supply-side substitutes at the wholesale and retail level, ICASA identifies separate markets, which - for each Electronic Communication Service (ECS) or Electronic Communication Network Service (ECNS) provider - are defined as:

wholesale call termination on an ECS or ECNS provider's set of allocated numbers from the national numbering plan (including those that have been gained through porting), where each market is national in scope

These markets are also referred to as:

wholesale call termination on a service provider's network, where each market is national in scope

In this context, the word "network" does not refer to a physical communication facility or to a system that can only be provided by an ECNS provider. Rather it refers to the logical "network layer," which may be built on top of the physical communication facilities offered by ECNS providers. The ECNS or ECS provider uses this network layer to provide electronic communications to its customers. In particular, the provider issues numbers to each individual customer, which is dialled when calling those customers.

The following markets have been explicitly identified:

- Wholesale call termination on Vodacom's network in South Africa
- Wholesale call termination on MTN's network in South Africa
- Wholesale call termination on Cell C's network in South Africa
- Wholesale call termination on Telkom's network in South Africa
- Wholesale call termination on Neotel's network in South Africa
- Wholesale call termination on all other ECNS providers' networks in South Africa, as far as they provide call termination on their networks. This will include call termination on USAL networks.
- Wholesale call termination on all other ECS providers' networks in South Africa, as far as they are in a position to set call termination rates on their networks. This will include call termination on VOIP networks.

Wholesale alternatives constitute the most direct form of potential substitution. However, ICASA did not identify any existing functional demand-side alternatives to call termination on each provider's network. Furthermore, as there is no technological/commercial mechanism for alternative providers to offer call termination on another provider's network, consideration of wholesale supply-side substitution does not expand the market. ICASA also did not identify any

constraining retail substitutes. In general, the indirect nature of potential substitutes, the prevailing Calling Party Pays (CPP) environment as well as the absence of plausible alternatives where the termination provider does not continue to earn substantial revenue margin, significantly reduce constraints generated at the retail level. Finally, common pricing constraints broaden the market from termination on specific numbers to all numbers on a particular provider's network, as well as from local areas to all of South Africa.

3. MARKET DEFINITION FOR CALL TERMINATION

3.1. SUMMARY OF ICASA FINDING ON MARKET DEFINITION

To define the market for call termination, ICASA has made use of the standard hypothetical monopolist test. Starting at the narrowest possible market, this test considers whether a monopolist of that market would be constrained by customer switching to substitute products, from engaging in a small but significant non-transitory increase in price (SSNIP). If the monopolist is constrained, the market is expanded to include the substitute products. If not, the narrow market is accepted.

ICASA finds that call termination on each individual provider's network constitute separate markets. This finding is based on the absence of demand-side or supply-side substitutes at the wholesale level and insufficient substitution constraints at the retail level. In summary:

Wholesale level

- *Demand-side substitution at the wholesale level.* Service providers purchase termination so that their customer can make calls to customers on other networks. For these direct wholesale buyers of call termination, no alternatives currently exist other than to purchase the product from the provider on whose voice network the buyer needs to terminate calls. Therefore, **ICASA did not identify any economic (or functional) demand-side substitutes at the wholesale level.**
- *Supply-side substitution at wholesale level.* Service providers cannot at present offer services which terminate calls on another provider's network. There is no commercial and/or technological way for a supplier to "get into" a network of another provider and offer the service. Therefore consideration of potential entry does not change the conclusion reached on the demand level. New technologies like VOIP were considered as potential wholesale substitutes in the future.¹ However this possibility is unproven both technologically and commercially and there are many obstacles which may block its adoption as a *wholesale* substitute to "normal" termination. Other technological possibilities are similarly unproven. **ICASA therefore finds that there are no supply-side substitutes and this is unlikely to change in the time period of this review.**

¹ VOIP providers might reroute calls headed for a fixed or mobile number to instead terminate on a VOIP numbers at broadband enabled fixed or mobile locations.

Retail level

- *Demand-side substitution at the retail level.* In a Calling Party Pays (CPP) context, call termination is a wholesale product as it is bought and sold between providers who use it as an input to allow customers on different networks to call each other. Retail substitution is therefore inherently “indirect” and this reduces the likelihood of retail products exercising a constraint at the retail level. In particular, the percentage price increases faced by retail customers will be lower than the percentage price increases at the wholesale level both because retail prices are inherently higher and because pass through from wholesale to retail levels is often limited. Moreover, at the retail level, customers that actually *choose* networks do not face the call termination rate that *their* network charges. This again reduces any constraint on call termination arising at the retail level. Customers of other networks who indirectly pay the termination fee when making calls to that network may offer the possibility of some retail constraint. However, this requires the ability to adequately identify networks and the price of off-net calls to those networks (relative to the price of alternatives), as well as the existence of adequate alternatives for contacting the desired party. In addition, many of the alternatives to which consumers may switch also provide revenue to the termination provider (such as on-net calls). As such, these alternatives will place less constraint on the raising of termination prices as profit is also gained on the potential substitute product. . Considering the limited percentage price increase faced by retail customers, the extent of pass through, the awareness of both price and network, as well as the absence of *sufficiently constraining* demand side alternatives, **ICASA finds that retail demand-side substitution is insufficient to broaden the product market on the basis of the SSNIP test.**
- *Supply-side substitution at the retail level.* **Termination cannot be offered by providers other than the network provider of the called customers. Therefore, the existence of competitors or the possible entry of new competitors does not create any additional constraints.** Similarly, the introduction of new competitors based on technological or regulatory convergence is unlikely to change the key competitive dynamic which results in each provider's network constituting a separate market.

ICASA's market definition findings are consistent with the findings of national regulators across the world, spanning jurisdictions across diverse economies. These include the United Kingdom,² France,³ Norway,⁴ Hungary,⁵ Finland,⁶ Sweden,⁷ Ireland, Germany,⁸ Belgium⁹ and the European Commission,¹⁰

² OFCOM, Wholesale Mobile Voice Termination: Statement," 1 June 2004, pp. 1-4 and OFTEL, Review of Fixed Geographic Call Termination Markets, Final Explanatory Statement and Notification, 28 November 2003, p. 4. See also the latest OFCOM Mobile Call Termination Statement, 27 January 2007.

In what follows, ICASA first expands on its approach to market definition as set out in the initial consultation document. Wholesale demand-side and supply-side possibilities are considered. The document then turns to retail demand-side substitutes where fixed location and mobile call termination are considered separately. Finally retail supply-side substitution is considered.

Note on stakeholder comments. Throughout the text we engage with the comments submitted by stakeholders. Where appropriate, each sub-section concludes with a consideration of any additional stakeholder comments that have not been addressed in the main text of that sub-section.

3.2.

MARKET DEFINITION METHODOLOGY

The hypothetical monopolist test. The approach used for market definition is in keeping with competition principles established in the Competition Act No. 89 of 1998 and is in accordance with the approach of European and US competition and other regulatory authorities. The "hypothetical monopolist test" is a common tool used to help delineate market borders. Starting at the narrowest possible market, the test considers whether it is profitable for a hypothetical monopolist to engage in a small but significant, non-transitory increase in price (SSNIP) *above the price that would exist in a competitive market*. Whether or not it is profitable depends on the extent to which (a) consumers may switch to substitute products (demand-side substitutability) and (b) suppliers of different products may enter into the market and offer new competition (supply-side substitutability). If substitution in either of

³ Autorite De Regulation Des Telecommunications ("ART") Press Release on ART's conclusion on mobile call termination, December 2004 and ART press release, "ART submits to the Conseil de la concurrence its analysis of the geographic call termination markets on alternative networks," 21 March 2005, available on ART's website, <http://www.art-telecom.fr>

⁴ NPT ("Norwegian Post and Telecommunications Authority"), "Summary Notification Form for market 9: Call Termination on the fixed network" 14 February 2006 and NPT, Analysis of the markets for the termination of voice calls on individual public mobile communication networks, Discussion Document, 3 May 2004, p. 3.

⁵ As quoted by Cell C in their submission to the January Discussion Document: Notification on voice call termination on individual mobile networks in Hungary, 22 September 2006. http://forum.europa.eu.int/Public/irc/info/ecctf/library?l=/hungary/registered_notifications/hu20060478/decision_pubpdf/_EN_1.0_&a=d.

⁶ Finish Communications Regulatory Authority, "Decision on significant market power regarding voice call termination on individual mobile networks," February 2004.

⁷ Post and Telestyrelsen Sweden (PTS), "Summary of PTS's decision concerning call termination on individual public telephone networks provided at a fixed location," 10 May 2004, pp. 1-5.

⁸ As quoted by Cell C in their submission to the January Discussion Document: Notification on voice-call termination on individual mobile networks in Germany, 3 November 2005. http://forum.europa.eu.int/Public/irc/info/ecctf/library?l=/germany/registeredsnotifications/de20050249/public_enpdf/_EN_1.0_&a=d.

⁹ Final decision: Market 16, 11 August 2006.

http://forum.europa.eu.int/Public/irc/info/ecctf/library?l=/belgiquebelgi/adopted_measures/be20060433/analyse_060810v2pdf/_FR_1.0_&a=d.

¹⁰ Commission of the European Communities, "On Relevant Product and Service Markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communication networks and services," Working Document, 2002, pp. 16-17 and pp. 26-28.

these directions is sufficient to render the hypothetical price rise unprofitable, the market boundary must be expanded to include the relevant substitute products.

While the Authority observed the universal acceptance of the SSNIP test as the appropriate and correct conceptual framework for undertaking market definition, the divergence of views emanated from the manner in which the SSNIP test is to be implemented. Most representations supported the utilisation of the proposed quantitative analytical tools associated with sustaining the SSNIP test.

In seeking to sustain any future market definition exercises and based on the universal acceptance of the SSNIP test as the appropriate conceptual framework, it is clear that the SSNIP test is the most appropriate test. Furthermore, the Authority will have recourse to any of the proposed quantitative analytical tools in seeking to sustain the SSNIP test. In addition, the factors that have been cited by stakeholders as being reflective of the inherent weaknesses of the SSNIP test will be considered within such analyses.

There was a general sentiment expressed by various stakeholders of a willingness to cooperate with any forthcoming data requests from the Authority that are pertinent in sustaining the rigorous analysis inherent in using quantitative analysis for market definition purposes.¹¹ **The Authority will be formally requesting the submission of such information from all relevant parties in due course.**

Supply-side substitution: For supply-side substitution to be relevant for market definition it is commonly considered that it must occur within a relatively short period of time (one year).¹² If it is likely to occur only in the medium term (one to two years), it is classified as a "new entry" and is considered in the context of SMP or effective competition.¹³ Supply side substitution which is dependent on a new technology that is likely to become viable in over 2 years is not considered relevant to the market review.¹⁴ As ICASA reviews will occur on an ongoing basis, these longer term effects can be considered in subsequent reviews.¹⁵

The cellophane fallacy: This describes the case where the current prices of a particular product are already at their monopoly level or are constrained to their upper level by some alternative product (or other dynamic). Conducting a market

¹¹ For example: "...Vodacom support the application of appropriate quantitative analytical tools as noted by the Authority under 2.3 of the Inquiry Document to substantiate and complement the findings (i.e. Critical Loss Analysis, Price Correlation Analysis, Price Elasticity Analysis and Diversion Ratio Analysis), and "Vodacom...expresses its willingness to supply such data and information as may be required", Vodacom submission, p. 19.

¹² See OFCOM, Mobile Call Termination, Review of Mobile Wholesale Voice Termination Markets: EU Market Review ("The May Consultation"), 15 May 2003, p. 32.

¹³ Ibid.

¹⁴ OFCOM also consider the appropriate time frame for a forward looking analysis to be 2 years. A key reason for this is market reviews take place over a similar time period. See OFCOM, "Review of Retail Leased Lines, Symmetric Broadband Origination, and Wholesale Trunk Segment Markets: Final Statement and Notification" 2004, p. 20.

¹⁵ Section 67(4)(e) of the ECA mandates that ICASA set out the schedule "in terms of which the Authority will undertake periodic review of the markets and market segments".

definition analysis from this point will lead to inappropriately wide definitions, as some products may appear substitutable only because the product under consideration has already been priced up to its upper constraint. However, even though switching to alternative products may constrain further price increases beyond this upper bound, the alternative products are not substitutes because they have not constrained the relevant product *to a competitive price*. This is a particular problem for regulatory authorities as the fundamental basis of regulation, and for investigating a particular market, is the concern that the markets are not effectively constrained by competitive dynamics. Therefore prices will often be at their monopoly level or at their upper bound constraint. Where appropriate, ICASA will therefore pay particular attention to the cellophane fallacy issue.

Expected and required switching: ICASA may also engage in an analysis of required switching and expected switching. This will include consideration of how many customers must switch to the substitute product to render the price rise unprofitable as well as whether ICASA expects this amount of switching to take place. However, this analysis will be illustrative in nature and does not attempt to identify precise ratios. In particular, this type of analysis will also suffer from the cellophane fallacy, and would require precise costing and margin data for developing precise ratios.

The SSNIP is a thought experiment, not a precise quantification: It is important to remain cognisant that the hypothetical monopolist test is designed as a thought experiment to identify basic market dynamics. The test alone is not sufficient to identify instances in which regulation should be implemented. After markets have been defined, it is then necessary to identify possible constraints on market power or effectiveness of competition. Finally (where price regulation is required) actual implementation of any cost-based pricing will be preceded by a full costing analysis and this will guide any actual regulation, ensuring that prices are never set below costs or at a level that will discourage investment. The very purpose of market definition is to identify those instances in which costing analysis and regulation should be pursued, not to engage in a detailed costing analysis at this preliminary stage.

Social objectives: Similarly, where social objectives (such as access) are relevant to consideration of the optimal price and other regulatory interventions, these will be taken into account at the regulation stage. These considerations do not impact on market definition.

Common pricing constraints: Market definition will also take into account the existence of common pricing constraints, such as where a firm cannot price one product differently from another even though they are not substitutes, as well as bundling, such as where two products are always sold together in a bundled product.

Regulation at the market definition stage: Where appropriate, this review will consider the impact of regulation (i.e.: its absence or presence) on market definitions. **Additional stakeholder comments**

There was universal acceptance of the hypothetical monopolist test forming the basis for market definition. The issues raised by stakeholders centred on the implementation of the test and not the test itself.

Telkom emphasised that even if prices and quality of two different goods were different, they may still constrain each other at the margin. ICASA accepts that this type of substitution may occur. However, each case must be argued on its merits, and in particular, where goods are substantially different (in price, quality or functionality) they are unlikely to constrain each other. Telkom suggests a similar understanding stating that *"if price differentials are very large (the price of one being several times the price of the other), sufficient switching in response to small relative price changes may not occur."*¹⁶ Similarly, goods or services will not constrain each other if quality or functionality is substantially different.

Other stakeholders indicated that ICASA should provide a rigorous fact based analysis, and should not rely too heavily on the findings in international jurisdictions.¹⁷ Noting the caveats discussed above, ICASA appreciates the importance of rigorous analysis and implementing the test properly. ICASA also does not rely on the findings of international jurisdictions but considers their findings and their arguments both informative and influential.

3.3.

WHOLESALE DEMAND SIDE SUBSTITUTION

Wholesale demand-side substitution explores the potential for an operator (not their customer) to substitute away from purchasing call termination on another operator's network under the circumstances where the calling customer has specifically dialled the called customer on a particular network. As such, it is distinct from retail demand substitution where the calling customer may decide on which network they may call the called customer. This retail demand substitution is dealt with separately below.

In order to fulfil the customer's demand to call a particular subscriber of a particular network, operators have no other choice but to purchase a service which provides termination on the called subscriber's number. Purchasing call termination on another network is clearly not a substitute as the operator would be unable to have the call terminate on the number dialled by the calling customer. Therefore in terms of wholesale demand substitution, **ICASA finds that the market cannot be broader than call termination on each individual network.**

¹⁶ Telkom submission, p. 14.

¹⁷ For example, MTN submission, p. 3; Telkom submission, p. 15.

Additional stakeholder comments

All stakeholders either agreed with this finding or did not comment.

3.4.

WHOLESALE SUPPLY-SIDE SUBSTITUTION

Supply-side substitution occurs when, in response to a price increase in call termination, alternative suppliers would quickly enter the market in order to provide a substitute product and thereby constrain the price increase. In the context of call termination at the wholesale level, supply-side substitution requires that another operator (either new or existing) is able to technically provide termination services on the network of another operator (i.e. fulfil the customers requirement to terminate a call to a *specific* dialled number). As discussed under demand-side substitution, offering call termination on an operator's own network is not an adequate substitute and hence is not considered under supply substitution.

Two alternative possibilities that were raised by stakeholders under supply-side substitution are briefly reviewed:

- **VOIP:** Some stakeholders mentioned that VOIP termination might offer a constraint. At present VOIP termination is not offered as a wholesale substitute to call termination on traditional fixed or mobile networks. Rather, wholesale VOIP termination is only offered as part of an actual call to a VOIP number. It is furthermore unclear how VOIP termination would be offered as a wholesale substitute. VOIP termination providers would have to somehow relate a mobile or fixed line number (that the customer dials) with a VOIP number such that when the caller calls the normal number, it is switched to the appropriate VOIP customer. **ICASA is not aware of any mechanism whereby VOIP providers could develop an appropriate relational system on a sufficient scale to offer wholesale services.**¹⁶ This is not likely to change during the time period of this review. It is noted that this VOIP possibility is effectively a demand substitute and not a supply substitute as such termination would be to a separate number held by the VOIP supplier. Moreover, to the extent that it is the consumer who makes the decision to engage in a call that terminates at a VOIP number (i.e.: they have to dial a different number), this falls under retail demand-side substitution and not wholesale demand-side or wholesale supply-side substitution. VOIP alternatives are therefore considered again at the retail level.
- **MVNO:** ICASA is not aware of any MVNOs that charge directly for termination. Rather, termination is charged by the host mobile operator. In particular, Virgin Mobile does not have individual negotiated

¹⁶ For example, this may require actually asking each VOIP customer to provide their mobile or fixed line number such that the VOIP provider can keep this on some type of relational database.

interconnection agreements with other operators, as Cell C provides and charges for termination on Virgin Mobile numbers, and purchases termination from other operators on their behalf. In the event that MVNO sold their own termination services to other operators (by purchasing termination from their host operator) they might negotiate with alternative host operators to try get a lower termination rate. However, there is no more reason for the MVNO to pass on their cheaper termination costs to the wholesale termination services that they offer, than for the host mobile operators to do so. **Therefore the MVNO possibility does not change the dynamics for final wholesale termination services sold at a wholesale level.** With respect to wholesale termination services to an intermediary/MVNO market, ICASA notes that were such an intermediary market to develop, it might justify lighter regulation at this level. ICASA will monitor any developments in this regard in future reviews.

Overall, due to commercial and/or technological constraints, no operator offers termination to the numbers of another operator and this is unlikely to change in the period of this review. **ICASA therefore finds that wholesale supply-side substitutes do not currently exist and therefore the market is no broader than call termination on a specific network.** However, ICASA will continue to monitor developments in relation to supply-side substitution in future reviews of this market.

Additional stakeholder comments

Most stakeholders agreed that no wholesale supply-side substitutes exist. No stakeholder explicitly disagreed with ICASA's finding, although some did mention some possibilities they suggested might be relevant. We discuss these below.

Future changes in supply-side potential: Sentech pointed out that although "supply-side substitution may not be viable for this particular case ICASA should pay careful attention to this space as convergence might impact on the market in the future."¹⁹ The ECA requires ICASA to perform such periodic reviews of market circumstances which may affect market definitions, SMP findings and pro-competitive regulation. Therefore, to the extent that the potential for supply-side substitution changes in future, ICASA will consider it in future reviews.

New technologies and market entrants. Vodacom suggested that ICASA should engage in further analysis over certain issues, in particular "the potential impact of new market entrants, new next generation technologies (e.g. VoIP over WiFi, WiMAX etc), as well as MVNO's enabled by the ECA."²⁰ Telkom briefly mentioned two possibilities, namely call-back and VOIP. ICASA notes the following.

¹⁹ They noted that supply-side substitution will require "extensive attention in future documents" and that a longer term review of the market might be justified given convergence. Sentech submission to January Discussion Document, p 25.

²⁰ Vodacom stated: "Given the potential impact of new market entrants, new next generation technologies (e.g. VoIP over WiFi, WiMAX etc), as well as MVNO's enabled by the ECA in the SA market, the Authority is required to assess

- To the extent that call-back and VOIP alternatives require the customer to dial an alternative number, they are potential demand substitutes and are dealt with appropriately under retail substitution below.
- To the extent VOIP and MVNOs constitute potential wholesale substitutes, we have dealt with them above and will continue to monitor developments in this regard in future reviews.
- With regard to "new entry" ICASA notes that this feature on its own cannot impact on market definition at the wholesale level, given that these new entrants will be equally handicapped in their ability to offer competition to the provision of call termination on another provider's network, as are existing suppliers. This holds even in the case where new entrants use WiMAX to roll out services.

The next two sections discuss retail demand-side and supply-side substitution. Due to the technological/commercial constraints discussed above, this constitutes the only current potential avenue through which substitution may occur.

3.5.

RETAIL DEMAND-SIDE SUBSTITUTION

The hypothetical monopolist test used in market definition poses a question as to how customers will respond to a small but significant price increase (usually 5-10%). The test is outlined above. It is important to understand how the hypothetical monopolist test might work in the context of retail substitution for a wholesale product like call termination. Retail customers do not face termination fees directly because they do not purchase call termination services directly. Rather their service providers purchase these services and use them as one of a number of inputs in order to provide customers with an off-net call service (which allows their customer to call a customer of the termination provider). Any substitution in response to termination price changes at the retail level is therefore "indirect" and is based on consumers reacting to any feed-through to off-net retail prices, not directly to the wholesale price of call termination.

The indirect nature has various implications for the application of the hypothetical monopolist test and this section begins by identifying these. It identifies a number of conditions that must hold in order for indirect substitution to occur in the first place, and which at the very least weaken the link between price increases and consumer substitution. It then proceeds to test these conditions in the context of call termination on mobile and fixed line operators.

these impacts more thoroughly, before assuming that the same conclusion is applicable." Vodacom submission to January Discussion Document, p. 42

3.5.1.

HYPOTHETICAL MONOPOLIST TEST IN THE CONTEXT OF INDIRECT SUBSTITUTION

When sellers increase the price of their product, they gain a benefit from being able to charge higher prices for those customers that continue to purchase the product, and they (may) suffer a loss in that some customers (may) switch away in response to that price rise (in which case, they will lose the full margin on these customers). If a sufficient number switch away, the losses may outweigh the gains and a price rise can be unprofitable for the seller.

The SSNIP test asks whether a hypothetical monopolist of a product (or group of products) would be able to raise prices profitably above competitive levels. That is, the test asks whether the benefit (of raising prices) outweighs the cost (of losing customers). If the price rise is profitable, the product (or group of products) is considered its own market. If not, the market is expanded to include the product to which customers would switch.

Identifying whether or not any switching by customers is likely to be sufficient or not therefore can require some qualitative or quantitative assessment of the expected extent of switching (the expected switching ratio) which is compared to how much switching is required to make a 5-10% price increase unprofitable. Economists have developed a conceptual tool known as *required switching analysis* for the latter component.²¹ Required switching analysis provides some guidance as to the extent of substitution that is required given alternative assumptions about gross margins in the business under review.

In the context of indirect retail substitution, *we expect that the actual switching is reduced* due to (a) a smaller percentage price increase on the final retail product due to a 5-10% increase in the price of the wholesale input, and (b) possible failure of the downstream service provider to fully pass through any input cost increases. In addition, in markets with complex products such as telecommunications, we might also expect that the extent to which consumers react to any pass-through, however small, is limited by their awareness of the networks they are calling and the relative prices they face across possible substitutes. Finally, consumers may be limited by the extent of substitutes available to them in regard to calling another person.

In addition, *we expect that the required switching to make a price increase unprofitable is higher* in such markets because many of the alternatives to which the consumer can turn also provide margin for the termination provider. As such, a lesser amount than the full margin on any customers who switch is usually lost.

We deal with the expected switching and required switching in more detail below.

²¹ Harris, B.C and Simons, J.J (1989). "Focusing Market Definition: How much substitution is necessary?" *Research in Law and Economics*, Volume 12, pp. 207-226, JAI Press Inc.

3.5.1.1.

EXPECTED SWITCHING

In general, expected switching will depend on the similarity between the two products (the extent that the products offer the customer similar levels of functionality and quality) the absolute cost/price difference between the two products, as well as the sensitivity of consumers to increases in price, and various other factors. In the case of retail demand-side substitution for call termination, there are five factors which have special relevance. Four of them, which are all necessary conditions, were identified in the January Discussion Document and an additional factor is now given explicit consideration. All five factors are set out in the table below.

	Factor	Based on
Additional key factor	1. Consumer indifference	Retail market substitution
The four necessary conditions	2. Utility equivalence	Product comparability, identification and price of product features is difficult
	3. Price awareness	
	4. Price sensitivity	
	5. Demand side substitutes exist	Standard analysis

Table 1. Five factors which lower expected switching ratios

Source: ICASA, OFCOM

Percentage price increase faced by customer: In the case of direct substitution possibilities, percentage increases in the price charged by the hypothetical monopolist lead to equal percentage increases in the price faced by the customer that makes any switching decision. However, in the case of indirect substitution, there is a critical disconnect in this mechanism. This is because the retail price faced by the end user (the off-net call price) includes not only termination costs, but also any fees added by the originating network (e.g. origination costs, switching costs, apportioned fixed and retail costs, as well as the origination provider's margin). This has one unavoidable implication: a percentage increase in call termination will translate into a lower equal percentage increase in the price of off-net calls. For example, if termination rates were R1.00 and off-net call prices were R2.00, a 10% increase in termination (an absolute increase of R0.10) would only increase off-net fees by 5%, even if the increase in termination were fully passed through to the off-net price (see discussion on pass through below). The implication is that the final customer making the substitution decision is responding to a lower percentage price increase than the 5-10% used by the SSNIP test for the wholesale termination market. However, the required switching by these consumers to make the move unprofitable is not reduced for the termination provider. *This therefore requires that customers are considerably more price sensitive in order for a price increase to be unprofitable for the termination provider.*

Pass through: Considering that retail customers can only react to changes in the off-net price, it is necessary for increases in termination rates to “pass through” to increases in off-net prices. In the extreme, if no pass through occurs then no retail demand-side substitution is possible as retail customers have nothing to which to react. If pass through is limited (the off-net provider absorbs some of the cost increase), then substitution behaviour will be dampened because retail customers do not face the full increase in price and therefore have a lower incentive to avoid the price increase by choosing a retail substitute if one existed. Considering the above example, if termination were R1.00 and off-net fees were R2.00, a 10% rise in termination would translate to a 5% rise in off-net fees only if the rise in termination was fully passed through. If, for example, only half the increase was passed through (an absolute amount of R0.05) then the off-net prices would only rise by 2.5%. However, as pointed out above, the required switching to make the price increase unprofitable is not changed, and therefore still more price-sensitive customers are required to make an increase in price unprofitable for a termination provider.

Network awareness: If customers do not know the identity of the networks they are calling, they will not be able to react to any price increase of calling that network. In the extreme, if network awareness is zero then no retail demand-side substitution is possible because customers will not realise *ex-ante* that they are calling a network that has incurred a price increase. If network awareness is limited, then substitution will again be dampened. If, on average, network awareness was only 50% (consumers only knew the network they were calling half the time) then we would expect substitution to be half of what it would in a normal situation. Again, the required switching ratio (as a proportion of the total) to make the price increase unprofitable is not changed, but because some customers will not have network awareness, the expected switching ratio (as a proportion of the total) will decrease still further.

Price awareness: Similarly, in order for consumers to engage in switching behaviour, they must be aware of the price of calling particular networks relative to the price of using substitute products in order to evaluate the most appropriate method to contact the desired party. In the extreme, if relative price awareness is zero then no substitution is possible as consumers will not know whether or not there has been a relative price change or the extent to the relative price change. If consumer awareness is limited, then expected substitution will again be dampened relative to the case of full awareness. If, on average, price awareness was only 50% (consumers only knew relative price differences half the time) then we would again expect substitution to be half of what it would in a normal situation. Once more, the required switching ratio (as a proportion of the total) to make the price increase unprofitable is not changed, but because some customers will not have price awareness, the expected switching ratio (as a proportion of the total) will decrease again.

Retail demand substitutes exist: This is the standard condition in market definition analysis. It asks whether or not consumers have plausible alternatives to switch to in order to avoid the increase in price. In the extreme, if no alternatives exist then clearly retail demand-side substitution is impossible. When evaluating demand-side substitutes, ICASA will consider the factors discussed above as well as the standard factors of functional equivalence, quality equivalence, price equivalence and sensitivity to price. The extent of retail demand substitution then becomes the relevant question, and in particular, whether this will be greater than the required switching which is discussed below.

3.5.1.2.

REQUIRED SWITCHING FOR CALL TERMINATION

Working out the required switching ratio requires a relative margin analysis. In this regard, there are two fundamental issues:

- The margin earned on the relevant product, in this case call termination. The higher this margin, the more the seller suffers when customers switch away.
- The margin earned – if any – on the product to which the customer has switched. The higher this margin, the less the seller suffers when customer switch away (because they earn revenue anyway).

The margin on call termination: In the long run, operators will have to take into account their average fixed costs (or Long Run Incremental Costs) of call termination. However, in the shorter term, the variable costs of providing another minute of call termination are effectively zero. There is thus some basis for treating the margin on call termination to be 100%. In this case, the required switching ratio would be approximately equal to the percentage price rise being considered. For example, a SSNIP of 5% would be associated with a required switching of 5%, and a SSNIP of 10% would be associated with a required switching of 9%. Assuming that the margin on termination is 100% provides for the lowest possible required switching ratio. ICASA will use this assumption in what follows, but notes that it is highly conservative (that is, it provides the most room for a potential expansion of the market).

The margin earned on substitute products: In the usual case of market definition analysis, only the above margin is relevant, as the hypothetical monopolist loses all revenue when a client switches to another product. However, in most of the substitution possibilities that are relevant to this analysis, the termination provider continues to earn revenue from the potential substitute product. As with call termination, the revenue earned on potential substitutes is considered to not be associated with any variable cost (unless it includes paying termination fees to another operator). For example,

- if the customer switch to SMS communication, the termination provider will earn revenue from SMS termination
- if the customer switches by swapping SIM cards or using Least Cost Routing (LCR), the termination provider then earns revenue from providing the on-net call.
- if the customer switches to using some call-back mechanism (like PCM), the termination provider earns revenue from providing an off-net call, but termination costs must then be deducted to establish the margin.

In these and other cases, working out the critical ratio requires consideration of the relative margins of termination versus the potential substitute. The following table highlights the critical ratio for a 5% and 10% price rise in termination versus different percentage amounts that termination margins are greater than the margin earned on substitute products.

		% that termination margin is above substitute product margin												
		equal or lower	5%	10%	15%	20%	25%	30%	50%	70%	75%	80%	95%	100%
% price increase	5%	always profitable	51%	35%	28%	23%	20%	18%	13%	11%	10%	10%	9%	9%
	10%	always profitable	68%	52%	43%	38%	33%	30%	23%	20%	19%	18%	17%	17%

Table 2. Required switching ratios for different relative margins on call termination and substitute products

Source: ICASA

It is noted that if the termination margin is equal or lower than the margin on the potential substitute, then it is impossible for any amount of switching to that substitute to constrain a price increase in termination. Intuitively, the termination provider does not care if some customers switch in response to a price rise because they earn the same revenue from those customers as they did before the switch (or they earn even *more* revenue). Therefore, raising prices can only produce a net gain because customers that do not switch pay higher prices and those that switch generate equal or greater revenue. In such cases, the "alternative product" cannot possibly be a substitute.

In cases where the alternative product margin is only somewhat lower than the termination margin (say 5%), critical diversion will be extremely high (51% for a 5% price increase and 68% for a 10% price increase). As termination margins rise higher above the alternative product margin, the critical diversion ratio drops as shown in the above table.

3.5.1.3.

CONCLUSIONS ON INDIRECT SUBSTITUTES

Consideration of the five factors discussed above reveals that retail substitutes will generally be associated with lower expected switching but higher required

switching. This suggests that the likelihood that a retail substitute can constrain call termination is low. In the next section, the evidence for the size of the percentage price increase, pass through, network awareness and price awareness are considered. Thereafter, numerous potential demand side substitutes are discussed, and where appropriate, estimates for required switching ratios are provided.

3.5.1.4.

STAKEHOLDER COMMENTS

All of the operators accepted or did not comment on the necessity of the last four conditions, with the exception of Telkom and Cell C. Telkom claimed that network awareness and price awareness were not "strictly necessary."²² Telkom argued that bill statements provide consumers with a "global knowledge" concerning different prices as well as the networks of the parties they call. Telkom's argument is not that these conditions are not necessary, but rather that the existence of bill statements means that they are likely to be fulfilled. These suggestions are therefore considered individually in the discussion on price and network awareness in the South African context.

Cell C also suggested that an additional condition was required, namely, "consumers would additionally need to be sensitive to changes in price and willing to adapt their behaviour as necessary by moving to another substitute product."²³ ICASA points out that the requirement of sensitivity and willingness is captured in condition five where the existence of viable substitutes is considered.

ICASA therefore finds that the four conditions are all jointly necessary for retail-demand side substitution to exist. To the extent that they are only partially fulfilled, they can significantly lower the expected diversion ratio. ICASA has also identified an additional relevant factor: that is, it is very important to evaluate the percentage price increase faced by the end users even in the case of full pass through. ICASA turns to this additional factor first and then considers the other four necessary conditions.

²² "Telkom agrees with the Authority that in order for retail demand-side substitution to be a sufficient constraint on interconnection charges that adequate demand substitutes must exist such that a sufficient number of consumers could switch to these alternatives (Condition D). Telkom also agrees that the mobile call termination charge must pass through to the outgoing price to a sufficient extent such that consumers face an incentive to search for alternatives (Condition A). However, the Authority also states that in order for retail demand-side substitution to be a sufficient constraint on call termination charges, callers should be sufficiently aware that they are calling a particular mobile network when they call a particular number (Condition B), and to be sufficiently aware of the price of calling the particular network relative to the price of using substitutes (Condition C). Telkom does not think that those conditions are strictly necessary. This is because even if calling parties are not explicitly aware of the specific network they are calling, or of the price of calling that particular network, consumers probably have a global knowledge of the cost of their bills, and through their billing statements they are likely to realise that calling certain people or numbers tends to be costly, and therefore they are likely to seek substitutes for contacting those people or numbers (e.g. use their SMS more often, use mobile/fixed alternatively). Even if some first time calls might pay a higher price, the number of calls for which substitutes are sought might be sufficient to constrain a mobile network from increasing prices." Telkom submission to January Discussion Document, p 20

²³ Cell C submission to January Discussion Document, p. 50.

3.5.2. PERCENTAGE INCREASE FACED BY CUSTOMERS

This section considers the evidence for the actual size of the percentage price increase faced by retail customers, given the various off-net rates in different packages. Pass through from mobile calls termination and then fixed line termination are considered.

3.5.2.1. PERCENTAGE PRICE INCREASE FACED BY RETAIL CUSTOMERS FROM MOBILE TERMINATION

Currently, the mobile termination rates are at R1.43 (Vat inclusive) for peak calls and R0.88 for off-peak calls. A 10% increase in these rates, would be equivalent to R0.14 and R0.08 cents respectively. The tables below show the impact this would have on various types of calls. Note, not all package plans are shown below, but ICASA considers the selection to be an accurate representation of the range of off-net tariffs plans that are available.

Overall a 10% rise in mobile call termination leads to between a 4% and 9% rise in the relevant peak and off-peak rates. Therefore many customers will use packages that only see an increase that is half as much as the one engaged in by the termination provider. This will significantly decrease the expected switching ratio, as callers that do switch will have to be extremely price sensitive. Given that the required switching will remain unchanged, this considerably lowers the likelihood of a viable retail constraint.

The relevant retail rates and associated percentage price increases are set out in the tables below.

Contract		Peak		Off-peak	
		Rate	10%	Rate	10%
Cell C	Control Chat 50 to 700 per second	3.50	4%	1.30	7%
Vodacom	4U	2.99	5%	1.30	7%
Vodacom	Weekender Everday S	2.99	5%	1.25	7%
Vodacom	Messenger	2.85	5%	1.65	5%
MTN	MTN procall 150	2.80	5%	1.30	7%
Vodacom	Weekender Everday	2.75	5%	0.95	9%
Vodacom	Top Up 135/ 135 Lite	2.75	5%	1.05	8%
Vodacom	Top UP 135S / 200S/ 75S / 275S	2.75	5%	1.25	7%
Cell C	Casual Chat	2.70	5%	1.00	9%
MTN	MyChoice 150 / MyChoice 75 / MyCall 100	2.70	5%	1.15	8%
Vodacom	FamilyCall	2.70	5%	1.11	8%
Vodacom	Talk 100 s	2.70	5%	1.25	7%
Vodacom	Top Up 500S / 590S / 400S	2.70	5%	1.20	7%
Vodacom	Business Call S	2.60	6%	1.20	7%
MTN	MyChoice 300	2.55	6%	1.15	8%
MTN	MyChoice 705	2.45	6%	1.15	8%
Cell C	Active Chat	2.35	6%	1.15	8%
MTN	MTN procall 300	2.35	6%	1.30	7%

MTN	MTN procall 120	2.35	6%	1.15	8%
Vodacom	Corporate S	2.35	6%	1.25	7%
Vodacom	Business Call	2.30	6%	1.15	8%
Vodacom	Top Up 315	2.30	6%	1.05	8%
Vodacom	Talk Up 315S	2.30	6%	1.05	8%
MTN	MTN Business Time	2.25	6%	1.15	8%
Cell C	Control Chat 50 to 700 all day	2.00	7%	2.00	4%
Cell C	Business Chat standard	2.00	7%	1.10	8%
Vodacom	ShareTalk 500	1.95	7%	1.15	8%
MTN	MTN procall 600	1.90	8%	1.15	8%
MTN	MTN procall 1000	1.85	8%	1.15	8%
Vodacom	Blackberry 500	1.85	8%	1.15	8%
Cell C	Business Chat standard 400	1.79	8%	1.10	8%
Cell C	Value Chat	1.75	8%	1.10	8%
Cell C	Business Chat standard 700	1.75	8%	1.10	8%
Vodacom	Frequent Call	1.75	8%	1.20	7%
Cell C	Business Chat standard 1000	1.70	8%	1.10	8%

Table 3. Percentage price increase faced by mobile contract users for off-net mobile-to-mobile calls given a 10% increase in the price of mobile call termination.

Source: Operator websites and termination rate filings

Pre-Paid		Peak		Off-peak	
		Rate	10%	Rate	10%
Cell C	Cell C CY Pre-paid (nighttime sweettalker)	3.60	4%	1.25	7%
Vodacom	4U Prepaid	2.99	5%	1.30	7%
MTN	<i>Pay as you go classic per second</i>	2.89	5%	1.19	7%
Cell C	Cell C CY (kinda anywhere, anytime)	2.85	5%	1.55	6%
MTN	<i>Pay as you go classic</i>	2.85	5%	1.60	6%
Vodacom	Vodago	2.85	5%	1.65	5%
Vodacom	BigBonus Voucher	2.75	5%	1.15	8%
Cell C	Cell C CY Pre-paid (day toungetripper)	2.00	7%	2.00	4%
MTN	<i>Pay as you go payback</i>	2.00	7%	2.00	4%

Table 4. Percentage price increase faced by mobile pre-paid users for off-net mobile-to-mobile calls given a 10% increase in the price of mobile call termination.

Source: Operator websites and termination rate filings

Fixed-to-mobile		Peak		Off-peak	
		Rate	10%	Rate	10%
Telkom	Fixed-to-mobile	1.89	8%	1.12	8%

Table 5. Percentage price increase faced by fixed line customers for fixed-to-mobile calls given a 10% increase in the price of mobile call termination.

Source: Operator websites and termination rate filings

3.5.2.2.

PERCENTAGE PRICE INCREASE FACED BY RETAIL CUSTOMERS FROM FIXED TERMINATION

For all of the mobile packages reviewed by ICASA, the percentage increases faced by the customer are *extremely* low. For a 5% increase in fixed line termination, the highest increase faced by a customer is 1.8%, and for a 10% increase the highest increase is 3.5%. ICASA considers that this will substantially lower the sensitivity of consumers in response to SSNIP by fixed line operators. The table below set out the relevant retail rates and the associated percentage increases in response to a 5% to 10% increase in fixed call termination.

	Mobile to fixed calls		5% increase in termination as % of retail price		10% increase in termination as % of retail price	
	Peak	Off-Peak	Peak	Off-Peak	Peak	Off-Peak
4 U CONTRACT TARIFF	R 3.25	R 1.00	0.5%	1.0%	1.1%	1.9%
WEEKEND EVERYDAY S TARIFF	R 3.06	R 1.08	0.6%	0.9%	1.1%	1.8%
WEEKENDER + EVERYDAY TARIFF	R 2.75	R 0.95	0.6%	1.0%	1.3%	2.0%
FAMILY CALL S TARIFF	R 2.70	R 1.05	0.6%	0.9%	1.3%	1.8%
FAMILY TOP UP TARIFF	R 2.70	R 0.90	0.6%	1.1%	1.3%	2.1%
CELL C CASUAL CHAT 100	R 2.30	R 0.90	0.8%	1.1%	1.5%	2.1%
CELL C CASUAL CHAT ANYTIME	R 2.30	R 0.90	0.8%	1.1%	1.5%	2.1%
CELL C CASUAL CHAT SMS	R 2.30	R 0.90	0.8%	1.1%	1.5%	2.1%
MY CHOICE 75	R 2.15	R 0.97	0.8%	1.0%	1.6%	2.0%
TALK100S TARIFF	R 2.10	R 0.99	0.8%	1.0%	1.7%	1.9%
TALK200S TARIFF	R 2.10	R 0.99	0.8%	1.0%	1.7%	1.9%
MYCALL 100	R 2.00	R 0.97	0.9%	1.0%	1.8%	2.0%
(BUSINESS S CALL)	R 1.90	R 0.99	0.9%	1.0%	1.8%	1.9%
PROCALL 120	R 1.80	R 0.97	1.0%	1.0%	1.9%	2.0%
TALK120 TARIFF	R 1.79	R 0.95	1.0%	1.0%	2.0%	2.0%
TALK240 TARIFF	R 1.79	R 0.95	1.0%	1.0%	2.0%	2.0%
(BUSINESS CALL)	R 1.76	R 0.95	1.0%	1.0%	2.0%	2.0%
PREP ACTIVE CHAT	R 1.75	R 0.92	1.0%	1.0%	2.0%	2.1%
CELL C ACTIVE CHAT 100	R 1.75	R 0.92	1.0%	1.0%	2.0%	2.1%
CELL C ACTIVE CHAT 200	R 1.75	R 0.92	1.0%	1.0%	2.0%	2.1%
BUSINESS TOP-UP TARIFF	R 1.72	R 0.90	1.0%	1.1%	2.0%	2.1%
TOP-UP 590 TARIFF	R 1.70	R 1.70	1.0%	0.6%	2.1%	1.1%
PROCALL 300	R 1.70	R 1.01	1.0%	0.9%	2.1%	1.9%
BUSINESS TIME	R 1.65	R 0.97	1.1%	1.0%	2.1%	2.0%
FREQUENT CALL S TARIFF	R 1.52	R 0.99	1.2%	1.0%	2.3%	1.9%
CELL C BUSINESS CHAT 400	R 1.41	R 0.90	1.2%	1.1%	2.5%	2.1%
CELL C BUSINESS CHAT 700	R 1.41	R 0.90	1.2%	1.1%	2.5%	2.1%
CELL C BUSINESS CHAT 1000	R 1.41	R 0.90	1.2%	1.1%	2.5%	2.1%
FREQUENT CALL TARIFF	R 1.40	R 0.95	1.3%	1.0%	2.5%	2.0%
PROCALL 600	R 1.20	R 0.95	1.5%	1.0%	2.9%	2.0%
TALK500S TARIFF	R 1.15	R 0.90	1.5%	1.1%	3.0%	2.1%
CORPORATE 500 TARIFF	R 1.15	R 0.84	1.5%	1.1%	3.0%	2.3%
CELL C BUSINESS CHAT STANDARD	R 1.05	R 0.90	1.7%	1.1%	3.3%	2.1%
CELL C BUSINESS CHAT MAX	R 1.00	R 0.86	1.8%	1.1%	3.5%	2.2%
PROCALL 1000	R 1.00	R 0.95	1.8%	1.0%	3.5%	2.0%

MY CHOICE 150	R 1.00	R 0.95	1.8%	1.0%	3.5%	2.0%
TALK1000S TARIFF	R 0.99	R 0.90	1.8%	1.1%	3.5%	2.1%

Table 6. Percentage price increase faced by mobile users for mobile-to-fixed calls given a 5% to 10% increase in fixed call termination

Source: Operator websites and tariff filings

ICASA notes that the percentage increase faced by VOIP or other fixed line customers will likely be higher than indicated above. These customers, however, currently make up a very small percentage of fixed-line call termination and therefore have a negligible effect on the switching analysis.

3.5.3. PASS THROUGH

This section considers the evidence for pass through from mobile and fixed line call termination to the relevant retail rates.

3.5.3.1. PASS THROUGH FROM MOBILE TERMINATION TO RETAIL PRICES

Between the periods of April 1999 to January 2005 both off-peak and peak termination prices increased significantly. Peak termination rates increased by R1.20 from R0.23 to R1.43 (incl. VAT). This is a change of or 525%. Off-peak termination prices increase by an even greater amount of R0.76, from R0.11 to R0.88. This is an even greater change of 670%.

ICASA compared this increase to the increase in off-net retail prices. Overall, off-peak, off-net contract fees increased by between 33% to over 66% of mobile call termination, and peak off-net contract fees increased between 10% and over 116%. **It appears there has been limited pass through to off-net, off-peak contract rates and some customers will face extremely low pass through.** Although there may be various explanations for how retail rates move, there is no evidence to suggest that full pass through occurs, and the available data points to the opposite conclusion.

The low percentage increase identified above will be compounded by this limited pass through. Given both these factors, customers will on average have to be extremely price sensitive to generate the required switching ratios, which remain unchanged by this analysis.

The relevant retail rates and associated pass through of mobile termination on mobile retail rates are illustrated below using contract tariff plans.

Off-net off peak	Jan-98	Jan-02	Oct-05	Increase in off-net	Pass through
MYCALL 100	0.80	0.91	1.05	0.25	33%
WEEKENDER + EVERYDAY TARIFF PLAN	0.68	0.84	0.95	0.27	36%
FAMILY CALL S TARIFF PLAN	0.75	1.00	1.11	0.36	47%
PROCALL 120	0.80	0.91	1.17	0.37	49%

PROCALL 600	0.80	0.91	1.17	0.37	49%
PROCALL 1000	0.80	0.91	1.17	0.37	49%
(BUSINESS CALL)	0.75	0.84	1.15	0.40	53%
FREQUENT CALL TARIFF PLAN	0.75	0.84	1.20	0.45	59%
TALK120 TARIFF PLAN	0.68	0.84	1.15	0.47	62%
TALK240 TARIFF PLAN	0.68	0.84	1.15	0.47	62%

Table 7. Pass through from mobile call termination to retail prices of off-peak off-net mobile-to-mobile calls for contract packages

Source: Operator tariff and termination rate filings

Off-net peak	Jan-98	Jan-02	Oct-05	Increase in off-net	Pass through
FREQUENT CALL TARIFF PLAN	1.63	1.41	1.75	0.12	10%
MYCALL 100	2.51	2.10	2.85	0.34	29%
(BUSINESS CALL)	1.63	2.00	2.3	0.67	56%
PROCALL 1000	1.14	1.40	1.9	0.76	64%
PROCALL 600	1.14	1.40	1.95	0.81	68%
PROCALL 120	1.48	1.96	2.45	0.97	82%
TALK120 TARIFF PLAN	1.37	2.00	2.35	0.98	82%
TALK240 TARIFF PLAN	1.37	2.00	2.35	0.98	82%
FAMILY CALL S TARIFF PLAN	1.63	2.20	2.7	1.07	90%
WEEKENDER + EVERYDAY TARIFF PLAN	1.37	2.60	2.75	1.38	116%

Table 8. Pass through from mobile call termination to retail prices of peak off-net mobile-to-mobile calls for contract packages

Source: Operator tariff and termination rate filings

In terms of the pass-through of mobile termination rates on fixed-to-mobile retail rates ICASA has considered the data provided by Vodacom and Telkom. Though this data is incomplete, it appears that there is more evidence for pass through in fixed-to-mobile rates. ICASA uses the conservative assumption of full pass through on fixed-to-mobile calls when considering relevant substitution possibilities.

3.5.3.2.

PASS THROUGH FROM FIXED TERMINATION TO RETAIL PRICES

Regarding mobile-to-fixed calls, the evidence is inconclusive. First, the fixed call termination charge has only varied by about 10 cents over the period, which is small compared to most mobile-to-fixed fees. Second, different tariff plans yield different trends for the "retention rate" of the mobile operators for mobile-to-fixed calls.²⁴ However, given the limited percentage increase on mobile-to-fixed rates derived from a 5-10% increase in fixed line termination rates, even with full pass through, the subscribers would need to be very price sensitive to generate the required switching in response to the very limited price increase at the retail level.

It is too early to determine the pass through of fixed termination on newly established entrants (Neotel and VOIP providers). However, we note that these entrants currently account for a negligible proportion of terminating

²⁴ VoIP-to-fixed and off-net fixed-to-mobile calls are too new to consider the extent of pass through.

calls and therefore currently have a negligible impact on any switching analysis.

Additional stakeholder comments

Telkom and Vodacom provided data on pass through for fixed-to-mobile calls and this has been included in the analysis above.

Expected limit to pass-through: Vodacom suggest that in competitive telecommunications markets, though average pricing will reflect average costs, individual prices may not necessarily do so. Rather, operators will adjust individual prices to ensure maximum consumption. Vodacom pointed to what has been dubbed as the "waterbed effect" which suggests that price increases for one service will result in decreases in others. Vodacom argued that ICASA should not expect prices to reflect underlying costs even in competitive markets.

ICASA considers the implications of the waterbed effect on market definition below. In the context of pass through, ICASA is highly doubtful that in competitive markets, increases in marginal call costs (which are associated with actual payments to the terminating operator) would not be reflected in increases in call prices (even those that have been subsidised). In any event, even if operators decided to increase some other price (for example, access) in response to a price increase on off-net call costs, this would only reinforce the conclusion that pass through is limited.

Similarly, in the context of a reciprocal increase in termination between mobile operators, Vodacom and MTN suggested that operators may not increase off-net mobile-to-mobile fees, because they could subsidise the increased costs with the increase in their termination revenue. Again, if this were true, it would reinforce the conclusion of limited pass through. However, ICASA notes that this is highly unstable as the incentive to increase off-net fees to cover their true costs (and rather give the subsidy on access to whatever extent necessary) will be large.

For the purposes of market definition, however, it is not necessary to identify whether limited pass through is based on non-competitive markets or the waterbed effect.²⁵ It suffices to note that the available evidence suggests that pass through is indeed limited. As discussed, this will in turn have a negative impact on the incentive for calling parties to switch to potential alternatives in the event of a SSNIP in termination.

NETWORK AWARENESS

²⁵ ICASA notes that retail price caps may also explain some of the reason for limited pass through, as pointed out by Vodacom

As noted, network awareness is a critical part of any retail demand-side substitution effect. If callers cannot identify the network they are calling, then they cannot exercise a substitution decision which may have been based on increased calling prices to that network. Historically, the South African numbering plan was relatively simple: 082 numbers were Vodacom, 083 were MTN, 084 were Cell C, standard numbers were Telkom and special numbers were relatively easy to identify (0800, etc). However, presently, ICASA finds that there are three main obstacles for consumers being aware of the network they are calling.

First, when using mobile phones callers often use phone functionality which allows them to select names and not numbers. Therefore callers would have to go through additional effort in order to be able to identify the network they are calling and thereafter make a choice to use some alternative means.

Second, there are now a host of different network providers. These include the different fixed line operators (i.e.: Neotel and Telkom), mobile operators (i.e.: Cell C, Vodacom and MTN), Virtual Mobile Operators (i.e.: Virgin Mobile), Internet Service Providers and VANS (i.e.: Internet Solutions and MWeb), and USALs. Each of these providers is associated with a different set of numbers on the numbering plan. In addition, fixed line operators have different numbers depending on the geographic location of the called party.

There are places where consumers can access information about which numbers belong to the respective providers. Consider Telkom's price list as found on their website. Below, we reproduce all the different call types in a way that reduces considerably on the complexity found on Telkom website.²⁶

Conventional calls	Calls to Neotel and VANS	Automatic calls to Premium Rate services (Contd.)
Telkom subscribers (no numbers provided)	Neotel (no number provided)	TeleVoting 00621
Payphones (no numbers provided)	IS (087 350 to 359)	Competition lines 00622 & 00629
FreeCall 080/Homefree	Storm (087 780 to 781)	Information lines 00671 & 00675
ShareCall 0930	Datapro (087 805)	Information lines 00672
MaxiCall 0961	Telfree (087 750 to 754)	Information lines 00673
Calls to Voicelink 0881	Broadband Networks (087 810)	Information lines 00674
Calls to Mobile and USAL's (non-geographic locations)	M-web (087 700 to 701)	Automated Teleconferencing 0062 000 000
Mobile Cellular (072/3/4, 076/8/9 & 082/3/4)	MTNNS (087 845)	Mailbox messaging
USALs (085)	ECN (087 940)	Virtual Fax deposit 088
Calls to USAL's (geographic locations)	Orion (087 870)	Fax 2 Email 0865/6
Amatole (043)	Telconet (087 830)	Charity Lines 086761x
Bakone (0157)	Open voice (087 855)	
Bokomoso (067)	ICT (087 960)	
Karabotai (0185)	NetVoip (087 985)	
Ilizwe (0397 & 0477)	Connection Telecom (087 820)	
Kingdom (0345)		
Thinta Thinta (0395)		
Northcom (096 & 016)		

Table 9. Networks that can be called from Telkom fixed line and associated numbers

Source: Telkom website

²⁶ See Telkom price list at http://www.telkom.co.za/common/pricelist/prices/local/customer_to_automatic_exh.html.

There is clearly an increasing number of providers which are each associated with their own set of numbers. Lists such as these are not available to the consumer when making the consumption decision. Short of carrying such a list with them, and consulting it before each decision, users will have to remember the above numbers "off by heart."

Third, the introduction of number portability renders accurate network identification even more difficult. This is because callers will not know which network they are calling *even if* they happen to know both the number they are calling (i.e.: they don't just select a name) as well as the network to which that number was originally assigned. The caller may be able to check the network of parties they call through consideration of their bills (some bills may indicate whenever a call goes off-net, but others might not).²⁷ However, they will then have to remember the network of each of their calling parties individually. This would likely require yet another (self-constructed) list in order to ensure that the caller remembers which network the called parties are on. This list would only include parties that have already been called (not new parties). Moreover, parties may have ported since the last bill was received.²⁸ There is clearly considerably complexity involved in remembering and identifying which customers are on which networks.

Vodacom pointed to electronic tones which warn the user when they are going off-net and which have been implemented as part of number portability.²⁹ ICASA considers that the existence of these warning tones can serve to increase network awareness. However, the ability of warning tones to make callers aware of the networks they are calling requires two additional conditions.

- that consumer's are aware that these warning tones exist and are able to distinguish them from background connection noise. ICASA notes that there has been no significant advertising campaign warning customers what such tones mean, and providers don't have any obvious incentive to create this awareness.
- that there are different warning tones for different networks, and that consumers are able to distinguish between the warning tones of different networks. This is because, for network awareness, it is not sufficient to know simply whether you are going off-net; rather, one must know to which specific "off-net" network one is calling.

²⁷ Telkom's suggests that customers can achieve network awareness by gaining a "global knowledge" through examination of their bills.

²⁸ Moreover, note that the called parties may have ported since the calling party last identified their network. The only way to be sure of the identity of the network one was calling, before calling them, would be to somehow contact the called party and ask them.

²⁹ Vodacom suggested that "MNP implementation features a warning tone/message notifying the caller when a call is heading off-net; this further enhances called network awareness".

Moreover, the caller would actually have to dial the number (i.e. make the call) before knowing whether they had gone off-net, and to which network. They would then have to consult their list to consider whether or not they should "hang up" and engage in some type of substitution behaviour (like switch SIM cards or send a PCM).

Some stakeholders also argued that the low incidence of ported numbers means that number portability will not affect network awareness in the short to medium term.³⁰ ICASA notes that although the extent of ported number may be low at present, this is likely to increase going forward. Even at low levels of porting, consumers will quickly be in a situation where they simply cannot rely on the number they are calling to identify the network. It is informative to look to markets where number portability and the existence of many providers have been around for many years. In this regard, ICASA notes that in the OFCOM January 2006 survey only 19% of the sample mostly or always knew which mobile network they are calling.³¹

ICASA does not rely on the issue of network awareness to make any findings. In this regard, gathering specific survey data is not required, as it would not alter ICASA's findings. ICASA notes, however, that due to the reasons discussed above, network awareness is likely to be less than 100% and decreasing.

Additional stakeholder comments

Vodacom, MTN and Telkom all suggested network awareness may be relatively high. Their comments around number portability as well as billing information have been dealt with above. **Overall, ICASA does not suggest that network awareness will be extremely low as has occurred in more mature markets, only that it will be less than 100% and decreasing.** Together with the other issue like pass through and percentage increase faced by the retail customers, this serves to lower expected switching ratios. Other stakeholders all agreed that network awareness would become increasingly problematic going forward.

³⁰ Vodacom stated that "although mobile number portability (MNP) has been introduced, the small number of subscribers that have ported (less than 1% of the subscriber base), mean that MNP is unlikely to negatively impact the general level of awareness of the mobile network called, over the short to medium term".

³¹ "In the January 2006 survey Ofcom found that of all consumers making calls to mobiles two fifths (42%) claimed never to know which mobile network they are calling or were unable to give an opinion. In addition, one quarter (23%) claimed rarely to know, one in six (16%) sometimes know and only one fifth (19%) mostly or always know which mobile network they are calling. These results are consistent with previous survey evidence. In the February 2005 survey Ofcom found that, of mobile phone users which know they are calling a mobile, two fifths (44%) claimed never to know which network they are calling, a quarter (24%) occasionally know, one fifth (18%) usually know and only one in ten (10%) always know." OFCOM (27 March 2007) Mobile Call Termination Statement

3.5.5.

PRICE AWARENESS

As noted, price awareness is a critical requirement – without it, consumers will not know when to switch, even if they wanted to.

Customers require awareness of relative price difference and associated marginal changes. In order for consumers to make changes in consumption decisions based on marginal price changes, consumers must be aware of absolute prices, relative prices differences and marginal changes in the relative price difference. It is not sufficient to merely know that one type of call is absolutely cheaper than another. They must have some knowledge of the size of that difference, and how that size changes given marginal increases in one of the prices. This is because for consumers to switch away from a particular service *on the basis of marginal price changes*, they must be aware of how the price of that product changes relative to the price of the alternative product.

Telkom suggested that consumers would be aware that fixed lines are cheaper than mobile phones. However, a general knowledge that fixed telephony is cheaper than mobile telephony will not be sufficient to make decisions in response to marginal price increases. In fact a broad knowledge of price differences such as this is likely to dwarf awareness of marginal price differences, such that consumer decisions will be based on rules of thumb surrounding the cost of making calls, and not a call-by-call analysis. In this regard, ICASA notes there is an academic literature on the difficulties faced by telecommunications consumers when making optimisation decisions due to the complexity of the decision process.

Pricing information is not equivalent to awareness. Telkom also suggested that consumers “probably have a global knowledge of the cost of their bills, and through their billing statements they are likely to realise that calling certain people or numbers tends to be costly, and therefore they are likely to seek substitutes for contacting those people or numbers (e.g. use their SMS more often, use mobile/fixed alternatively).”³² ICASA does not dispute the price information exists, particularly of a “global” nature as discussed above. ICASA also accepts that bill statements provide price information. Other sources for price information are price lists published either as pamphlets or on the Internet. However pointing out that price information exists is not evidence that price awareness exists. The latter is based on a) the quality and accessibility of pricing information and b) the ability for consumers to internalise this information and use it to make *marginal* consumption choices.

- *Quality of pricing information.* ICASA’s understanding is that consumers are not always sent specific pricing information and are not always directly informed how or when pricing changes from time to time. Billing statements are an inherently indirect (in the case of Telkom bills, they require “working

³² Telkom submission to January Discussion Document, p.20.

back” to calculate the price of calling certain numbers at certain times). ICASA also notes that the pricing information on websites is sometimes difficult to find, and is often presented in a complicated manner.

- *Using pricing information to make marginal consumption decisions.* ICASA emphasises that the relevant consumption decisions do not take place with the information in front of the consumer, as for example is typical with many retail purchases (cars, food, houses and consumer goods). Therefore, even if consumers gain information from bills or from pamphlets /websites, a considerable amount of information needs to be remembered when making consumption decisions. For example, in a given voice package, there are usually peak rates, off-peak rates, weekend rates and each of these is associated with on-net calls rates, off-net call rates, fixed-to-mobile (or mobile-to-fixed rates), and fixed-to-VOIP (or mobile-to-VOIP rates). There are also free minutes and the price of SMS services. In order to make a switching decision which involved two packages, the costing structures of both packages will have to be known. ICASA also notes that there is no reason for consumers to be particularly focused on one aspect of this pricing structure (i.e.: off-net calls).

Price awareness in other jurisdictions. The latest mobile call termination study by OFCOM showed that price awareness in the UK was always less than 22%, and often substantially so.³³ ICASA does not rely on international survey evidence but notes that these levels of price awareness are extremely low. Even if South African consumers exhibited substantially greater awareness, it is still likely that many customers would remain unaware.

ICASA therefore finds that price awareness is likely to be substantially less than 100%. However, ICASA does not rely on a specific quantification to make any findings. Rather, the existence of poor pricing awareness will combine with less than perfect network awareness, less than perfect pass through, and lower percentage price increases faced by retail customers, to substantially lower expected switching and substantially increase the required price sensitivity of those consumers that are price and network aware in order to render a SSNIP in termination unprofitable.

Additional stakeholder comments

Vodacom presented evidence for price awareness which showed how their callers are more likely to make an on-net as opposed to an off-net call. ICASA notes Vodacom has close to 60% market share. Therefore, even if consumers were completely unaware of price of network, they would make on average 60% of their calls to Vodacom (i.e.: on-net). The data shown by Vodacom (which suggests that callers call Vodacom between 62% and 67% of the time) is not inconsistent with

³³ OFCOM (27 March 2007) Mobile Call Termination Statement p. 34

this basic explanation. Similarly, the minutes of use data, which shows that Vodacom receives between 62% and 70% of call minutes is also not inconsistent with this basic explanation. In particular, this data does not show that customers somehow adjust their calling behaviour based on whether or not they are making an on-net or off-net call.

Furthermore, even if this conclusion could be reached from the data (due to the slight bias above 60%) this would be insufficient to establish price awareness of relative price differences, or awareness of marginal changes to this difference. Just as customers may be aware that, in general, fixed telephony is cheaper than mobile telephony, they may be aware that on-net calls are cheaper than off-net calls. However, this does not mean that they are aware of the size of the price difference and how this may change with marginal increases in off-net rates.

Telkom's comments have been dealt with above. All other stakeholders agreed that price awareness is limited.

3.5.6.

RETAIL DEMAND SIDE SUBSTITUTES FOR MOBILE CALL TERMINATION

This section considers possible demand side substitutes at the retail level. The fact that there is no direct demand-side or supply-side substitutes significantly reduces the likelihood of identifying effective substitutes. Indirect substitutes at the retail level suffer from two fundamental problems. First, expected switching ratios in response to a small but significant price increase in termination rates will be lower due to a lower price increase realised by the final customer (based on the fact that termination is an input cost and there may be limited pass through) and more limited awareness of relative price changes that do occur (based on limits to network and price awareness). Second, the critical switching ratio required to make a small but significant price increase unprofitable is bound to be high because many of the retail switching alternatives will usually entail the termination provider earning revenue on the alternative retail product.

An illustrative example helps to demonstrate this point. In the case where the margin on termination is 25% higher than the margin on a potential substitute, then the critical switching rate required for a 10% price increase on termination rates to be unprofitable is around 33%. This high level of switching however, is required in response to what is likely to be an effective price increase to the consumer of merely 2.5% (on the basis of a 50% pass through of termination rate increases to an off-net price that is at least double the termination rate) and which they may be aware of only a portion of the time (assuming imperfect network and price awareness).

Given this type of analysis, it is not surprising that jurisdictions around the world have found that there are no retail substitutes to call termination that sufficiently constraint a price increase in termination by a network operator (and hence justify a

broader market definition). Most of the stakeholder submissions also gave full support to the finding that retail demand side substitutes do not sufficiently constrain the setting of termination above competitive levels.

Those stakeholders that did not give unqualified support to this market definition (namely Telkom, Vodacom, MTN and Sentech) focused on pointing out instances where potential substitute products might constrain call termination price-setters. However, the existence of potential substitutes does not necessarily lead to the conclusion that these potential substitutes are a sufficient constraint and this sufficiency is never demonstrated by the stakeholders. As Vodacom state, "while it is conceded that the levels of substitution introduced in Vodacom's arguments may not yet warrant expanding the market definition, it is important to ensure that the analysis is sufficiently thorough."³⁴ Vodacom argued that thoroughness is important due to the fact that this is the first market definition process and will establish the precedent for all others to follow.

A primary focus for some of the stakeholder comments was that there were in particular potential demand-side substitutes which stakeholders felt may offer unique constraining potential in the South African context. These stakeholders believed that the presence of these unique constraining factors meant that the finding on market definition should not be assumed to be the same as the multiple international jurisdictions. Three unique factors were commonly identified as being relevant:³⁵

1. That South Africans are generally poorer than in other countries and are therefore more likely to use call back services (such as please call me SMSs). It was claimed that this created a kind of Receiving Party Pays (RPP) principle that effectively constrains the price of call termination.
2. That South Africans have multiple SIM cards and are therefore more to swap SIM cards to ensure that they only make on-net calls and that this constrains call termination price increases. In addition, it was claimed that use of Least Cost Routing is very popular in South Africa and that this too constrains the price of call termination.
3. That South Africans are generally poorer than in other countries and are therefore more likely to use the Community Service Telephone service offered in this country. This service attracts a lower termination fee (by policy fiat) and it was claimed that the resulting retail service constrains normal commercial termination fees.

³⁴ Vodacom submission to January Discussion Document, p. 34

³⁵ Vodacom state. "The South African market differs significantly from developed markets such as those in Europe, where the majority of subscribers can afford outgoing calls. It is typical in South Africa's developing environment to find poor subscribers making outgoing calls on subsidised community service telephones or using the free "please call me" SMS service, and relying in both cases on their mobile phones for incoming calls. Such demographic differences have led to significant business model and pricing innovation."

ICASA first deals with these potential South African specific issues before considering the remaining demand-side substitution possibilities.

3.5.6.1.

PLEASE-CALL-ME AND CALL-BACK

Some stakeholders suggested that “please-call-me” (PCM) SMS services are a unique South African specific feature that might change ICASA’s finding on market definition for mobile call termination services relative to the other jurisdictions. The PCM service essentially offers users free SMSs to contact another party to ask to them to call them back. If the party that receives the PCM responds, then they would clearly bear the cost of the call. The PCM service is an example of a “call-back” arrangement. Another example of call-back is where subscribers use “missed calls” to get other subscribers to call them back.

It was argued that call-back mechanisms may effectively create a Receiving Party Pays (RPP) environment. Under such a scenario, the operator with the cheapest call termination “wins the business” (their customer *receives* the call) because the cheaper termination rate would result in a lower off-net call price to their network and customer’s would co-ordinate to make the cheaper call. If increases in termination rates and off-net prices would cause sufficiently many calls to switch direction, PCM services might generate competition between operators such that the termination services of different operators are in the same market.

Evidence offered in support of the claim that call-back was a substitute, was data showing the extent of uptake. For example, one operator stated that: “the substantial number of call back messages (or “*please call me’s*”) that are sent in the market highlights the significant demand for this service.”³⁶ However, this in fact all it shows – demand for that product. The fact that a given product is well used or popular is not evidence to the effect that one product is a substitute with another product. For example, the fact that PCM is very popular in SA is likely to be based on the heavily skewed income distribution, which generates income based co-ordination opportunities between callers. To show substitution, on the other hand, it is necessary to show that call-back actually constrains call termination prices to a competitive level by making any price increase in call termination unprofitable.

ICASA therefore considers the evidence on expected switching and required switching ratios in response to *marginal* changes in the price of call termination.

First, expected switching in response to a SSNIP in termination rates is low. The relevant test is to determine the extent that the amount of completed PCM SMSs will be affected in response to a SSNIP in termination rates. In respect of the sender we find it improbable that marginal changes in the termination rate will alter the decision to send a PCM. In this regard we note:

³⁶ Vodacom submission to January Discussion Document, p. 40

- For the sender of the PCM their current choice is between no expense and a costly phone call. As such, the likely basis for sending and having a PCM completed (i.e. call returned) is an economic relationship where the higher income customer implicitly agrees to pay for the call from the sender of the PCM.³⁷ Alternatively, PCMs may be being used in circumstances where price is not the consideration – namely, marketing, advertising and customer communication schemes³⁸.
- The current saving for sending a PCM to an off-net called party (it must be off-net to be influenced by a SSNIP of the termination rate), is upwards of R2.00 for peak and R1.15 for off-peak (given senders of PCMs will predominately be lower income prepaid subscribers). The current saving for the sender is therefore significant (a 100% saving).
- The marginal change in an off-net call price for the potential sender of a PCM is therefore in the range of 2% to 4% for a 5% price increase, and 4% to 8% for a 10% price increase *assuming conservatively full price pass through and full awareness of this price change*. This is detailed in the table below. This marginal change is relatively insignificant relative to the saving they are already making and even more insignificant if full pass-through and awareness are not present. It therefore seems highly unlikely that this will have a material impact on the decision of the sender.

Off-net calls		Price of retail product R	Increase in termination		% Increase in retail price	
			5%	10%	5%	10%
Peak rates, pre-paid	Lower bound	R 2.00	R 0.07	R 0.14	4%	7%
	Upper bound	R 3.60			2%	4%
Off-peak rates, prepaid	Lower bound	R 1.15	R 0.04	R 0.09	4%	8%
	Upper bound	R 2.00			2%	4%

Table 10. Percentage price increase faced by mobile prepaid users for off-net mobile-to-mobile calls, given a 5% to 10% increase in mobile call termination

Source: Operator websites and tariff filings

From the receiver of the PCM perspective:

³⁷ ICASA notes MTN's criticism. "MTN would like to point out two serious flaws in the Authority's rejection of call-back as an effective substitute in paragraph First, the Authority seems to suggest higher income parties are totally price inelastic when it states that: "the higher income party will usually make the call, regardless of the size of the call termination fee". This is obviously an unrealistic suggestion" (MTN submission, p. 41). ICASA does not however, agree. Rather, it is obvious that a call-back arrangement is based on relative incomes or other specifics of economic relationships – consumers don't generally offer to pay for each other just because they can get the product at a cheaper rate. Given this, it is not the relative price which drives impact, but rather relative incomes.

³⁸ See for example http://www.iot.co.za/index.php?set_id=1&click_id=115&art_id=vn20050520075836741C770595

- There is no direct price change to which they are responding. The increase in termination rates applied to their network and not that of the sender of the PCM.
- To the extent that their decision (to respond to a PCM) was based on considerations of the price paid by the other party, it would appear that if they were unwilling to respond to a PCM before the termination price increase, a mere 2-4% (or 4c to 7c) increase is unlikely to make a substantial difference.
- To the extent that their response depends on knowledge of the price change faced by the PCM sender, it is not apparent that they will be aware of off-net price *changes* faced by the requesting party.

Accordingly, ICASA believes that the magnitude of expected switching in response to marginal price increases to be extremely low. Given the wide differences in effective price faced by the PCM sender already, the decision on whether to send a PCM or not is largely based on income and customer co-ordination dynamics.

Second, required switching ratios in response to a SSNIP of call termination are likely to be very high. In the event that some customers respond to a price increase in termination rates (which is not apparent) by sending out a PCM to the party they wish to call, the operator that raised the price of termination would lose the margin associated with termination (the calling party sends a PCM and does not make the call themselves) but gain the margin from their own subscriber making an off-net call in response to the PCM.³⁹ As such, the extent to which raising the price of termination is profitable or not, depends on the relative margin the operator is gaining from both alternatives. As Telkom state: "call-back could render an increase in termination charges unprofitable if the profitability of outgoing calls is lower than that of incoming calls and call-back is carried out in sufficient volume."⁴⁰ That "sufficient volume" is the required switching.

In order to illustrate this point and provide some orders of magnitude to the sufficiency measure, we have examined the current upper and lower bounds for peak and off-peak off-net calls on different tariff plans and compared these to the current termination rate. Both prepaid and contract calls rates are used, as PCM may be sent to customers on either of these package types. On the assumption that net revenue equates to margin for marginal changes in volume (due to a largely fixed cost infrastructure), we have then calculated the required switching requirements to make a 5-10% price increase in termination unprofitable. These calculations are presented in the table below.

³⁹ It must be an off-net call as the sender of the PCM responded to termination rate changes and hence could not be on the same network.

⁴⁰ Telkom submission to January Discussion Document, p. 18.

Off-net calls		Retail off-net rates (incl. VAT)	Margin (after paying termination) (excl. VAT)	Termination margin (excl. VAT)	% that termination margin is above off-net call margin	Required switching 5% price increase	Required switching 10% price increase
Peak rates, pre-paid	Lower bound	R 2.00	R 0.50	1.25	148%	8%	14%
	Upper bound	R 3.60	R 1.91	1.25	-34%	<i>Always profitable</i>	<i>Always profitable</i>
Off-peak rates, pre-paid	Lower bound	R 1.15	R 0.24	0.77	222%	7%	13%
	Upper bound	R 2.00	R 0.98	0.77	-22%	<i>Always profitable</i>	<i>Always profitable</i>
Peak rates, contract	Lower bound	R 2.50	R 0.94	1.25	33%	6%	11%
	Upper bound	R 3.50	R 1.82	1.25	-31%	<i>Always profitable</i>	<i>Always profitable</i>
Off-Peak rates, contract	Lower bound	R 0.95	R 0.06	0.77	1116%	5%	10%
	Upper bound	R 2.00	R 0.98	0.77	-22%	<i>Always profitable</i>	<i>Always profitable</i>

Table 11. Illustrative example of required switching to PCMs, given a 5% to 10% increase in mobile call termination

Note: In the case where the net margin on off-net calls is greater than the margin on termination, increasing price will be "always profitable" as customers who switch to the alternative product will generate more revenue for the termination provider, and those that remain will pay higher prices

Source: Operator websites, pamphlets and termination rate filings

The table shows that the required switching ratio will certainly differ depending on the tariff plan of the subscriber. However, we note:

- On the higher off-net call rates the operator will invariably make more money from the off-net calls and therefore the switching behaviour will not constrain them at all in raising the price of termination. In fact, such "switching" it will encourage operators to raise termination fees.
- Overall, the required switching ratio will be a function of the average price of an off-net call. This entails considering all the different prices weighted by volume or the number of receiving-end PCM customers facing those prices and the ratio that respond to the PCM. Therefore overall required switching ratios will be substantially higher than that shown above for the lower bound options. In this regard, note that all peak calls above R2.85 and off-peak calls above R1.76 earn the operator more revenue than from termination. Further, all peak calls above R2.52 and off-peak calls above R1.55 yield a required switching ratios in excess of 30% for a 10% price rise (and 18% for a 5% price rise).

The table is illustrative because a number of factors may result in slight variations on the actual figures. These are:

- *Termination margin:* The calculations are based on the assumption that the current termination rate, and hence margin earned on termination, reflects that of a competitive market. If the margin earned on termination is currently above that of a competitive market then the required switching ratios will be underestimated.
- *Differences in the extent of per second billing* between termination charges to other operators (always per second) and retail clients (not always per second from the first second) will imply that the margin on off-net calls is underestimated for calls not billed on a per second basis. This will result in the required switching ratios also being underestimated.
- *Service provider discounts:* Retail calls will attract a service provider or retailer discount that varies vastly between prepaid and contract (prepaid attracting lower discounts). This discount would reduce the margin on the off-net calls for sales through anyone but the operator itself or its own service provider. This would result in the required switching ratio being an overestimate. However, given the factors which lead to underestimation, as well as the fact that many on-net call prices yield higher revenue than termination, ICASA expects actual required switching to be high.

Third, low pass through (especially in percentage terms) and imperfect price and network awareness will make marginal switching even less likely. These issues have been discussed in detail above, and will serve to generally lower the ability or incentive for customers to switch in response to increase in call termination.

Finally, there is no evidence that the use of multiple Please-call-me SMSs have constrained call termination. Termination rates rose sharply from 1999 to 2001, and have risen steadily since then. If Please-Call-Me SMSs constrained call termination rates, we would expect to see call termination rates declining in response. In contrast, rates have not declined since the introduction of Please-Call-Me SMS, and have instead continued to increase up to their likely upper bound constraint⁴¹.

Conclusions on PCMs and call-back

Overall, the use of PCM and other call-back mechanisms are highly unlikely to be based on marginal pricing dynamics. Rather lower income customers will attempt

⁴¹ ICASA notes that termination rates are now likely to be at their upper bound constraints. Termination providers cannot price termination above the on-net retail rates as on-net calls constitutes an avenue through which operators can bypass termination fees (through break-out). Currently, various mobile on-net rates are priced at exactly the same rate as mobile termination rates, or relatively close to such termination rates.

to use this mechanism based on the fact that – if the other party responds and calls back – it will save them the *total* cost of the call. Consideration of low percentage price increases faced by retail customers, less full pass through and imperfect network and price awareness serves to lower expected switching still further. In addition, even if some users did switch based on marginal increases in price, this will earn the termination provider substantial revenue such that, overall, required switching is likely to be very high.

ICASA therefore confirms its initial finding that call-back is not a sufficient retail demand side substitute to constrain a network from pricing call termination above competitive levels.

3.5.6.2.

MULTIPLE SIM CARDS

Certain stakeholder suggested that South Africa may be unique in that consumers may have multiple SIM cards, and that they may engage in SIM card swapping to avoid ever paying off-net rates. SIM card swapping, when and if it occurs, will likely be engaged in by prepaid customers. In this case, customers can avoid paying higher off-net rates by instead accessing cheaper on-net rates.

MTN indicate that there are more SIM cards than adults connected to networks⁴² and imply that this indicates that SIM card swapping is likely. Vodacom state this explicitly but provide evidence only for other countries, not South Africa. Telkom expresses a similar theme, noting that there are “2.9 SIMs per mobile customer in Pakistan whilst this decreases to 1.12 in the UK.”⁴³

However ICASA does not consider that the SIM card swapping will likely constrain call termination to competitive levels, for the following reasons.

First, ICASA notes that the evidence presented is not evidence of actual SIM card swapping or its extent.

- *No direct evidence of SIM swapping.* No actual survey evidence of the extent of actual SIM-swapping was presented, but rather this is deduced from the number of SIM cards and the populations of countries.
- *Controversial data.* The active SIM statistics used to make this deduction are controversial and sensitive to the (often changing) definitions of an active customer. Furthermore, comparisons to adult populations are not always relevant if a large number of non-adults (i.e. children) are using SIM cards.

⁴² “The current number of reported active SIMs in South Africa stood at 37M at the end of December 2006, while according to SAARF, only 15.2M adults were connected to mobile networks. Even taking account of the non-adult penetration, this implies the average number of SIM per adult is more than 2, suggesting SIM swapping is rife in South Africa.” MTN submission to January Discussion Document, p. 40

⁴³ Telkom submission to January Discussion Document, p. 19.

- *No evidence of marginal substitution.* Given this lack of evidence, the extent of SIM-swapping actually is not apparent, and especially if it occurs in response to *marginal changes* in the price of off-net calls or simply to absolute differences in on-net and off-net call prices.

Second, SIM swapping will provide significant revenues for the termination provider. Switching a subscriber to making use of a specific network through SIM card swapping may in fact be a goal of raising termination rates in the first place. By raising the cost of rivals, and driving customers onto the termination provider's network, the termination provider gains more retail customers, who provide additional revenues in terms from on-net calls, as well as access and connection revenues.

This incentive may exist because SIM card swapping may always provide more revenue (and margin) for the termination provider if that customer makes an on-net call rather than an off-net call from another network. If this is the case, then no amount of SIM card swapping will constrain termination rates to competitive levels as a SSNIP will always be profitable regardless of the level of switching. This point is illustrated below.

Assuming that majority of costs are fixed, revenues provide a proxy for the relative margins of two different products. In this regard an important observation is that all on-net call list prices, whether prepaid or contract, peak or off-peak, are higher than the relevant call termination rates. In fact, there is a legal obligation on operators to provide termination at no higher than their cheapest retail rate⁴⁴. The table below illustrates this point for prepaid packages (physical SIM card swapping is only likely to be practiced by pre-paid customers). The table shows the percentage by which termination *revenue* is above prepaid on-net *revenue*.

⁴⁴ These legal constraints have been articulated in Section 10(3) of the Interconnection Guidelines as published in Notice 1259 of 2000 which require that "charges for interconnection must not exceed retail charges for the provision of equivalent services."

	Retail Rates (incl. VAT)		% that Termination revenue is above on-net revenue	
	Peak	Off-peak	Peak	Off-peak
Vodago	R 2.50	R 1.40	-75%	-59%
Vodago per second - first minute	R 2.33	R 2.33	-64%	-165%
Vodago per second - thereafter	R 1.55	R 1.55	-9%	-77%
4U prepaid (Vodacom)	R 1.99	R 1.12	-40%	-28%
Big Voucher (Vodacom)	R 2.85	R 1.08	-100%	-23%
Cy daytounge tripper (Cell C)	R 2.00	R 2.00	-40%	-128%
Cy nighttime sweettalker (Cell C)	R 3.25	R 1.00	-128%	-14%
Cy kinda anywhere (Cell C)	R 2.60	R 1.40	-82%	-59%
Easychat standard (Cell C)	R 2.50	R 1.40	-75%	-59%
Easychat all day(Cell C)	R 2.00	R 2.00	-40%	-128%
Easychat per second (Cell C)	R 3.20	R 1.05	-125%	-20%
MTN classic	R 2.50	R 1.40	-75%	-59%
MTN per second	R 2.99	R 1.15	-110%	-31%
MTN per second plus	R 2.99	R 1.05	-110%	-20%
MTN payback – highest rate	R 2.00	R 2.00	-40%	-128%
MTN payback - lowest rate	R 1.65	R 1.65	-16%	-88%

Table 12. Illustrative example of relative profitability of on-net prepaid calls and call termination

Source: Operator websites and pamphlets

It is apparent from the table that the list prices for prepaid (the most likely source of SIM-card swapping) are considerably higher than termination rates. This strongly suggests that operators earn more when a prepaid customer switches a SIM card to make an on-net call rather than making an off-net call from another operator's network.⁴⁵ Furthermore, given that subscribers are likely to switch to any of these packages if SIM swapping did occur, it is the average margin gained when a subscriber engages in SIM card swapping and not a specific upper or lower bound. Therefore, even if one package did not offer an increase in revenue for the termination provider, the loss in revenue from switching to a single package may be more than compensated for by switching that occurs to a package offering a better margin to the termination provider.

With regard to using these revenues as a proxy for relative margins, ICASA notes the following:

⁴⁵ Whilst revenue does not necessarily translate directly into margin, this is more likely to hold for changes in usage at the margin (the relevant test) where infrastructure costs are largely fixed. In addition, margins on termination rates would need to take into account whether they are currently at competitive cost-based levels or currently at monopoly levels.

- The above differences are likely to underestimate revenue differences given that termination is charged on a per second basis and not all pre-paid packages charge per-second from the first second.
- Additionally, the termination provider would also earn additional revenues in the form of start up / connection fees and the scope to become the primary SIM card for the subscriber, earning incoming revenue as well.
- This result is also likely to hold even given service provider discounts on airtime purchases given the magnitude of revenue differences and the relatively small airtime discounts for prepaid.

Third, at competitive levels the higher profitability of SIM card swapping is likely to be robust. If prices were at their competitive levels, ICASA expects the above results to strengthen even further. If the margin earned on termination is currently above that of a competitive market then the relative revenues analysis will underestimate the relative revenue gain to termination providers from moving a caller to an on-net call rather than an incoming off-net call. Moreover, at long run competitive levels, ICASA expects that on-net rates to be greater than termination rates, by at least the cost of origination, as well as the "discount" provided for service providers, which is really a payment for the retail / distribution service incurred by the service provider. These costs – and associated margins - will be priced into retail rates at competitive levels. On-net call margins will therefore include the margin on the termination provided as part of the on-net call (which should be equal to the margin on wholesale call termination) as well as the margin on origination and retail distribution costs (which will drive total margin above the margin on call termination).⁴⁶

Fourth, ICASA notes that SIM card swapping is likely to be based more on income dynamics than marginal prices. At current prices customers can save as much as R1.00 by making an on-net as opposed to off-net prepaid call. Given these differentials, certain low income customers may be willing to engage in the procedure of swapping SIM cards. However, where customers are unwilling to do so given the current differentials it seems unlikely that they will become willing given another 5% increase in off-net rates (R0.07 at peak to R0.04 at off-peak).

Fifth, low pass through (especially in percentage terms) and imperfect price and network awareness will make marginal switching even less likely. These issues have been discussed in detail above, and will serve to generally lower the ability or incentive for customers to switch in response to increase in call termination.

⁴⁶ There is no reason to suggest that operators would price on-net calls below cost given the variable nature of the service and the existence of pure on-net usage patterns for the lowest priced packages (for LCR or mobile public telephony).

Finally, there is no evidence that the use of multiple SIM cards (to the extent it can even be demonstrated that the phenomenon exists) has constrained call termination. Despite the (possible) existence of SIM swapping, termination rates rose sharply from 1999 to 2001, and have risen steadily since then. If SIM card swapping was exercising a constraint on call termination rates then we would expect to see call termination rates declining in response. In contrast, rates have not declined and in fact have continued to increase up to their upper bound constraint.

Conclusion on Multiple SIM Cards

For these compounded reasons, ICASA finds that it is unlikely for SIM card swapping to offer a sufficient constraining influence on termination fees. Quite to the contrary, they will likely increase the incentive to raise termination fees in order to capture on-net margins and win customers from other networks. ICASA also notes that no evidence of SIM Card swapping has been provided, and that, in any event, the very existence of high on-net/off-net differentials, which is the basis for any SIM card swapping, is itself driven by termination that has not been constrained to competitive levels.

ICASA therefore finds that SIM card swapping is unlikely to constrain termination to competitive levels.

3.5.6.3.

LEAST COST ROUTING

Some stakeholders also suggested that least cost routing ("LCR") may perform a similar role to SIM swapping (and, although this may not be unique to South Africa, we deal with it here for convenience). LCR is form of network swapping, except that it is automated, and occurs at the higher end of the market. It also generally entails substantial set up costs as well as the need to generate large amounts of calls in order to be able to access low on-net call rates. LCR is used by business in place of making fixed-to-mobile calls. ICASA finds that LCR does not broaden the market for termination beyond the network of the termination provider. The reasons for this finding are outlined below.

First, even at current prices, required switching is likely to be high. As with SIM Card swapping, while the operator will lose the termination revenue they will gain revenue subscription fees and on-net calls. At present, there are a few high usage contracts which offer on-net calls at basically the same rate as call termination. These are the packages that will likely be used in LCR offerings. For example, at current prices, assuming zero variable cost and a 25% service provider discount, the required switching ratio will be 33% (for a 10% price increase) and 20% (for a 5% price increase).

Second, it is unlikely that sufficient switching will occur even at current prices. LCR is a fixed-to-mobile phenomenon and therefore there is limited scope for additional switching (mobile-to-mobile can't switch). Currently these calls account for roughly half of the total interconnection fees earned. In addition, only medium to large business will generate the required usage to justify implementing an LCR system (for which a PABX is probably a prerequisite) and therefore the universe of firms that may switch is smaller still. And of these, a lot (if not most) would have already have LCR in place. As such, a further switching of 20% of total termination for a 5% increase in termination rates is improbable given the universe of potential implementation of LCR.

Third, current interconnection principles imply that any increase in call termination will have to be matched by an increase in LCR package rates. Given that termination rates are now priced at exactly or very close to the same rate as on-net high usage packages, any increase in termination will legally have to be followed by an increase in on-net rates in full or part, removing some or all of the marginal benefit of switching to LCRs in response to a marginal price change in termination.

Fourth, termination has been priced up to its upper bound constraint and this suggests the cellophane fallacy is present. The fact that on-net rates are priced similarly to termination rates indicates a strong possibility of the existence of the cellophane fallacy: an on-net call includes termination as well as origination and retail costs and therefore common pricing levels suggest the lower cost termination service is priced up to its alternative (the on-net call) and is certainly not at a cost level. Therefore even if LCRs constrain termination at current prices, this does not at all indicate that they constrain termination to competitive levels, which is the requirement to show substitutability.

Fifth, at competitive prices it is unlikely that any amount of switching to LCRs could constrain termination. This is because ICASA expects that on-net rates to be greater than off-net rates, by at least the cost of origination, as well as the "discount" provided for service providers, which is really a payment for retail / distribution service incurred by the service provider. These costs will be priced into retail rates at competitive levels. Therefore, regardless of whether an alternative service provider provides the retail portion, on-net fees less retail costs should still be higher than termination rates. At competitive levels, a provider of termination earns only the termination margin when only termination is provided, but both the origination and termination margin (and sometime retail margin) when an on-net call is provided. Therefore LCRs are unlikely to constrain termination to competitive levels.⁴⁷

⁴⁷ Though stakeholders may argue that on-net fees will be priced below cost at competitive levels, this will have to be based on earning excess revenue on other parts of a bundle. But then this "excess revenue" must be taken into account for any customer switching to an LCR system. ICASA notes that in LCR packages, operators only earn on-net call, access and connection revenue (not SMS or off-net call revenue). If this revenue was not sufficient to cover the cost of the package, it implies that operators are losing money on those packages. This seems highly unlikely.

Finally, the evidence suggests that termination has remained unconstrained from LCR systems. Whilst it may be argued that LCR is a more recent development after termination rates were increased to their current level, if LCR was making such termination rates unprofitable we would have expected a reduction in termination rates subsequent to the development of LCR. This has not occurred and in fact there have been further marginal increases in termination rates subsequent to the LCR trend. This strongly suggests that any switching to LCR on the basis of termination rates is in fact insufficient to constrain the pricing of termination above competitive levels.

Conclusion on LCRs

ICASA finds that the existence of LCR does not warrant a broadening of the market beyond termination on the network of the termination provider. Any substitution that might have historically occurred is likely to be because termination has been priced up to the alternative. This remains profitable given that termination rates have not been reduced in response to LCR. Second, from current prices the scope for new LCR uptake relative to the required switching ratio means **LCR is highly unlikely to constrain a further SSNIP in termination rates.**

3.5.6.4.

COMMUNITY SERVICE TELEPHONES

Some stakeholders suggested that Community Service Telephones ("CSTs") constrained call termination prices.⁴⁸ CSTs are fixed-location payphones that run on mobile technology. They were launched in order to fulfil social obligations, and as such are offered at a discount to standard calls, both in terms of the retail price and the interconnection fee. The interconnection fee is currently R0.0688 (excl. VAT for off peak or peak) as opposed to R1.43 (peak) or R0.88 (off-peak) (incl. VAT). ICASA finds that CSTs do not provide a sufficient alternative to constrain call termination rates. The reasons are identified below.

First, CSTs are associated with significantly different quality and functionality. The CST product is directed at specific income brackets and is confined to under serviced areas where it is likely to be absolutely preferred by low income consumers, whenever it is possible to use them. The large proportion of low income users in South Africa is a key reason why these services have been taken up. Though cheaper, the service offers significantly different functionality and quality. Off-net mobile calls take place (a) on the users own phone (b) from anywhere, (c) at anytime, and (d) without having to queue. CST calls, on the other hand, are (a) located only in some locations, (b) require transport to get these locations (c) or are only available at certain times (CST shops may close at certain times) and (d) may require queuing. These quality and functionality differences are

⁴⁸ ICASA notes that CSTs were not dealt with in the January Discussion Document, as it was considered that a policy-driven discount product focused on a specific income group and area was not relevant to commercial termination rates. In light of concerns from MTN and Vodacom, ICASA has now given the issue explicit consideration.

acute and are a strong indication that CSTs are not in the same market as off-net calls.

Second, there are large price differences between CSTs and off-net mobile calls. The table below compares retail prices of CST and prepaid mobile calls, as well as the impact of a 5% increase in the price of termination on the retail price of off-net prepaid calls relative to CST prices.⁴⁹ Overall, off-net prepaid calls are priced at between 28%-300% above CSTs.⁵⁰ The large price differences and the small impact of any SSNIP in termination rates (even with full pass through) suggest that substantial savings can already be made for income-constrained callers and a SSNIP in termination has a limited effect on the savings. As such, it is likely that income-constrained consumers have already switched to CSTs where possible and any marginal change in termination is unlikely to significantly affect that.

To illustrate this point, we examine the required switching ratio *relative to existing take-up of the service* and find that this is particularly large relative to current CST traffic. In particular, CSTs currently account for approximately 10% of outgoing calls and the required switching to make a SSNIP in termination rates unprofitable would be a further 5-10% of *total off-net calls*. Given that CSTs are only located in under serviced areas and the additional savings from a SSNIP in termination rates are only 4-16%, it seems implausible that such a large increase in CST use relative to its current levels is in any way plausible.

		Price of retail product	Price of CSTs	% retail product above CST	5% rise in termination	% increase in price difference
Off-net peak rates	Lower bound	R 2.00	R 0.90	122%	R 0.07	6%
	Upper bound	R 3.60	R 0.90	300%	R 0.07	3%
Off-net off-peak rates	Lower bound	R 1.15	R 0.90	28%	R 0.04	16%
	Upper bound	R 2.00	R 0.90	122%	R 0.04	4%

Table 13. CST and prepaid off-net mobile call prices and impact of a 5% increase in termination

Source: Operator websites, termination rate filings

Third, low pass through (especially in percentage terms) and imperfect price and network awareness will make marginal switching even less likely. These issues have been discussed in detail above, and will serve to generally lower the ability or incentive for customers to switch in response to increase in call termination.

⁴⁹ Prepaid rates are used because contract subscribers that have higher incomes are highly unlikely to make use of CSTs.

⁵⁰ The "lower" 28% distinction is only relevant for Vodacom 'Big Bonus Voucher' customers. This package requires spending R899 up front and provides R75 airtime per month, and as such is likely to be used by relatively higher income "prepaid" users. In particular, these users are far less likely to use CSTs. Setting this package aside, prepaid packages offer off-net calls at between 39%-300% above CSTs.

Finally, the available evidence suggests that CSTs have not constrained termination. The price of termination has continued to rise steadily despite the existence of CSTs or their recent proliferation. If CSTs or their recent proliferation were exercising a constraint on call termination rates then we would expect to see call termination rates declining in response. In contrast, rates have not declined and in fact have continued to increase up to their upper bound constraint.

The only evidence MTN and Vodacom presented to suggest that these two products were substitutes was the large uptake of CSTs. The data suggests that CSTs make up approximately 10% of outgoing calls.⁵¹ But, showing significant uptake for a particular service does not show that that service is a substitute for another one. In particular, the high uptake of CSTs is likely to be based on income dynamics in South Africa, where low income consumers prefer to use CSTs due to absolute cheaper rates. Small changes in marginal prices of the higher priced off-net mobile or fixed-to-mobile calls are unlikely to change that.

Conclusion on CSTs

ICASA finds that given the large differentials in pricing, functionality and quality, CSTs are unlikely to constrain call termination to cost.

Having discussed the issues that might create a unique market definition in the SA context, ICASA now turns to the other retail demand-side substitution possibilities.

3.5.6.5.

MOBILE-TO-FIXED AND FIXED-TO-FIXED CALLS AS A SUBSTITUTE FOR FIXED-TO-MOBILE CALLS AND OFF-NET MOBILE CALLS

In response to a rise in the relative price of off-net mobile calls phones, it is possible that consumers might switch to calling parties on their fixed lines (mobile-to-fixed or fixed-to-fixed calls). The terminating operator would not earn any revenue on these substitute products as such switching bypasses their network entirely. Therefore, on the assumption that variable costs are zero, required switching ratios *over the entire base of mobile callers* will be 5% for a 5% increase, and 9% for a 10% increase. **ICASA finds that even though lower required switching rates may apply, expected switching is highly likely to be sufficiently low from this source of switching to make a SSNIP in termination rates profitable.** These reasons are described below.

⁵¹ Vodacom state that "a notable omission is a consideration of evidence that community service telephone (CST) originating calls (priced at a flat rate significantly below prevailing retail rates) constitute a significant substitute for mobile-to-mobile or fixed-to-mobile calls. Call volumes indicate that poorer subscribers are willing to queue at CST providers in order to make outgoing calls, rather than make them from a cell-phone, fixed line, or Telkom public payphone. As illustrated in Figure 5...CST interconnect minutes makes up approximately 10 % of total interconnect minutes thereby giving an indication of the extent of demand for the service." The Vodacom text states that this figure was a percentage of "interconnect minutes," but the relevant graph refers to outgoing calls. This was confirmed by Vodacom in the hearings: Vodacom stated on the 17 May 2007, p. 26 of the transcripts "we sit with 10 % of total outgoing traffic on CSTs"

First, the ability to switch to fixed lines is limited by low penetration. ICASA finds that because fixed line penetration is low relative to mobile penetration in SA, the potential to make use of this alternative is highly limited. This low and declining relative penetration is reflected in the relative subscriber numbers in the figure below. Not only has fixed line penetration dropped in absolute terms, it has also dropped relative to mobile penetration. At present, Telkom's customer base is approximately 12% of that of the mobile operators. **As such, it seems highly unlikely that the required switching levels will be achieved in response to a SSNIP in termination rates given total possible switching.**

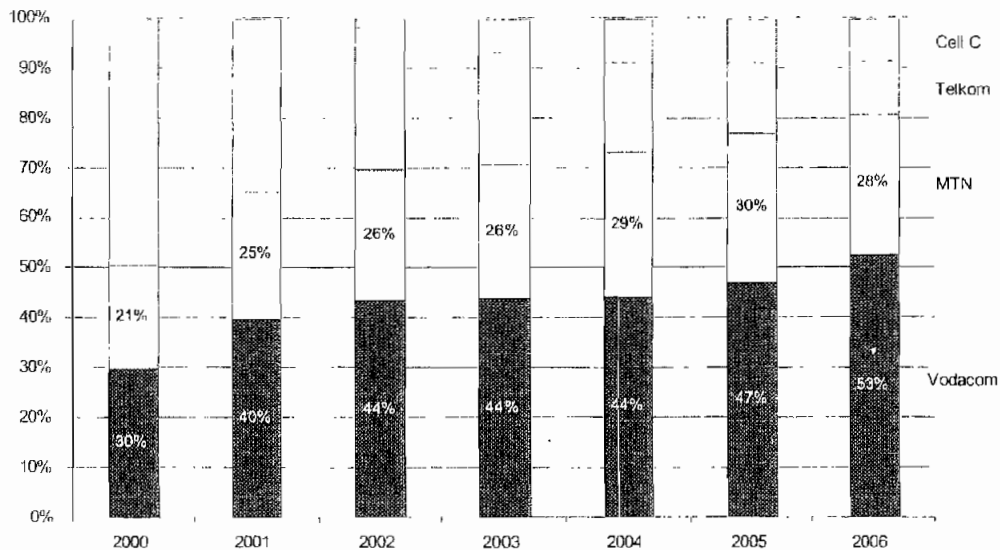


Figure 1. Subscriber shares per fixed and mobile operator for voice services: 2000-2006

Source: Vodacom, Telkom and MTN annual reports and analyst presentations, Cell C Business Update-September 2005 and Media Briefing-April 2006 and news reports.

To illustrate the dynamics at play in terms of total possible switching opportunities and the required switching rates relative to those possibilities, the table below highlights the number of calls which terminate on mobile phones which may be diverted to fixed lines (using the overall averages)⁵², and the required switching ratios as a percentage of these customers. The possibility that calls to fixed lines can substitute for calls to mobile phones is significantly undermined by the low penetration of fixed lines. For a 10% price increase in termination, 75% of those customers that can switch must do so in order to render the price rise unprofitable. ICASA considers this to be extremely unlikely.

⁵² Although on average more mobile calls may be made per customer to customers who also happen to have fixed lines, the opposite might also be true (as those customers don't have a fixed line on which to be called). In this regard, the overall averages shown above provide a good starting point from which to do illustrative analysis.

Product	Possible substitute	% of calls that can switch	Required switching ratio as a percentage of those that can switch	
			5% increase	10% increase
Mobile-to-mobile	Mobile-to-fixed	12%	42%	75%
	Fixed-to-fixed	6%	83%	Always profitable
Fixed-to-mobile	Mobile-to-fixed	12%	42%	75%
	Fixed-to-fixed	12%	42%	75%

Table 14. Effective required switching ratio as a proportion of those that can switch from calling mobile to calling fixed lines

Source: ICASA calculations based on the number of fixed line subscribers and the number of mobile subscribers

The illustrative analysis above can be extended to using household penetration rates for fixed line whereby more than one individual had access to the fixed line. Whilst this would increase the number of possible people accessed via fixed line, there would still be a limited reach. In this regard, consider the household penetration statistics in the table below. It is clear that out of the households that have mobile phones the percentage that also have fixed lines has declined significantly. By 2005, only 28% of households with mobile phones also had fixed lines.

	2001	2002	2003	2004	2005
Percentage of households with access to a cell phone (Total)	29%	34%	40%	50%	60%
Percentage of households with access to a landline phone and cell phone (Total)	12%	14%	15%	17%	17%
Implied percentage of mobile users who also have fixed lines	43%	41%	38%	33%	28%

Table 15. Penetration of fixed and mobile usage and of both

Source: Statistics SA General Household Survey July 2005 and AMPS Data

Furthermore, switching to calling on a residential phone is further limited by the probability of the called person being at that location at the time the caller wishes to get hold of them (as discussed below).

Second, the ability to call fixed lines is limited due to the lower probability of actually reaching the customer. In many instances, calling a fixed line will simply not be possible, even when the called party has a fixed line. This is because the fixed line is at a physical location where the called subscriber may not be present. The importance of immediacy of contact has been repeatedly recognised by Ofcom and other regulators. In instances in which a called party is not at the required fixed locations, callers will have no choice but to reach them on their mobile phones. In addition, very often consumers will not first check to see if a customer is at their

fixed line as this entails additional time and expense. This significantly lowers expected switching.

Third, large price differences already exist. Calls to fixed lines should be significantly cheaper than calls to mobile phones at competitive prices. Whereas mobile origination costs are the same for on-net mobile-to-mobile or mobile-to-fixed calls (or fixed-to-mobile and fixed-to-fixed calls), termination will be significantly different. The distinction between fixed and mobile termination costs is accepted internationally, and is underlined by the large differential in current termination rates. The current differential between termination rates is R1.07 at peak times and R0.68 for off-peak times. Therefore, at cost-reflective prices, the large distinctions in termination should be reflected in similar distinction in retail rates. Given these large differences in price, ICASA would expect those customers who are price sensitive and can make calls to fixed lines to do so already. Those that don't (even though they can) are unlikely to change behaviour due to a marginal additional change in the price difference, especially given the lower probability of reaching that customer.

Fourth, LCRs have likely segmented the market. The majority of calls from fixed lines, including fixed-to-mobile calls, are generated from business, despite Least Cost Routing ("LCR"). Vodacom accept this dynamic, but suggest that this will enhance substitutability.⁵³ The use of LCR is likely to have decisively segmented the market – those who can afford it will not make fixed-to-mobile calls (as their LCRs will route traffic on-net where high usage tariff plans currently offer substantial savings) and therefore mobile operators will not take them into account when setting their call termination fees.

Fifth, fixed-to-mobile business users will have limited incentive to switch. Employees of businesses (who do not use LCRS) are unlikely to switch from fixed-to-mobile to (even on-net) mobile-to-mobile calls. This is because it is our understanding that in most business, employees are given free access to a fixed line, but not to a mobile phone. And even in instances in which they have access to both, employees will often have little incentive to try and reduce the cost of phone calls (given they do not pay), and so will generally use whichever option is most convenient. As such, switching in response to marginal price changes is highly unlikely.

Sixth, customers will face very low marginal increases in price. The actual and percentage price increase faced by customers will be significantly lower than the 5% to 10% increase in call termination, due to both higher retail rates as well as limited pass through. The likelihood that customers will switch will be even lower

⁵³ "Vodacom would, however, conjecture that, based on traffic patterns, the vast majority of calls made on and to the Telkom network, are made between business users during peak hours, and that these could represent a significant substitute for mobile calls for particular subscribers." Vodacom submission to January Discussion Document, p. 35.

when it is recognised that many customer purchase free minutes which do not differentiate between the network called (in which case for those calls, they face no price increase).

Seventh, low pass through (especially in percentage terms) and imperfect price and network awareness will make marginal switching even less likely. These issues have been discussed in detail above, and will serve to generally lower the ability or incentive for customers to switch in response to increase in call termination.

Finally, internationally fixed and mobile telephony are defined as separate markets. It is noted that international jurisdictions generally find that mobile and fixed services are in different markets and that calls to fixed lines cannot constrain mobile call termination. There is nothing in the South African context which suggests a different market definition. In fact, the low fixed line penetration rate significantly strengthens the conclusion.

Conclusion on calling fixed lines as a substitute to calling mobiles

Given these multiple factors it is **highly unlikely that the required switching will be generated out of the small customer base that can in fact switch to warrant expanding the market.**

Additional stakeholder comments

Some stakeholders pointed out that just because two products offer different prices and quality does not mean that they could not constrain each other on the margin. Some also pointed out that just because fixed line penetration is low, does not mean that there won't be sufficient switching to those fixed line which do exist. However, the analysis above suggests that the expected switching ratio is highly unlikely to be sufficient to have a constraining affect. The point is not (only) that fixed line penetration is low, but that the amount of customers that would have to switch out of this group in order to constrain call termination overall is very high, especially given the other issues involved, including the lack of immediacy of contact, low percentage price increases, limited pass through and imperfect price and network awareness.

OFF-NET MOBILE CALLS AS SUBSTITUTE FOR FIXED-TO-MOBILE CALLS

If the price of fixed-to-mobile calls were to increase, consumers might switch to calling the same mobile number, but from another mobile phone as opposed to a fixed line. (There are two types of substitution that may be relevant here: the use of off-net calls and the use of on-net calls. On-net calls are considered in the next sub-section).

According to current interconnection agreements, off-net mobile calls attract the same call termination fee as fixed-to-mobile calls. Given the principles of interconnection regulation as set out in the ECA, non-discrimination of this type will continue to hold going forward⁵⁴ as both call types are and will continue to be subject to the same mobile call termination fee. As such, a SSNIP in the mobile termination fee to fixed line networks will be matched by the same price increase to mobile networks. This means that a) as both fixed-to-mobile and off-net mobile prices could increase equally (with equal pass-through) relative prices may not change, and b) any switching would not make the SSNIP unprofitable given that the termination provider themselves earns exactly the same revenue from both call types (i.e. the common termination fee). **Therefore off-net mobile cannot constrain fixed-to-mobile and vice versa.**

Additional stakeholder comments

Telkom pointed out that even if off-net mobile-to-mobile calls are not in the same market based on the SSNIP, common pricing constraints might place them in the same market.⁵⁵ ICASA agrees that mobile call termination from a fixed line is in the same market as mobile termination from another mobile phone, due to common pricing constraints. ICASA notes that this does not mean that fixed-to-mobile calls are in the same market as off-net mobile-to-mobile calls at the retail level. ICASA does not have to investigate this issue in the current review as, given that operators earn the same termination margin regardless of which service is used, the outcome is not relevant to call termination.

Vodacom suggested that because pass through may be different on different networks, it is possible that an increase in call termination would lead to switching because the price increase faced by for example, fixed-to-mobile users could be lower than that faced by off-net mobile-to-mobile users.⁵⁶ ICASA emphasises that

⁵⁴ However, ICASA can release a mobile operator from these interconnection regulations on the finding that that operator does not have market power. But, as the finding of SMP is the ultimate purpose of market definitions, non-discrimination of this type cannot be relied upon to argue against a potential substitute. Nevertheless, if the mobile operator did not have market power, then they would be unable to discriminate between different operators with respect to call termination rates, and hence the non-discriminatory result would resurface. Thus (with or without regulation) as both call types are and will continue to be subject to the same mobile call termination fee, they are not viable substitutes for one another so far as an increase in that fee is concerned. Note also that the proposed market definitions do not make reference to the buying operator, and whether that operator offers fixed or mobile services. That is, the proposed market definition is not mobile call termination on individual operator networks purchased by fixed lines operators and mobile call termination on individual operator networks purchased by other mobile operators. Only if this distinction were proposed would the substitution between off-net mobile and fixed-to-mobile calls be relevant.

⁵⁵ "Although the Authority does not appear to define separate markets by reference to the origin of the call onto the mobile network, Telkom would like to point out that even if products subject to the same price may not sufficiently constrain each other under the SSNIP framework, they would be part of the same market on the basis of the existence of a common pricing constraint. Telkom submission to January Discussion Document, p.26.

⁵⁶ Vodacom state: "While Vodacom would agree with the view that a change in mobile termination rate would be common to both call types, the extent to which there is substitutability would be determined by the relative retail rate responses by fixed and mobile operators respectively. As noted previously, although there is no automatic or guaranteed retail benefit, the rationale for retail responses to changes in wholesale call termination rates are different among the operators, depending on their individual market and/or pricing strategies as well as regulatory obligations.

for the purposes of this review, the amount of switching between fixed-to-mobile calls and off-net mobile-to-mobile calls makes no difference from the perspective of the call termination provider and call termination market definition. However, ICASA acknowledges Vodacom's point that pass-through will often be limited.

3.5.6.7.

ON-NET MOBILE CALLS AS SUBSTITUTE FOR FIXED-TO-MOBILE CALLS

This section considers whether on-net mobile calls may be a substitute to fixed-to-mobile calls.⁵⁷ **ICASA finds that consideration of on-net mobile calls does not warrant expansion of the market definition.**

First, required switching will be very high at current prices. The analysis of the required switching discussed for LCR and SIM card switching above holds in this case as well. For example, in the case of LCRs (and assuming zero variable cost and a 25% service provider discount) the required switching ratio will be 33% (for a 10% price increase) and 20% (for a 5% price increase). In the case of general on-net mobile-to-mobile calls, the on-net rates will often be significantly higher than the high usage packages used for LCR, and so these ratios constitute a lower bound.

Second, on-net calls margins will likely always be higher than termination revenue at long run competitive prices. This is because ICASA expects that on-net rates to be greater than off-net rates, by at least the cost of origination, as well as the "discount" provided for service providers, which is really a payment for retail/distribution service incurred by the service provider. *At competitive price levels*, a provider of termination earns only the termination margin when only termination is provided, but both the origination and termination margin (and sometime retail margin) when an on-net call is provided.

ICASA notes that stakeholders may claim that relative revenues do not accurately reflect relative margins once long run incremental costs have been taken into account. This is because on-net fees may be priced below long run incremental cost in a bundle of services. However, even if margins on on-net calls and associated services were below termination margins for some packages (say because of a skewed allocation of common costs)⁵⁸ they are highly unlikely to be significantly lower and will likely be higher on other packages (as reflected by the large difference in price of current contract packages). Overall, therefore required switching will have to be extremely high in order to render an increase call termination unprofitable.

Third, not all callers can switch from fixed to mobile lines. Not all South Africans that have fixed lines also have mobile phones. ICASA notes that Telkom suggests

These aspects have not been addressed adequately in reaching the conclusion, and further analysis using SA data is considered necessary." Vodacom submission to January Discussion Document, p. 35.

⁵⁷ Unlike off-net calls, on-net mobile calls do not attract a call termination fee.

⁵⁸ With two part tariffs, common costs are usually most efficiently allocated to fixed (such as access) not variable services (such as calls).

that some consumers may purchase mobile phones in response to a SSNIP in call termination⁵⁹. ICASA considers this highly unlikely given the cost of mobile phones relative to the size of the limited price increase that the customer will face on certain (fixed-to-mobile) calls. Moreover, even if the called party does have a mobile phone (or purchases one), the probability that the caller is on the same network is dependent on the subscriber shares of the three mobile operators. But, each operator will take only their market share into account. Recent market share data showed that Vodacom had approximately 59% of the market in 2006, MTN 31% and Cell C 10%. Even for Vodacom, only 59% of fixed-to-mobile users will be able to switch to an on-net call. This will significantly reduce switching to on-net calls.

Fourth, business callers will have limited incentive to switch. The majority of calls from fixed lines, including fixed-to-mobile calls, are generated from business, despite Least Cost Routing ("LCR"). But employees of businesses are far less likely to switch from fixed-to-mobile to (even on-net) mobile-to-mobile calls. This is because it is our understanding that in most business, employees are given free access to a fixed line, but not to a mobile phone. And even in instances in which they have access to both, employees will often have little incentive to try and reduce the cost of phone calls (given they do not pay), and so will generally use whichever option is most convenient.

Fifth, LCRs may have self-selected a group of consumers to whom mobile operators can raise the price. The use of LCR is likely to have decisively segmented the market – those who can afford it will not make fixed-to-mobile calls (as their LCRs will route traffic on-net where high usage tariff plans currently offer substantial savings) and therefore mobile operators will not take them into account when setting their call termination fees. They will be able to increase call termination for those customers who cannot afford LCR or who are price insensitive to off-net calls. ICASA notes Vodacom's objection that operators are "simply not able to discriminate between subscribers in respect of call termination charges."⁶⁰ However, Vodacom misunderstands the fact that the discrimination is in this case an instance of self-selection. There is no need to actually identify and discriminate between LCR users and fixed-to-mobile users. Rather, LCR users simply do not pay the termination fee.

Sixth, customers will face very low marginal increases in price. The actual and percentage price increase faced by customers will be significantly lower than the 5% to 10% increase in call termination due to higher retail rates. As noted above, the percentage price increase faced by a fixed-to-mobile user, even assuming full

⁵⁹ "Telkom would like to point out that consumers who do not have a mobile can also respond to a SSNIP and constrain the price of fixed-to-mobile calls, by purchasing a mobile in response to the SSNIP. This constitutes an additional possible constraint not currently taken into account by the Authority." Telkom submission to January Discussion Document, p. 27.

⁶⁰ Vodacom submission to January Discussion Document, p. 36.

pass through (pass through may be more robust for fixed-to-mobile calls) will be 8% for a 10% increase in call termination.

Finally, low pass through (especially in percentage terms) and imperfect price and network awareness will make marginal switching even less likely. These issues have been discussed in detail above, and will serve to generally lower the ability or incentive for customers to switch in response to increase in call termination.

Conclusions on on-net calls

ICASA therefore finds that on-net calls are highly unlikely to be able to constrain call termination rates.

Additional stakeholder comments

Telkom commented on a suggestion that ICASA made in the January Discussion Document that substitution was unlikely because on-net rates are generally more expensive than fixed-to-mobile rates and that even at competitive levels, they would continue to be so. The stakeholder suggested that current price difference were not so large as to rule out substitution and that ICASA's suggestion that the cellophane fallacy might be the cause of this was not backed up by a costing analysis. ICASA still considers this issue important, but has not relied this to make its finding above.

Telkom, Sentech and Vodacom also commented on ICASA's previous suggestion that the probability of being on the same network as the called party was 45% (from consideration of current market shares). ICASA finds that even if the probability was in line with market shares, this factor, at the very least, serves to reduce the proportion of subscribers that are able to make a switch to on-net mobile calls. This factor serves to make it less likely that the required switching ratio is achieved to make a SSNIP in termination rates unprofitable, especially when considered with the other array of factors above.

These stakeholders also reiterated that it was not necessary for even a majority of subscribers to switch in order for on-net to offer a substitute. ICASA acknowledges this point, but has provided analysis above to suggest that the likelihood of switching passed the required amounts is extremely low, if not impossible.

3.5.6.8.

ON-NET CALLS AS A SUBSTITUTE TO OFF-NET CALLS (CHANGING NETWORKS)

The issues of customer switching to on-net calls in the form of SIM swapping or LCRs has been given special attention above. In this section, we consider the more general case in which a customer (contract or prepaid) simply switched network altogether in order to avoid increased off-net fees. ICASA considers that this type of behaviour is unlikely to constrain call termination.

First, there are switching costs involved in changing networks. For contract customers, these are substantial and include having to cancel contracts, forgo phone upgrades, as well as engage in number porting. It seems unlikely that customers would engage in this switching behaviour in response to a very small percentage increase in off-net rates to a single network, especially given the importance of other rates, including access fees, mobile-to-fixed and on-net call rates. For prepaid, though the switching costs are lower, the impact of marginal changes in off-net fees relative to the cost of the overall package, may be equally small.

Second, required switching ratios will be extremely high. Just as with other on-net substitution possibilities (such as SIM swapping, LCRs and on-net calls as a substitute for fixed-to-mobile calls), required switching ratios will be extremely high. However in this case (where consumers actually switch networks completely) required switching ratio will be driven still higher (if they are not already at the level where switching always results in an increase in the profitability of the termination provider). This is because the operator will also gain all the associated revenue from having the customer on the operator's own network, which includes:

1. access and connection fees,
2. termination fees for all that customer's incoming calls from other networks,
3. no termination payments when subscribers to the switching customer's network call that customer,
4. outgoing fees for the customers calls to other networks (in which the operator had no part before),
5. outgoing fees for calls to the operators other customers minus the termination revenue that the operator would have earned on those calls, when the customer was on another network.

It is likely that revenue stream 5 above would be sufficient to generate extremely high required switching ratio. Given the revenue streams 1 to 4, the conclusion is strengthened for instances in which customers actually switch networks. In fact, using high termination rates to drive customers onto their own network may be a specific market capture strategy on behalf of the mobile operators.

Third, customers will face very low marginal increases in price. The actual and percentage price increase faced by customers will be significantly lower than the 5% to 10% increase in call termination, due to both higher retail rates as well as limited pass through.

Fourth, low pass through (especially in percentage terms) and imperfect price and network awareness will make marginal switching even less likely. These issues have been discussed in detail above, and will serve to generally lower the ability or incentive for customers to switch in response to increase in call termination.

For these reasons collectively, **ICASA finds that consideration of changing networks to avoid higher off-net rates does not warrant expanding the market definition as it is unlikely to constrain the profitability of a SSNIP in call termination rates.**

Additional stakeholder comments

All operators either agreed, did not comment, or pointed to SIM swapping and LCRs, which have been discussed separately above.

3.5.6.9.

CLOSED USER GROUPS

"Closed user groups," describe a trend through which consumers' that are more likely to call one another than other consumers, co-ordinate on similar networks in order to take advantage of low on-net fees. In this scenario, consumers choosing a network take into account the network of other parties with whom they are likely to communicate. They do this in order to reduce the cost of calling those customers as well as the cost those consumers face when they call them. Vodacom pointed to Cell C's "friends and family" promotion which offers cheaper calls for calling specified people.⁶¹ More generally, ICASA notes that by charging significantly lower on-net relative to off-net fees might encourage a degree of "co-ordination" on the network.

Though ICASA agrees that operators will try to devise plans which cause people to migrate to their network, ICASA considers it highly unlikely that this dynamic can constrain call termination.

First, the likelihood that consumers will take into account the cost of others calling them is probably very low. In any event, even if consumers did take this into account to some extent, this will only be one feature that is used for choosing a network (as they will also consider the cost to themselves of being on that network and making calls)⁶².

⁶¹ Vodacom state: "A further example of an innovative retail offering in the market that optimises the cost of outgoing and incoming calls is Cell C's "friends and family" deal, which offers preferential rates for identified subscribers. Such offerings are aimed specifically at influencing the subscriber's choice of network," Vodacom submission to January Discussion Document, p. 41. ICASA noted that in this case discounts are given regardless of which network the called party is on.

⁶² This section therefore also addresses what was previously under a separate heading in the January Discussion Document ("Called parties choose network to reduce cost of incoming calls").

Second, even if termination fees affect network choices, customers will likely coordinate on the operator's network that has raised the termination fee. To see this, consider a scenario in which all prices are competitive, and the on-net fees are very similar to off-net fees across all networks (the difference is only the switching cost). If one network decided to increase call termination fees, the most likely trend would be for customer's to migrate to that network – by so doing, they avoid the higher off-net fees. If instead customers switched to an operator who has not raised termination fees, they would still have to pay the high off-net fees to customers who remained with the operator who has raised termination fees. This then reduces to the discussion above, where increases in termination cause switching to that network. In this case, the termination provider likely earns more revenue when customers switch. No amount of switching based on closed user groups will therefore constrain termination rates.

Third, the requirements of network and price awareness are even more unlikely to be fulfilled in the current case. For a marginal increase in termination rates on a particular user's network to cause that user to switch, they would have to be aware of marginal price increases in off-net call prices faced by other people. This seems highly unlikely.

Finally, a large differential between off-net and on-net fees currently exists. From an operators perspective, the market has thus been segmented between customers on its own network, who may call each other more often (because of the existence of closed user groups), and customers on other networks who are either tied into their own network or are price insensitive to off-net calls. The latter customers constitute a differentiated group to which the operator can raise termination fees. Therefore if the SSNIP test is applied on current termination and retail rates, it is unlikely that any further substantial switching would occur.

Additional stakeholder comments

All stakeholders either agreed or did not comment on this finding, except for Vodacom who suggested that it was not possible for operators to raise termination fees and thereby attract customers on to their network. They suggested that this was not feasible as “as any increase in the wholesale voice call termination charge for calls terminating on one operator network will equally apply to all networks simultaneously. This strategy is simply not feasible in light of the current market interconnect agreements and associated regulatory obligations.”.⁶³ ICASA notes that non-discriminatory obligations only require operators to offer equal rates to all other providers, not to charge reciprocal rates. In any event, if it was a “market reality” that termination rates would all move together then this obviates the need for any consideration of closed user groups, as increases in termination across all providers will not generate any bias towards selecting a particular network. If bias

⁶³ Vodacom submission, p. 36

existed it would be to favour the larger networks in order to reduce the cost of calls to users outside the closed user group.

3.5.6.10.

SMS AS A SUBSTITUTE FOR CALLS TO MOBILES

Faced with an increase in the cost of off-net mobile calls due to an increase in termination rates, a caller might switch to an SMS service. For various reasons, ICASA finds that switching to SMS services will not constrain call termination to competitive levels. These reasons are sketched out below.

First, SMSs are functionally not equivalent to voice calls. There are several reasons for this:

- *SMSs remove immediacy of contact.* The sender does not know if the receiver has received or read the SMS, and if the sender wants a reply, they may have to wait before they get it. Where SMSs are used to achieve some type of two-way dialogue, an SMS conversation is more time consuming than voice calls: they are typed as opposed to spoken, and then there is a long pause before one gets a response and can in turn type and send a new SMS. Vodacom pointed to data which showed that 35%-50% of SMS received an SMS in response "within a time window of 1 hour."⁶⁴ The operator suggested that this is evidence that SMSs can be used for "short interactive conversation." ICASA disagrees. Waiting an hour for an SMS response is significantly different to receiving a response within a second of asking the question, as occurs on voice calls.
- *The amount of information that can be transmitted on one SMS is limited.* This is because the number of characters that can be sent via SMS are often limited both by the phone settings, as well as by the network themselves.⁶⁵
- *SMSs is often used to communicate specific information.* SMS will be preferred to calls when the sender wants to communicate a specific piece of information or data precisely, and provide an easy way for the receiver to store that data.
- *SMSs create additional financial onus on receiving party.* If a response is required from the person being called, then SMS generate a financial onus on the receiving party, because they have to send another SMS back. For

⁶⁴ "... [A] small sample of data that would support the view that SMS interaction between parties does represent some degree of substitution of voice calls. The graph [figure 6] represents a summary of the % of a sample of 42 000 SMS messages, that received an SMS response within a time window of 1 hour. Based on this data it may be inferred, for example, that approximately 35-50% of SMS traffic constitutes short "interactive conversation". Vodacom submission to January Discussion Document, p 38

⁶⁵ For instance, according to Vodacom Customer Care telephone service, customers can send a maximum of 160 character per SMS

some exchange this will be considered a positive, and in others it will be a hindrance.

ICASA therefore considers that SMSs constitutes – functionally – a significantly different product. One operator (Sentech) suggested that even though SMS may be not be generally substitutable, the question is whether a “portion of subscribers will use this avenue and thereby render the increase in mobile termination charges unprofitable.”⁶⁶ However, no evidence was presented to suggest that a sufficient number would in fact switch. ICASA considers that where products have large functional differences, large-scale substitution in response to marginal price changes is very unlikely. In addition, the remaining issues identified below will compound this effect.

Second, SMSs may not be cheaper for various calls. ICASA notes that the services are so functionally different, that it is difficult to even formulate a price comparison or to understand which service is more expensive. How many SMS make up one phone call? And if all the information contained in phone call is communicated by text message, how many messages will need to be sent and will that end up cheaper or more expensive? Where multiple SMS are required in order to complete a conversation, it is not apparent that such a conversation will in general be cheaper than simply making a voice call.

Third, for short communications, customers will largely choose SMS based on income dynamics. Some stakeholder suggested that perhaps SMS was a substitute for short calls. In particular, one stakeholder (Vodacom) stated that “although Vodacom agree that SMS is not necessarily a viable substitute for extended calls to a mobile phone in general, it does offer some degree of substitution for short calls.”⁶⁷ They also argued that the youth and poorer market segments often make use of SMS as a preferred communications means. ICASA acknowledges that certain groups will prefer using SMS wherever possible, especially for short calls. However, this is not an indication that such use will increase in response to a SSNIP in the price of termination and hence some limited increase in the price of off-net voice calls. ICASA notes that where a minute of calls is substituted for a single SMS, the caller can save between R0.50 to R3.00. Where users currently do not use SMS services, they are unlikely to switch to use a functionally very different product for a very small increase in off-net rates.

Fourth, customers will face very low marginal increases in price. The actual and percentage price increase faced by customers will be significantly lower than the 5% to 10% increase in call termination, due to both higher retail rates as well as limited pass through. This will limit any incentive to switch to a functionally very different product.

⁶⁶ Sentech submission to January Discussion Document, p. 19.

⁶⁷ Vodacom submission to January Discussion Document, p. 38

Fifth, low pass through (especially in percentage terms) and imperfect price and network awareness will make marginal switching even less likely. These issues have been discussed in detail above, and will serve to generally lower the ability or incentive for customers to switch in response to increase in call termination.

Finally, call termination providers control both voice and SMS termination rates. Call termination providers also determine and control the price of SMS termination (including the number of characters and therefore cost per character). As such, they can price SMS termination so as not to constrain call termination. Telkom suggested out that while it was possible for SMS to be a substitute product at the retail level "Telkom agrees with the Authority's conclusion that, from a wholesale termination call perspective, SMS does not constrain termination charges. This is because, even if SMS was a substitute for mobile-to-mobile calls at the retail level, SMS termination is offered by the same MNO which provides voice termination, and therefore any constraints are likely to have already been taken account of by the mobile operator in setting charges for call termination and SMS. Telkom also notes that in the European Union Electronic Communications Framework, SMS termination is not considered to be part of the same market as mobile voice call termination⁶⁸." Cell C expressed a similar theme, noting that even if SMSs were a substitute at the retail level, this would not necessarily change the market definition as the same operator that offers call termination also offers SMS termination, and they could therefore price SMS termination to avoid any adverse switching.

Conclusion on SMSs

ICASA therefore finds that SMSs are highly unlikely to constrain wholesale call termination.

Additional stakeholder comments

Vodacom also suggested that "next generation services such as mobile instant messaging platforms such as MXiT and innovative offerings such as voice-to-SMS are also viable substitutes that ICASA should address."⁶⁹ ICASA is not aware that voice-to-SMS services have been offered and does not believe that this type of service would add any additional dynamic to those already discussed above. MXiT services use internet connections to send messages. Though MXiT may be cheaper than SMS services, it is unlikely to yield a constraining effect for the reasons discussed for SMS above, and because this service relies on Internet access (GPRS or 3G connections) as well as access to an actual MXiT service, and this significantly lowers the base from which switching can possibly occur.

⁶⁸ Telkom submission, p. 29.

⁶⁹ Vodacom submission to January Discussion Document, p. 39.

3.5.6.11.

VOICE OVER INTERNET PROTOCOL (VOIP) CALLS AS A SUBSTITUTE TO CALL TO MOBILES

Mobile operators now offer internet origination technologies, such as GPRS and 3G, which can facilitate VOIP services. Instead of calling parties on their mobile phones in the traditional way (which incurs a mobile call termination fee) parties can arrange to contact each other over the internet using for example, Skype.

The key requirement for this type of service to be functional is that a) both parties are online at the same time, b) the parties have access to the appropriate technology – both parties must have access to a high-speed (broadband) internet origination, and the called party must either have a lap-top or mobile phone that can access the Internet and be used to send and receive sound over the Internet. Consider the following.

- *Calling a VOIP number at a fixed location.* Only some mobile users actually have a fixed line, an even smaller proportion have ADSL, a still smaller proportion will actually use their ADSL to receive VOIP calls, and still smaller proportion will actually be at their computers when the caller wants to make the call.
- *Calling a VOIP number at a non-fixed location.* Similarly, only a very small proportion of mobile users have a 3G connection (less than 2%), and a still smaller proportion will use their 3G connection for receiving VOIP calls.

ICASA therefore considers that VOIP penetration is simply too low to offer a viable constraint. From the brief analysis above, it is clear that even if all those who could call a VOIP number did so, it would still not be sufficient to constrain a 5% to 10% rise in termination. In addition, ICASA notes that there are major quality concerns in calling VOIP numbers as they rely on data networks which are often not as stable as fixed or cellular networks. Further, it is noted that operators continue to earn revenue when a call is made to a VOIP number (in the form of data revenue). This is an especially important consideration regarding calling users on their 3G/VOIP enabled phones, and there is still ambiguity surrounding how mobile operators will charge their 3G clients if they utilise the network for VOIP calls.

ICASA has also considered VOIP providers such as IS and Telfree. Though in this case the caller does not need to use VOIP enabled technology, the called party still does and hence the problem of low ADSL and 3G penetrations remain. In addition, quality concerns may also be an issue for these types of services. With respect to pricing, ICASA notes that calling these VOIP providers will not offer the same type of savings as on Skype type systems. For example, Telkom's price for calling Neotel (an example of an off-net fixed-to-fixed call) is lower than the cost of calling all VOIP providers for the first minute and for all peak calls (but some provider's are

cheaper at off-peak times). The cost of calling these providers from mobile phones is not even listed on available websites and pamphlets (and so this service may not even be available). Overall, the uptake of these specific services is still extremely low as they are only just now entering the market. ICASA will monitor this issue and reconsider it in future reviews.

Conclusion on VOIP

ICASA finds that VOIP is highly unlikely to constrain mobile call termination.

Additional stakeholder comments

All stakeholders agreed that VOIP would not constrain call termination, except for Sentech. Sentech argued even if VOIP usage is relatively low, it might still be big enough to constrain call termination. However, the point is not (only) that these proportions are unlikely to constrain call termination, but that the amount of switching that occurs out of these small groups has to be extremely large in order to constrain call termination overall. In this regard, many customers will be insensitive to price changes, even when they are aware that they have occurred and they can identify the relevant network. Moreover, the actual percentage increase faced by these customers will be very small considering the size of off-net calls (relative to termination) as well as the extent of pass through. As it happens, the above proportions are so small that even if all of these customers had to make use of VOIP calling, it would still be insufficient to constrain mobile call termination.

3.5.6.12.

CALL SPONSOR

Vodacom stated that "the presence of innovative pricing models, such as "call sponsor", which allow certain subscribers to pay for the calls of other subscribers, need to be considered."⁷⁰ Vodacom did not provide any reasons to suggest these possibilities would constrain call termination. ICASA notes that the "call sponsor" service (as described on Vodacom's website) allows the sponsor to pay of the cost of certain pre-specified calls of the sponsored party. Once activated the person who pays for a call may switch but the actual call is not diverted to another type of call. The cost of the call is based on the sponsored party's tariff plan and the sponsorship is also not limited calls to the sponsor's number.⁷¹

ICASA does not believe that this could constrain call termination, as presumably off-net calls would still be made and the only difference is that they would be paid for by someone else. If anything, ICASA considers that

⁷⁰ Vodacom submission to January Discussion Document, p. 33.

⁷¹ See http://www.vodacom.co.za/services/callsponsor_terms.jsp. In particular, Vodacom state: "You will pay for all sponsored calls made by the sponsored customer, and you will be responsible for the full and total costs of such calls, calculated in accordance with the tariff plan applicable to the sponsored customer at the time that the sponsored calls are made."

this will lower the caller's incentive to switch away, as the caller no longer faces the actual cost of the call.

3.5.6.13.

JOINT CONSTRAINT

ICASA notes that it is sometimes important to evaluate the joint constraining impact of substitutes together. The table below summarises the switching options for low income, medium income and high income consumers and for fixed-to-mobile and off-net mobile-to-mobile calling. Black blocks indicate instances where ICASA considers that required switching will be "very high," grey blocks indicate when it is "medium to high" and clear blocks indicate when it is "low." In the right hand column, black blocks also indicate where ICASA considers that expected switching is "very low," grey blocks indicate when it is "medium to low" and clear blocks indicate where it is high. As can be seen for all potential alternatives, either expected switching is very low, required switching is very high or both.

Table 16. Can retail alternatives provide a joint constraint to mobile call termination?

From	Potential substitute	Expected switching	Required switching
Low income	SIM Card swapping	Low, only if consumers have access to this technology	Very high, may always be profitable
	SMS	Extremely low, functionally different product	Operator can control SMS termination so as not to constrain call termination
	Please-call-me	Extremely low, as choice based on income dynamics not marginal price increases	High given revenue from call back, and may always be profitable
	CST		Low, revenue from CST is low
Medium income, medium usage (off-net mobile-to-mobile)	Switch network	Low, High switching costs off-net only one component	Very high, may always be profitable
	Closed user groups		
	VOIP (also from fixed-to-mobile)	Extremely low, very small penetration	High as a proportion of those that can switch
Medium income, medium usage (fixed-to-mobile)	Off-net mobile	Low, as substitute product is generally more expensive	Makes no difference to termination provider
	On-net mobile	Low, have to be on same network as called party	Very high, may always be profitable
High income, high usage (fixed-to-mobile)	LCR	Low, limited base that can use LCRs	Very high, may always be profitable
High income, high usage (off-net mobile-to-mobile)	No options	Extremely price insensitive	NA

Source: Various

Overall, ICASA does not believe that the joint constraints of the retail switching options offer a sufficient constraint on a SSNIP for termination rates for the following reasons:

First, expected switching ratios will likely be low due to, among other factors, (a) small percentage increases in final prices on the basis that termination is an input only into final prices, (b) limited pass through and network and price awareness and (c) large functional, quality and price differences.

Second, required switching ratios are for the most part very high and in some cases no amount of switching will reduce the profitability of a SSNIP in termination rates because the termination provider earns more margin from the potential substitute product.

Third, the evidence on the level and trend in termination rates suggests that these factors have not jointly constrained termination rates to a competitive level. Despite the existence of these alternatives termination rates rose sharply from 1999 to 2001, and have risen steadily since then. If these alternatives were exercising a constraint on call termination rates then we would expect to see call termination rates not increasing or declining in response to changes in the market. In contrast, rates have not declined and in fact have continued to increase up to their upper bound constraint. Further, evidence cited below (including COA/CAM results) demonstrates that current termination rates are in fact above cost. Therefore any switching that in fact is present is largely influenced by the cellophane fallacy.

3.5.7. RETAIL DEMAND SIDE SUBSTITUTE FOR FIXED LINE CALL TERMINATION

This section considers retail demand side substitutes for fixed line call termination. Currently the main retail services affected by fixed line call termination are mobile-to-fixed calls. In the future, the rate will also become relevant for off-net fixed-to-fixed calls (when customers of the SNO call customers of Telkom) as well as VOIP-to-Fixed Calls. This section first reiterates the findings on pass-through and awareness (network and price) before tackling indirect retail substitution possibilities.

3.5.7.1. PERCENTAGE PRICE INCREASE, PASS THROUGH AND AWARENESS FOR FIXED TERMINATION

This section recaps the findings on percentage price increases, pass through and price and network awareness for fixed termination discussed above.

Percentage price increase faced by the retail users of fixed termination: For all of the mobile packages reviewed by ICASA, the percentage increases faced by the customer are *extremely* low. For a 5% increase in fixed line termination, the highest increase faced by a customer is 1.8%, and for a 10% increase the highest increase is 3.5%. In absolute terms we are talking of a 1c to 2c change in prices. ICASA considers that this will substantially lower the sensitivity of consumers in response to SSNIP by fixed line operators. New fixed and VOIP operators might experience higher percentage price increases from a SSNIP in termination rates but these volumes are negligible currently. In addition, given the likelihood that we are already dealing with an instance of the cellophane fallacy, any increase on a more competitive and lower price will be even smaller and therefore requiring very price sensitive consumers to change and yield any substitution of little consequence.

Network awareness: With respect to network awareness, ICASA notes that the use of geographic numbers may effectively distinguish fixed from other numbers. However, with the increasing proliferation other networks, including Neotel and VOIP providers, distinguishing Telkom numbers from others will become increasingly difficult. With regard to Neotel numbers in particular, ICASA is not

aware of any mechanisms (besides for ex post analysis of bill statements) by which customers can distinguish between Neotel and Telkom numbers.

Price awareness: Price awareness has been discussed above and generally the same issue hold for calls to mobiles as they do for calls to fixed lines. In particular, the increasing proliferation of different prices to different networks, as well as the difficulty of remembering and using *relative* price differences (which require remembering not just the price of calling fixed lines but also the price of the substitute product and marginal changes in the difference between these prices), will substantially hinder the ability of consumers to respond to marginal price changes.

Pass through: due to smaller changes in fixed termination relative to mobile-to-fixed prices, the evidence for pass through is more limited. However, the general observation that pass through is often limited will likely hold at least to some extent in this case as well.

These issues and in particular the extremely low percentage price increases faced by the retail customer (even assuming full pass through), will serve to significantly increase the required price sensitivity of retail customers if they are to switch away from calling particular fixed line networks in response to marginal price increase in termination.

3.5.7.2.

ON-NET FIXED-TO-FIXED AS A SUBSTITUTE FOR MOBILE-TO-FIXED CALLS

Consider the potential for fixed-to-fixed calls to be a substitute for mobile-to-fixed calls. As *off-net* fixed-to-fixed calls are subject to the same termination rate as mobile-to-fixed calls (in the case of Neotel) or higher termination rates (in the case of VOIP providers). As a result, any switching between mobile-to-fixed and these off-net fixed-to-fixed will provide equal or better margins to the fixed line termination provider making any increase in termination rates profitable. The focus is therefore on on-net fixed-to-fixed calls as a substitute for mobile-to-fixed calls.

On-net: fixed-to-fixed calls are not subject to a fixed termination rate. However, there are various reasons why ICASA does not expect any potential switching to fixed-to-fixed from mobile-to-fixed calling to provide a sufficient constraint on fixed line termination rates. .

First, many mobile subscribers do not have a fixed line and therefore cannot substitute. To switch from calling from a mobile phone to calling from a fixed line, callers need to have a fixed line. However, due to low fixed line penetration rates (as discussed in earlier sections) many mobile subscribers will not have the ability to substitute to a fixed line. As described only 28% of households with a mobile phone also have access to a fixed line. This will substantially reduce the pool of callers that are able to switch and therefore the expected switching ratio.

Second, even if callers have a fixed line, they will not always be able to access it. Callers also have to be at a given location if they want to make a call from a fixed line. This implies a substantial decrease in flexibility relative to mobile-to-fixed calls. In many instances – for example when “on the move” or merely for convenience – callers will not be able to access a fixed line in order to complete the call. This will further reduce the scope for switching and the expected switching rate.

Third, there is a requirement to be on the same network. Callers also have to be on the same network as the called party. Although at present this is not an issue, it is likely to become increasingly relevant going forward (as competition in fixed line increases).

Fourth, on-net fixed calls are substantially cheaper than mobile-to-fixed calls. The cost of an on-net call is lower (for national and especially local calls) than the cost of a mobile-to-fixed call. Given that mobile origination is more expensive than fixed line origination, this should continue to maintain at current prices. It is therefore likely that the market has been adequately differentiated such that those who can make on-net fixed-to-fixed calls will do so whereas those who a) do not have a fixed line, b) are not price sensitive, or c) who use mobile-to-fixed calls when on the move, constitute a separate group of consumers to whom prices can profitably be raised.

Fifth, callers will face an extremely low price increase. As discussed in the earlier sections, users of mobile-to-fixed calls will face an extremely small price increase (in both percentage and absolute terms). For example, for a 5% increase in call termination, all customers will see increases below 1.8%, with many customers perceiving only a 1% increase. Moreover, customer who perceives the larger increases (1.8%) will be high income consumers who are likely to be relatively more insensitive to price. It is also important to note that the absolute increases in price (at 5%) will be less than 2c for peak and less than 1c for off-peak.

Moreover, required switching will be extremely high at current prices. This is because in the event that callers had to switch from making a mobile-to-fixed call to making an on-net fixed-to-fixed call, the fixed line termination provider will lose the termination fee, but they will gain revenue from the caller making an on-net call. Assuming variable costs are close to zero, then on-net calls always yield more margin than the associated termination rates. This will drive up required switching to very high levels or make any amount of switching profitable for the fixed line termination provider.

Finally, ICASA expects on-net calls will always be more profitable at competitive prices. ICASA expects that on-net calls will always yield more margin than off-net calls at competitive prices. This is because an on-net call consists of both origination and termination, whereas only the latter is involved in call termination.

Conclusion on fixed-to-fixed calls as substitute to mobile-to-fixed calls

Due to the low fixed line penetration rates, as well as the high relative margins earned when making on-net (or off-net) fixed-to-fixed calls, **ICASA considers it highly unlikely for fixed-to-fixed calls to constrain fixed line call termination. In fact, ICASA considers that this type of switching behaviour will encourage high termination rates rather than constrain them.**

Additional stakeholder comments

Telkom argued that a common pricing constrain means that off-net fixed-to-fixed calls and mobile-to-fixed calls are in the same market.⁷² ICASA accepts that whilst these termination rates may in some way be related, they are not precisely the same as Telkom does set different termination rates depending on the service provider as noted above. However, the market definition has not identified separate markets for the origin of termination as all rates remain under the control of Telkom.

Telkom also suggested that the Authority provide reasoning as to why low fixed line penetration means there will not be sufficient switching from mobile-to-fixed to fixed-to-fixed calls. ICASA has provided this reasoning above.

3.5.7.3.

MOBILE-TO-MOBILE CALLS AS SUBSTITUTE FOR MOBILE-TO-FIXED AND OFF-NET FIXED-TO-FIXED CALLS

It is possible that, in response to a price increase in mobile-to-fixed calls, callers switch to calling the desired party on their mobile line. However, ICASA believes that the expected switching from mobile-to-fixed to mobile-to-mobile calls will be insufficient to constrain a SSNIP in fixed line termination rates.

First, not all calls to fixed lines are possible to substitute to a mobile number, especially business calls. Although many South Africans do have a mobile phone, not everyone who has a fixed line will also have a mobile phone. Moreover, as Vodacom state, the majority of calls to Telkom's network are calls to business lines.⁷³ However, in many such cases, the user will not be willing or able to make a call to a mobile number. In particular, where customers seek to call businesses, often the only number available is a fixed line, or calling a particular mobile number is inappropriate given the nature of the call (i.e. not to contact a particular person,

⁷² Telkom state: "The Authority considers that off-net fixed-to-fixed calls and mobile-to-fixed calls are not viable substitutes as they are subject to the same termination fee. Telkom is of the view that the same fact would however mean that there is a common pricing constraint which would put both in the same relevant market."

⁷³ "Vodacom would, however, conjecture that, based on traffic patterns, the vast majority of calls made on **and to** the Telkom network are made between business users during peak hours, and that these could represent a significant substitute for mobile calls for particular subscribers" (our emphasis) Vodacom submission to January Discussion Document, p 35.

but rather a department, etc). ICASA does not consider that this on its own is sufficient to reduce expected switching to below required switching levels, but, in combination with the factors below, it will have a significant affect.

Second, the percentage increases actually faced by the end user is extremely low. As discussed above, price increases will be extremely low in both absolute and percentage terms. For example, for a 5% increase in call termination, all customers will see increases below 1.8%, with many customers perceiving only a 1% increase. This means that even with full pass through and perfect network and price awareness (which are all unlikely to hold perfectly), consumers are required to be very price sensitive in order to constrain a SSNIP in fixed termination rates.

Third, mobile-to-mobile calls are already more expensive and customers are unlikely to respond to an extremely low price increase by buying a significantly more expensive product. The underlying cost of fixed line termination is cheaper than mobile termination, and this means that at competitive prices on-net and off-net mobile-to-mobile calls will be more expensive than mobile-to-fixed calls and off-net fixed-to-fixed calls.

- *Off-net fixed-to-fixed:* The cost of off-net fixed-to-fixed calls is far cheaper than mobile-to-mobile calls (on-net or off-net). For example, the cost of calling Neotel from Telkom is approximately 70c for both peak and off-peak calls.
- *Mobile-to-fixed:* At current prices, off-net mobile-to-mobile prices are in general higher than mobile-to-fixed call rates. The evidence regarding on-net mobile-to-mobile call prices relative to mobile-to-fixed call prices is more mixed, with some being higher and others being less expensive. However, this latter category will only be a smaller pool of the total customer base as it would be an option only to those customers whose mobile network was the same as the mobile network of the called customer (if they have a mobile network). The relevant pool of customers from which switching can occur therefore is far smaller than the total pool. Furthermore, ICASA would expect that given the lower costs of termination on fixed line that in a competitive market (for fixed line termination and mobile retail) the price of on-net mobile-to-mobile calls would be higher than mobile-to-fixed calls. Any current reversal of such a relationship is likely to be an example of the cellophane fallacy.

Finally, calls to mobiles will often be of lower quality calls than calls to fixed lines. Telkom suggests that even if mobile-to-mobile calls are more expensive, customers may switch to them – in response to an increase in mobile-to-fixed calls – because they will be willing to buy the higher quality at the now lower price differential. ICASA does not accept that mobile calls offer a higher quality service, as the quality of call on mobile calls is often far lower than that between fixed lines.

Rather, mobile calls offer an increased functionality in that call can be made at any location (at the cost of higher prices and often lower call quality). In various instances, customers will perceive the switch to mobile as both being more expensive and of lower quality.

It seems highly unlikely that subscribers will switch in substantial numbers to a more expensive product in response to a 1c to 2c increase in price. If termination rates for fixed line were at a competitive level then such an increase would in fact be even smaller making this even less likely.

Conclusion on mobile-to-mobile calls

ICASA therefore finds that mobile-to-mobile calls are unlikely to constrain fixed termination rates to a competitive level.

3.5.7.4.

ON-NET FIXED-TO-FIXED CALLS AS A SUBSTITUTE FOR OFF-NET FIXED-TO-FIXED CALLS

It may be possible for customers to switch from use off-net fixed-to-fixed calls (which are subject to a termination fee) to on-net fixed-to-fixed calls (which are not). However, ICASA considers that consideration of this issue does not warrant expanding the market.

First, the uptake of off-net fixed-to-fixed calls is negligible at the moment. As far as ICASA is aware, most fixed call termination is used by mobile-to-fixed calls. Therefore, substitution away from off-net fixed-to-fixed calls cannot on its own constrain call termination.

Second, it is unclear how users would substitute away from off-net fixed calls to on-net ones. In particular, for this to happen at present, the user would require two fixed lines. Although this may be plausible for large companies using a type of LCR system, this type of system is not at present being used. For residential consumers, paying the rental on two lines seems implausible. In this case, consumers might make use of Carrier Pre-Selection ("CPS") or carrier selection (pre-dialling a code which selects a given operator)⁷⁴. Overall, it is currently very uncertain how CPS/CS will be implemented, whether it will occur within the period of this review, whether it will facilitate selection of an operators based on the network being called, the extent of consumer uptake, and the ultimate impact on competition.

⁷⁴ In many international jurisdictions, CPS itself does not allow for calls be pre-selected on the basis of which network is being called. For example, in the UK, customer could pre-select a carrier for international calls, for national calls, for international and national calls, or for all calls. Carrier selection may form a part of carrier pre-selection in South Africa and this does allow manual selection of operator based on manual identification of network. The large pressure for CPS to be implemented (as opposed to merely CS) is indicative of anticipated customer resistance to dialling a number code before making a call, and this in turn limits the potential for CS to provide an appropriate avenue for increased competition.

Finally, *required switching in response to marginal price increases will have to be extremely high*, even if large business did make use of a fixed routing LCR system or residential users used CPS in order to make on-net calls (as opposed to just long distance calls), ICASA notes that. This is because on-net calls will generally earn the operator greater margin than termination at competitive prices. This issue has been discussed in detail in various sections above.

Conclusion on on-net fixed-to-fixed calls

Overall, off-net fixed-to-fixed calls are a new service, CPS does not yet exist in practice and ICASA is not aware of any LCR least cost routing systems which try avoid off-net fixed-to-fixed calls by making an on-net call. In any event, given the revenue earned on on-net calls, required switching ratios will be very high for these types of services to constrain fixed call termination. ICASA therefore finds that consideration of these issues does not warrant expanding the market. ICASA will reconsider these issues in the next review.

Additional stakeholder comments

No comment from any operator except Neotel.

3.5.7.5.

VOICE OVER INTERNET PROTOCOL

It may be possible for callers to switch calling people using a VOIP system. However, as discussed above under mobile call termination, ICASA considers it highly unlikely that VOIP will constrain fixed line call termination. In particular, the amount of users that will be able to make use of VOIP technology will be extremely low: parties need to be online, have access to the appropriate broadband enabled technology, and actually use it for VOIP services. In addition, quality concerns may be a major issue.⁷⁵ Given the low penetration of ADSL and 3G, as well as the even lower penetration of VOIP usage for making local and national calls (as opposed to international calls), ICASA considers that VOIP is too new a product to constrain fixed line call termination. This issue will be monitored however, and ICASA will reconsider it in future reviews.

3.5.7.6.

JOINT CONSTRAINT

This section considers the possible application of a joint constrain. The table below considers all the alternatives to fixed termination. Black blocks indicate instances where ICASA considers that required switching will be "very high," grey blocks indicate when it is "medium to high" and clear blocks indicate when it is "low." In the right hand column, black blocks also indicate where ICASA considers that expected switching is "very low," grey blocks indicate when it is "medium to low"

⁷⁵ Especially for using VOIP calls as a replacement for local and national calls where users will be less price sensitive than on international calls

and clear blocks indicate where it is high. As can be seen, for all potential alternatives, either expected switching is very low, required switching is very high or both. Overall, ICASA does not believe that the joint constraints of the retail switching options offer a sufficient constraint on a SSNIP for termination rates for the following reasons:

From	Potential substitute	Expected switching	Required switching
Mobile-to-fixed	Off-net fixed-to-fixed	Very low, small price increases	Makes no difference to termination provider
	On-net fixed-to-fixed		Very high, may always be profitable
	Off-net mobile-to-mobile	Very low, small price increases and substitute products are more expensive	Low, fixed operator earns no margin
	On-net mobile-to-mobile		
Off-net fixed-to-fixed	On-net mobile-to-mobile	Low, need to be on two networks, CPS not functional	Very high, may always be profitable
	Off-net mobile-to-mobile		
Mobile-to-fixed or off-net fixed-to-fixed	VOIP	Very low, based on low penetration	Low, but fixed operator continues to earn some margin

Table 17. Can retail alternatives provide a joint constraint to fixed line call termination?
Source: Various

First, expected switching ratios will likely be low due to, among other factors, a) extremely small percentage price increases in final prices on the basis that termination is an input only into final prices, b) the fact that alternatives are often more expensive c) large functional, quality and price differences.

Second, required switching ratios are for the most part very high and in some cases no amount of switching will reduce the profitability of a SSNIP in termination rates because the termination provider earns more margin from the potential substitute product.

Third, the evidence on the level and trend in termination rates suggests that these factors have not jointly constrained termination rates to a competitive level. Despite the existence of these alternatives, termination rates rose significantly over a short period post 2004. Further, evidence cited below demonstrate that current termination rates are in fact above cost. Therefore any switching that in fact is present is largely influenced by the cellophane fallacy.

3.6.

RETAIL SUPPLY-SIDE SUBSTITUTION

Supply-side substitution occurs when it is likely that in response to a price increase in call termination, alternative suppliers would quickly enter the market to provide a substitute product and thereby constrain the price increase.

The competitive dynamics outlined in the demand-side analysis above reveal that the reason for a lack of demand-side substitutes is not because of a complete absence of alternative providers in the retail market, but rather because of the indirect nature of retail substitution which makes it less constraining on providers of wholesale call termination. The potential entry of additional retail services would not change the nature of these underlying dynamics nor add significant additional retail alternatives in the immediate future. ICASA therefore finds that any potential entrants into the retail space would be insufficient to broaden the market beyond call termination on each network.

Additional stakeholder comments

All stakeholders explicitly agreed that sufficient retail supply-side substitutes did not exist, or did not comment. Although Telkom agreed with ICASA's conclusions, Telkom raised for consideration, call-back and VOIP, as "at this stage the development of VoIP is unclear and could constrain fixed and mobile termination rates in the near future."⁷⁶ To the extent these are possible demand-side substitutes or, in the case of VOIP, wholesale supply-side substitutes, ICASA has dealt with them under the relevant sections and has identified no additional dynamics for consideration from a supply-side perspective *at the retail level*. If there are technological or market developments that change this, these will be considered in future reviews.

Expansion of Neotel: Regarding fixed line termination specifically Telkom also claimed that Neotel's entry constitutes the most immediate retail constraint. In this regard it was argued that, "Neotel is expected to achieve 10% market share within 4 years. If Telkom tried to increase its termination charges, this might prompt sufficient incentive for Neotel to further expand its presence, at least in some areas in South Africa."⁷⁷ To the extent this is relevant to retail demand-side substitution it is discussed in the relevant section. It is also not apparent that the entry of Neotel may act as a greater constraint on Telkom to raise prices for call termination. To the contrary, high termination will likely discourage new entrants as it raises the cost faced by consumers joining their network since it will cost more to call Telkom who, by their own estimation, will continue to hold over 90% of the market in the foreseeable future. Therefore such entry is unlikely to constrain. Moreover, in relation to supply-side substitution the stakeholder (Telkom) explicitly agreed with ICASA by stating: "Telkom agrees with the Authority's view that there are no retail

⁷⁶ Telkom submission, p. 19.

⁷⁷ *Ibid*, p. 33.

supply-side substitutes in the present termination market as the CPP arrangement ensures that the party purchasing termination is not the same party who chooses the mobile network on which that call is terminated.⁷⁸ This CPP arrangement applies equally to their network as to others.

3.7. COMMON PRICING CONSTRAINTS AND BUNDLING

The analysis above indicates that there is no demand-side or supply-side substitute that sufficiently constrains the pricing of call termination to individual subscribers (or numbers) by the network that holds those numbers. Due to the existence of a common pricing constraint across call termination to all of an operator's subscribers, the relevant market can be broadened to call termination to all subscribers on a particular network. Specifically, call termination agreements currently cover all subscribers on a network and are not determined separately for individual subscribers. There is no apparent reason why this would change in the future. Pressure to reduce to price to one group of subscribers would therefore feed through to all subscribers and hence the appropriate product market is call termination on individual operator networks.

In relation to mobile, SMS termination is not considered to be in the same market as voice call termination. At a retail level, these services are bundled together – that is, when a consumer chooses a mobile network, they are generally sold call and SMS services as a bundle. However, when operators sell their termination services, they take into account the total demand for each of these services separately and in turn set different termination prices for SMSs and voice calls. For this reason, SMS and call termination are considered as constituting separate markets. Furthermore, the analysis does not change in consideration of which technology is used to terminate a call (for instance, 2G or 3G technology in mobile and copper or fixed-wireless for non-mobile technologies).

Additional stakeholder comments

All operators agreed that there is a common pricing constraint, or did not comment and therefore the market is broader than the individual subscriber and included all subscribers on a network.

3.8. GEOGRAPHIC MARKET FOR CALL TERMINATION

Numbering used in communications may convey information about the distinct geographic area of the called party (such as the current fixed line numbers), or it may not convey any information about the specific location of the called party (for instance a mobile number). We deal with each separately.

⁷⁸ *Ibid.*, p. 28

Network numbering that conveys a geographic location: In cases where a specific geographic location is conveyed by the number, operators may usually choose the point of interconnection with the terminating network. This may be at a local terminating point close to the called subscriber or some distance away. In such cases the terminating network will usually offer what is commonly referred to as local and national termination rates, or a blend of the two. This market review is only concerned with the local call termination for networks with numbering that conveys the geographic location of the called party. The reason for this is that national call termination in these cases is essentially comprised of two products, namely local call termination and national call conveyance. In these circumstances the network of the calling party can make an informed decision as to whether to conduct the national call conveyance themselves or not, depending on the difference in rates between local call termination and national call termination rates quoted. To the extent that national call conveyance is not a competitive market, this will be dealt with under a separate market review for national call conveyance.

The review of the geographic extent of the market is therefore only concerned with local call termination by networks with geographic-specific numbering. **ICASA finds that for operators with geographic-specific numbering, they do not charge different local termination rates for terminating in different local geographic areas. It appears as if there are common pricing constraints for local termination rates and therefore a common national price for local termination on these networks.** The geographic scope of the market is therefore a national market for local call termination on each operator's network. To the extent that a particular network in question is not national in scope (such as USAL networks), the definition still applies as it relates to the full national extent of the terminating network.

Network numbering that does not convey a geographic location: In cases where a specific geographic location is not conveyed by the number on the network, operators of calling parties will choose to interconnect with the terminating network at the nearest possible point in order to minimise their own costs. As such, a single termination rate is usually offered which includes an allocation for average call conveyance within the network in order to locate the called party. It is this single termination rate that this market review refers to for these networks.

ICASA finds that for operators with non-geographic-specific numbering that they too do not differentiate prices to terminate calls depending on either the geographic location of the point of hand-over to their network, or the eventual geographic location that the called party. As such, common pricing constraints apply in relation to the geographic aspects of call termination on their networks. The geographic scope of the market is therefore a national market for call termination on each operator's network.

Additional stakeholder comments

Different competitive conditions in different locations: Telkom suggested that ICASA give the issue further consideration, because different geographic areas will have different competitive conditions and therefore distinct geographic markets should be defined. First, the extent of differing competitive conditions referred to were at the retail and not wholesale termination level. Second, the practice of a single price applied nationally for local call termination suggests that whilst local competitive conditions at the retail level may differ to some extent by geographic location, these do not translate into different local call termination rates by location. As such, it is not appropriate to define different geographic markets for local call termination.

Separate call termination for under serviced areas: The Competition Commission broadly agreed with ICASA's market definition but suggested that there may be a distinct termination rate for under-serviced areas where CST phones were found. Given that CST termination rates apply to a specific product, termination rates are not a geographically separate market but rather are a separate product market. For instance, a mobile subscriber receiving a call from within what is technically under serviced area will command the standard termination fee, whilst a called party located outside an under serviced area but called from a CST phone, will command the CST termination rate.

Small regional networks: Other stakeholders (USALOF, Neotel) suggested geographic definitions may be narrower if USAL services are taken into account as these only operate in a single geographic area and are not national. As discussed above, the fact they only operate in certain areas is not significant: the point about a "national" market is not that all operators operate in all areas, but rather that operators will charge a single termination price, regardless of how many areas they operate.

3.9.

NON-TRANSITORY ENTRY BARRIERS AND OTHER DYNAMICS

Section 67(6)(a) of the ECA states: "When defining the relevant market or market segments the Authority must consider the non-transitory (structural, legal, or regulatory) entry barriers to the applicable markets or market segments and the dynamic character and functioning of the subject markets or market segments." To the extent these aspects are not covered above, they are dealt with in this section.

3.9.1.

NON-TRANSITORY ENTRY BARRIERS

Entry barriers are relevant to the definition of the relevant market insofar as they affect supply-side substitution in the future. ICASA has explicitly considered such

barriers in the analysis above insofar as there exist technological constraints on alternative suppliers offering termination on another provider's network.

3.9.2.

DYNAMIC FUNCTIONING OF MARKET: WATERBED EFFECTS

Various stakeholders noted what has been called a "waterbed effect." These stakeholders argued that if profits are increased at a wholesale level, they may be competed away at the retail level – such that overall profits would have been what they were before the price increase at the wholesale level. This also implies that some prices might decrease at the retail level in response to increase prices at the wholesale level.

Whilst ICASA does not accept that the waterbed operates perfectly in less competitive retail markets such as South Africa, it is still important to determine whether the waterbed effect does impact on market definition to the extent it does operate. In this regard, ICASA notes that the primary argument of relevance would be that the waterbed effect means that termination and outgoing calls are "two sides" of a single market. ICASA notes that no stakeholders have provided substantial reasons as to why general linkages between wholesale and retail markets means that they should be defined as the same market. Just because overall competition will be based on dynamics in both markets does not mean that they form a single competitive market. Even if retail services were fully competitive, this would not in any way mean that wholesale call termination would also be competitive. In particular, each mobile operator would still be the only supplier of call termination on their network, and callers would not be able to switch to constraining substitutes as discussed in detail above. Therefore, it is possible that the retail market could be very competitive, and wholesale termination could remain uncompetitive, with providers being able to drive prices above cost. This position was also concluded by Ofcom in their more recent finding on termination rates,⁷⁹ as well as by other regulators and competition authorities.⁸⁰

As accepted by Vodacom, the waterbed effect is mostly relevant in the context of appropriate pro-competitive regulation as raised in the consultation document. In this regard, ICASA will consider the welfare benefits of including an externality charge in any regulatory phase to take account of the potential benefit that callers get when more people join the mobile networks, and in consideration of low income mobile users who make limited outgoing calls. However, ICASA does wish to signal at this stage that the waterbed effect will not necessarily hold perfectly in imperfectly competitive markets. This is because an increase in marginal revenue per subscriber (based on say, an increase in fixed-to-mobile termination) will not mean that retail prices will decrease in proportion. In imperfectly competitive markets marginal revenue does not equal marginal cost, and increases in marginal

⁷⁹ OFCOM (27 March 2007) Mobile Call Termination Statement, p. 47

⁸⁰ See for example The Australian Competition and Consumer Commission (ACCC) (June 2004) "Mobile service review: mobile terminating access" p.46.

revenue will only be partially competed away⁸¹. ICASA notes that the mobile retail market is unlikely to be fully competitive. In fact, the market shares of leading operators are extremely large as are overall concentration ratios (the HHI is over 4500). This significantly reduces the impact of the waterbed effect in the South African context.

3.10.

MARKETS DEFINED BY ICASA

ICASA now sets out its findings in this document.

Market definition. In section 2, ICASA sets out its findings on market definition. Having considered potential demand-side and supply-side substitutes at the wholesale and retail level, ICASA identifies separate markets which - for each Electronic Communication Service (ECS) or Electronic Communication Network Service (ECNS) provider - are defined as:

wholesale call termination on an ECS or ECNS provider's set of allocated numbers from the national numbering plan (including those that have been gained through porting), where each market is national in scope

These markets are also referred to as:

wholesale call termination on a service provider's network, where each market is national in scope

In this context, the word "network" does not refer to a physical communication facility or to a system that can only be provided by an ECNS provider. Rather it refers to the logical "network layer," which may be built on top of the physical communication facilities offered by ECNS providers. The ECNS or ECS provider uses this network layer to provide electronic communications to its customers. In particular, the provider issues numbers to each individual customer which are dialled when calling those customers. The following markets have therefore been explicitly identified:

- Wholesale call termination on Vodacom's network in South Africa
- Wholesale call termination on MTN's network in South Africa
- Wholesale call termination on Cell C's network in South Africa
- Wholesale call termination on Telkom's network in South Africa
- Wholesale call termination on Neotel's network in South Africa
- Wholesale call termination on all other ECNS providers' networks in South Africa, so long as they provide call termination on their networks. This will include call termination on USAL networks. Wholesale call termination on all other ECS providers' networks in South Africa, so long as they are in a position to set call termination rates on their networks. This will include call termination on VOIP networks.

⁸¹ See for example the paper quoted by Vodacom: CRA International (January 2006) "The 'waterbed effect' in mobile telephony: Competition Policy Discussion Paper". See also the authors quoted extensively by MTN: Frontier Economics (July 2005) "The waterbed effect: A report prepared for Vodafone"