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GENERAL NOTICE

NOTICE 2490 OF 2004

NOTICE IN TERMS OF SECTION 27 OF THE TELECOMMUNICATIONS ACT, NO. 103 OF 1996 ("THE ACT") READ WITH SECTION 96 OF THE ACT INVITING REPRESENTATIONS WITH REGARD TO THE REVIEW OF TELKOM'S PRICE CONTROL.

The Independent Communications Authority of South Africa ("the Authority") hereby provides notice and invites comment on the review of Telkom's Price Control under section 27 read with section 96 (4), and section 45, of the Telecommunications Act No. 103 of 1996, as amended.

Interested persons are hereby invited to submit written representations, including an electronic version of representation in Microsoft Word, of their views on the Review of Price Control in Public Switched Telecommunications Services by Tuesday, 7 December 2004.

Persons making representations are further invited to indicate whether they are requesting an opportunity to make oral representations (and the estimated duration thereof, which duration shall not exceed one hour).

Please forward your written comments to:

Rossana Achterberg

Manager: Policy Analysis & Development

ICASA, Private Bag X1, Marlboro, 2063; or

ICASA, Block B, Pill Mill Farm, 164 Katherine Street, Sandton, Gauteng.

Where possible, written representations should also be emailed to RAachterberg@icasa.org.za and copied to LKunene@icasa.org.za

All written representations submitted to the Authority pursuant to this notice shall be made available for inspection by interested persons from Thursday 9 December 2004 on the ICASA Website and at the ICASA Library and copies of such representations and documents will be obtainable on payment of a fee.

At the request of any person who submits a written representation or document pursuant to this notice, the Authority may determine whether such representation or document, or portion thereof, relates to the financial capacity or business plan of any person, or to any other matter reasonably justifying confidentiality, in which event such representation or document shall not be made available for inspection by members of public. If the request for non-disclosure to public is refused, the person making the request will be allowed to withdraw the representation or document in question.

With respect to the documentation determined not to be open to public inspection as aforementioned in paragraph above, the Authority may direct that the public or any member or category thereof, shall not be present during the oral submission relating to such documentation; provided that those present shall have been notified of this intention, allowed to object thereto and after such objections had been considered by the Authority.

In order to provide for a wider basis for representations to be made during the enquiry, the Authority has compiled questions that are pertinent to this issue.

These questions have been incorporated into the annexure hereto titled "Discussion Document – 2004 Price Control Review" (hereinafter referred to simply as the "Discussion Document").

Representations may address any relevant issue, whether or not such issues have been raised in the Discussion Document.

The findings, recommendations and conclusions by the Authority following public comment, will be published in the Government Gazette in accordance with sections 27 read with section 96 of the Act.

ICASA has taken all reasonable steps to ensure that the information contained herein has been obtained from reliable sources and that this consultation document is accurate in all respects.

ICASA has been assisted on the Price Control Review by a panel of experts contracted by Adam Smith International Ltd (ASI). The experts have advised ICASA in their own capacity and not as representatives of particular organisations. The panel consists of three advisors:

Bill Wigglesworth – Former Acting Director General OFTEL.

Dr Chris Doyle - Senior Research Fellow, Centre for Management under Regulation, Warwick Business School, University of Warwick.

Max Kelsey – Independent Consultant, Regulatory Costing Expert.

2004 PRICE CONTROL REVIEW**DRAFT CONSULTATION DOCUMENT****CONTENTS****Page****Introduction and background to review****5**

Need for the review

9

Procedure for amending the rate regime

9

Legislative and policy considerations

10

Current rate regime

11

Telkom's performance

Price movements under price control

12

Cumulative price change

13

International price comparisons

13

Telkom's financial results

15

Regulatory accounts

16

Efficiency

17

Quality of service

18

Telkom's prospects

Investment

19

Impact of competition

19

Cost of capital

20

Return on capital employed

21

Acceptable rate of return

22

Future price control regime

Need for and coverage of price controls

24

Permitted individual price increase of 5% per year

24

Calls to mobile handsets

25

Change to services basket

27

Form of the price cap

28

Appropriate Index

28

Application of CPI

29

Time period

30

Volume changes

30

Setting of price controls

31

Processing of information available

31

Key assumptions

31

Level of X

33

Timing of application of controls

33

Impact on customers	33
Information for consumers	33
Summary of proposals	34
Annex A	36
<i>Table 1: Summary of price changes 2001 to 2004</i>	
Annex B	38
<i>Technical Annex</i>	

Introduction and background to the review

Introduction

1.1. The Independent Communications Authority of South Africa (ICASA) is publishing this consultation document as a follow up and a review of the first price control review that it initiated in 2000.

1.2. The eventual outcome of the price control review initiated in 2000 was contained in the Price Control Regulations published in October 2002, which have been in effective operation since 1 January 2003. At the time of that review, ICASA did not have available to it management accounting information concerning the costs of the different regulated telecommunications services provided by Telkom SA (Telkom). "As a result, much of the assessments contained in the review could not be based on evidence of costs and consequently had to be based on broad general principles."

1.3. Management accounting information on Telkom's operations is now available to ICASA. Telkom submitted audited management accounting information on its fixed network operations to ICASA, in the form of regulatory accounting statements, in accordance with its obligations under its Chart of Accounts and Cost Allocation Manual (COA/CAM), on 30 September 2004. In the light of this new information, and in accordance with the undertaking contained in the notice issuing the current regulations in 2002, ICASA is now reviewing the existing level of price controls that apply to the public fixed telecommunications network and is publishing its initial proposals for amendment to those controls in this document

Background to the review

Regulatory arrangements

2.1. On its establishment in July 2000, ICASA inherited responsibility from its predecessor, the South Africa Telecommunications Regulatory Authority (SATRA), for the regulatory regime governing the prices charged by Telkom for public switched telecommunications services in South Africa. The relevant regulatory rules are contained in the licence issued to Telkom on 7 May 1997 and in the Ministerial Directive on Fees and Charges for Telecommunications Services (Notice 772 of 1997, 7 May 1997).

2.2. In accordance with the powers under Section 45 of the Telecommunications Act 103 of 1996, as amended (the 1996 Act), ICASA is charged with the drafting of price control regulations where either no competition or else insufficient competition exists. Following a due process of public consultation, the draft regulations are required to be approved by the Minister before they can come into effect (Section 96 of the 1996 Act).

Market developments

2.3. Since the 2000-01 review, the telecommunications sector in South Africa has been subject to considerable change and the rate of change is now accelerating. Telkom's exclusive rights to provide voice services over fixed networks formally ended in May 2002, as did its obligation to provide 2.7 million new working fixed telephone lines by that date. Telkom was privatised with an international public offering in March 2003. The Government retains a 38.3 shareholding in the company.

2.4. Since the ending of Telkom's statutory monopoly, however, implementation of Government plans to licence a Second National Operator (SNO) have taken longer than expected and it is likely to be some time before its operations have a significant effect on the sector. In addition to approving the licensing of the SNO, the Government has issued a carrier's carrier licence to Sentech to provide international and multi-media services and has begun to issue licences to new operators in under-serviced areas (the USALs). However, in practice, Telkom has so far, for the most part retained its effective monopoly status in fixed network operation for voice services.

2.5. Meanwhile, the mobile sector has grown even more rapidly than expected in 2000-01. The number of mobile network operators was increased to three in 2001 with the licensing of Cell C. At that time there were 10.5 million subscribers of the then two mobile networks. In March 2004, on the basis of the reported number of customers on Vodacom's and MTN's networks, and the estimated numbers of customers on Cell C's network, it was estimated that there were 18.1 million mobile customers in total¹. Mobile penetration was estimated at 39%².

2.6. The number of mobile subscribers exceeds the fixed line subscribers by more than threefold, and the revenue generated in the mobile sector exceeds that generated in Telkom's fixed line business.³

2.7. Recently, in common with many other countries, growth in the number of fixed lines has slightly fallen as some users have, presumably, substituted fixed voice telephony services with mobile voice telephony services. Telkom's total number of fixed lines declined from 4.924 million at March 2002 to 4.821 million at March 2004, a decrease of just over 2%⁴.

¹ Telkom Form 20-F, filed with the United States Securities and Exchange Commission, 25 June 2004, page 76.

² Ibid. page 110.

³ ICASA – MCTS Obligation Reports 2003

⁴ Telkom Form 20-F, filed with the United States Securities and Exchange Commission, 25 June 2004, page 49.

Changing technology

2.8. In addition to the rapid spread of GSM technology for mobile operation, the sector has also seen the extensive deployment of new technology for other purposes. Considerable modernisation of Telkom's fixed network has taken place, following completion of the digitalisation of its switching, with improvement of the resilience of the transmission network, through the creation of an synchronous digital hierarchical (SDH) and wave division-multiplexing (WDM) network. An asynchronous transfer mode (ATM) network has been rolled out to deliver broadband services to corporate and global customers and asynchronous digital subscriber line (ADSL) access technology was introduced in 2002 and was serving 20,313 customers at the end of March 2004. A voice over Internet protocol (VoIP) network terminates calls from international carriers and was providing voice services to over ten African countries in March 2004⁵. The above technologies and services are also likely to be deployed by new competitors entering the South African market.

Policy developments

2.9. The Government's own policy agenda for the sector has developed, with the 2001 White Paper and the subsequent passage of the 2001 amending Act⁶. These charted the way for development of the sector after the ending of Telkom's period of voice services exclusivity and provided for implementation of the changes. Among the measures provided for were:

- Managed liberalisation of the sector, through the licensing of the SNO, the licensing of Sentech to provide international and multi-media services and the introduction in 2005 of at least one service-based competitor to Telkom and the SNO.
- Convergence and technological development of the sector through allowing Telkom and the SNO to use wireless in their operations.
- Stimulation of SMME involvement through the introduction of under serviced area licences (USALS) in areas where teledensity had been identified at below 5%.
- Assignment of 1,800 MHz Radio frequency spectrum and 3G licences to Telkom, the SNO, Vodacom, MTN and Cell C in a non-discriminatory manner.

2.10. Secondly, convergence and technological development of the sector through allowing Telkom and the SNO to use wireless in their operations. Thirdly, stimulation of SMME involvement through the introduction of under serviced area licences (USALS) in areas where teledensity had been identified at below 5%. Fourthly, assignment of 1,800 MHz Radio frequency spectrum and 3G licences to Telkom, the SNO, Vodacom, MTN and Cell C in a non-

⁵ Telkom 20-F, pp 68-9

⁶ No 64 of 2001

discriminatory manner. And, fifthly, introduction of number portability and carrier pre-selection by 2005 in order to facilitate network competition.

Convergence

2.11. In furtherance of this policy, the Government has launched a legislative initiative to recast the authorisation structure for the telecommunications sector taking account of the growth of convergence between telecommunications, computing and broadcasting. The outline proposals have been discussed with stakeholders in the sector and draft legislation has been prepared.

2.12. The main impact of this convergence legislation would be to move from a vertical structure of licensing for companies in the sector to a horizontal licensing structure. As proposed, this would consist of four types of licences relating to network facilities, network services, applications and content. Each network licensee would be free to use any technology available, instead of being limited to one particular form of fixed or mobile technology. Each service licensee would be able to use any network to deliver its service, without limitation as to the type of service beyond the functional limits described.

2.13. This proposed legislation would be likely to have a major impact on the market in ways that are difficult to foresee. Competition, particularly at the services level, would be likely to increase markedly. The main effect would likely be the stimulation of the services market. Telkom could be expected to lose market share in advanced services. Despite the expected increase in competition over the period of the next price review, ICASA believes that Telkom's total revenue will not decline as the total market for telephony services is expected to grow as prices decline and quality of service improves.

Further liberalisation moves

2.14. More recently still, on 2 September 2004, the Minister of Communications has announced a series of moves to increase competition, which are mostly due to be brought into effect on 1 February 2005 (Ministerial Determinations). These will include greater choice for mobile operators in the provision of network facilities; more competition in the provision of public payphones; liberalisation of the provision of voice valued added services (VANS), including voice using any protocol; flexibility in the use of facilities for VANS; and the reselling of capacity on private telecommunications networks to allow optimisation of their use.

2.15. These measures can be expected to have a significant impact on the sector generally, and on business users in particular, through increasing user choice. There is likely to be downward pressure on prices, particularly prices for international services, which will be particularly welcome to users. Adverse effects on Telkom's revenue are likely to be largely, if not entirely, offset by accelerated market growth.

Timing of the review

2.16. The review therefore takes place against a background of rapid change in the sector as a whole and with a number of market and policy developments underway. These create a large number of uncertainties in terms of the likely impact on Telkom's business and its ability to improve its overall level of efficiency. ICASA does not consider that the review should be delayed on this account, but we are conscious of the need to consider and weigh these uncertainties carefully in deciding the outcome of the review.

Need for the review

3.1. As noted above, the fixed network is now much smaller than the mobile sector, in terms of numbers of customers, and is also smaller than the mobile sector in terms of operating revenue. It is also subject to a degree of substitutability from low volume users opting to transfer their full usage to mobile because the pre-paid mobile tariff results in a smaller monthly bill. It could be argued from this that price control, though possibly still legally applicable to fixed network prices, is not actually necessary.

3.2. However, as also noted above, the fixed network in South Africa remains a *de facto* monopoly for most users in South Africa. So far, at least, the threat that more users may choose to transfer to mobile for all their telephone use is not, in ICASA's view, at current rates of change, a sufficient disincentive to price increases by Telkom to render price control unnecessary. It does not provide sufficient protection from price increases for users, particularly average residential users or small business users, who have little or no effective buying power in face of the market power of Telkom.

3.3. ICASA has accordingly concluded that, in view of the availability for the first time of detailed information on costs, a review of the existing level of price control is justified at the present time and that the period during which a measure of price control will be needed can be expected to extend for some years to come.

Procedure for amending the rate regime

4.1. The procedure for amending the current Rate Regime is laid down in Sections 45 and 96 of the Telecommunications Act 1996, as amended, and in Condition 7 of the Telkom licence.

4.2. Section 45(2) of the Act provides that the manner of determining fees and charges shall be prescribed only in respect of fields where no or insufficient competition exists.

4.3. The provisions of any amended Rate Regime are to be included in regulations made by ICASA under Section 96 of the Act, as amended. This requires the Authority to publish in the Government Gazette, at least one month before any regulation is made, the text of the proposed regulation and a notice declaring its intention to make that regulation. During the period of one month all

interested parties will have an opportunity to comment or make representations on the proposed regulations.

4.4. The regulations then have to be approved and published in the gazette by the minister, under Section 96(6) of the Act.

Consultation programme

4.5. In accordance with these provisions, ICASA is publishing this consultation document and accompanying draft regulations, following some informal discussions with interested parties, and is inviting anyone with an interest to comment on any issues or assumptions included in this document in writing to ICASA on any issue arising from the document.

4.6. ICASA will then hold public hearings on the proposals in the document.

4.7. After considering all submissions, ICASA will forward the revised regulations to the Minister for approval and publication.

Due dates

4.8. The due dates in the programme will be as follows:

Publication of consultation document	[8 November 2004]
Written submissions due	[7 December 2004]
Public hearings	[13 & 14 December 2004]
Revised regulations to Minister	[3 January 2005]
Regulations made	[15 January 2005]

Legislative and policy considerations

Government policy

5.1. Government policy, since the imposition of price control in 1997, has been in favour of the price cap method of price control and in favour of balancing the provision of best value for business users with the extension of affordable services to previously disadvantaged communities. In the post fixed network monopoly environment, as noted above, the emphasis has been increasingly on the encouragement of competition to meet the first objective and on the adoption of specific measures to ensure affordable universal service for poorly served communities on a competitively neutral basis.

Price control policy

5.2. The central purpose of price cap control is to provide strong incentives for the management of the regulated company to improve the company's performance, while competitive pressures are not yet sufficient to do so. This is

done by setting a target for efficiency improvement, beyond which, if the company exceeds the target, it will be able to retain any extra profit generated. Users gain the assurance that prices will go down in real terms, after allowing for the effect of inflation, and that the operator will share the benefits of improved efficiency, mostly in the form of lower prices. ICASA is in full agreement with this concept, which has been widely applied in many countries and has generally proved most successful.

Objectives of review

5.3 ICASA's objectives in carrying out the current review are to:

- Re-assess the value of "X" in the price control formula, which sets the efficiency improvement target for Telkom;
- Determine the scope of services to be included in the price control basket, the "basket services", and
- Evaluate the appropriate duration over which the price cap is to be applied.

5.4. The above objectives have been pursued in the light of the additional audited management accounting information available to ICASA. A key concern in achieving the above objectives is how far, if at all, the current circumstances of Telkom justify requiring the company to share more of the benefits of improved efficiency with users in the form of lower prices and higher quality services.

5.5. The review also creates an opportunity to consider changes to other aspects of the current regime, where these may appear to need improvement.

Current rate regime

6.1. The current rate regime is set out in the price control regulations that were published in the Government Gazette on 24 October 2002. Telkom is required to reduce the average level of its prices for a specified "basket" of services each year by 1.5 % below the level of inflation, as measured by the Consumer Price Index (CPI).

6.2. The general basket of services accounts in total for approximately 80% of Telkom's fixed network revenue. In addition, there is a more narrowly specified sub-basket of residential services in respect of which Telkom must also reduce its average prices by a specified percentage below the level of inflation each year. At present the percentage specified for this sub-basket is the same as for the general basket. But if conditions in the residential market were to differ substantially, for example in the degree of user protection afforded by competition, the level could be amended appropriately.

6.3. The average price level is a weighted average derived from the sum of the revenue from each tariff item in the previous financial year. The level of CPI to be applied is taken from the most recently published measurement of CPI at the time the tariff filing is being prepared. The resulting system of control is mathematically simple and straightforward to apply (see technical annex (B)).

6.4. A further safeguard against undue increases in individual prices is provided by the requirement that individual prices cannot be increased by more than 5 % above the rate of CPI, except in exceptional circumstances by agreement with ICASA.

6.5. There is also a provision for the carryover of any unused part of the allowed adjustment to take account of inflation into the next year. Such a delay in catching up with inflation, where it does occur, in effect benefits users, since an upwards price adjustment delayed is, in effect, a price reduced for the time being.

Telkom's performance

Price movements under price control

7.1. Table 1 reproduced in Annex A summarises the movements in Telkom's prices since the last price control review in 2000-01. Although the implementation of the revised regulations stemming from that review was delayed, effectively until 1 January 2003, the eventual rate of X approved by the Minister remained at 1.5% below the rate of inflation (as measured by CPI). So the new regulations did not materially alter the extent to which Telkom's average prices were reduced each year in real terms (see Annex A for Table 1).

7.2. As can be seen from Table 1, there has been a significant reduction in the price of domestic telephone calls for residential customers in the greater than 50km radius of over 19% in peak time and over 25% in callmore time in real terms (i.e. after allowing for inflation). Business telephone calls in the 0-50km radius have, however, increased by 19% in real terms. Before 2001, both residential and business local and national rental charges were charged at the same prices but from 2002 business subscriber rental charges increased slightly relative to residential rates for the same services.

7.3. The most significant price increases were in the public payphones calls services where prices increased by over 55% in the 0-50km radius during peak times and 35% during off-peak. In the greater than 50km range, prices have increased by over 120% in real terms during peak times and by over 134.41% in off peak times. Public payphones are, however, a special case since they remain a heavy loss-making service for Telkom. Similarly, calls to mobile have increased by over 30% in real terms over this period, in response to changed terms between Telkom and the mobile operators. Local calls, rentals and connection charges increased in real terms.

7.4. The overall position is that average telecommunications prices in the price control basket have reduced in real terms and as a consequence this has benefited the economy. However, the benefit, in terms of reduced telephone bills, will have been most noticeable to large, mainly business users and those making long distance calls on a significant scale.

Cumulative price change

7.5. In cumulative terms, Telkom achieved a reduction of average prices over four years of 6% in real terms (after taking account of inflation), slightly more than required by the current price control regulations. It is accordingly worth emphasising that, contrary to the impression that may be created by announcements of price increases to keep pace with inflation; Telkom has continued to lower its average prices in real terms and has therefore contributed to the control of inflation.

International price comparisons

8.1. Tables 2 and 3 provide some broad indications of how Telkom's current tariff compares with prices for telecommunications services in a selection of other countries, in Africa and elsewhere.

8.2. Exact comparisons across national boundaries are almost impossible because of the different circumstances involved. The topography of networks and the size of local call charge areas tend to differ markedly between countries, even with similar geography and at similar stages of economic development. The distribution of network usage, in terms of time and geography, also tends to differ. As a result, the comparison of a single type of call of similar length does not tell us much about the actual level of prices on a strictly comparable basis.

8.3. If such comparisons are based on currency conversion levels, they can be even more misleading, due to the fluctuation of currency changes and the varying relationship between them and effective price levels in the countries concerned.

8.4. As a result, effective comparisons, such as those, for example, made by the statistical committee of the OECD, are normally based on baskets of services representing users' overall telecommunications experience with price levels compared on the basis of purchasing power parity (i.e. what a given amount of money will actually buy in each country, rather than what happens to be the current currency conversion level). Unfortunately, such information is not generally available for many countries unless special surveys are carried out.

8.5. ICASA has accordingly confined itself to a very broad general survey of telecommunications prices between the countries selected. The limitations of this approach should however be recognised.

Table 2: Telecommunications Prices in Africa (2002)

Service	Angola	Botswana	Ghana	Malawi	Mauritius	Morocco
Connection-Residential	46.00	36.00	50.00	16.00	33.00	54.00
Connection-Business	112.00	36.00	50.00	16.00	67.00	109.00
Peak Local Call - 3 minute (US\$)	0.09	0.02	0.03	0.06	0.04	0.15
Off-Peak local call - 3minutes (Local currency)	3.00	0.08	N/A	3.00	3.00	1.33
Residential Rental	5.74	2.53	1.26	1.30	2.50	7.62
Business Rental	11.20	3.00	1.26	1.30	7.01	10.89
	SA	Mozambique	Namibia	Swaziland	Zambia	Zimbabwe
Connection-Residential	23.00	21.00	25.00	19.00	11.00	4.00
Connection-Business	23.00	21.00	25.00	32.00	34.00	8.00
Peak Local Call - 3 minute (US\$)	0.49	0.08	0.03	0.04	0.09	0.01
Off-Peak local call - 3minutes (Local currency)	0.60	N/A	N/A	0.2	200	13.5
Residential Rental	6.40	9.49	4.07	1.2	1.14	1.38
Business Rental	8.50	9.49	4.53	2.49	2.49	0.54

Source: ITU Indicators, ICASA

8.6. In the case of these tables it is evident that, subject to the limitations noted above, prices charged by Telkom compare reasonably well with those for similar services in other countries. Generally, the price levels in South Africa are appreciably below most of those charged elsewhere in Africa.

Table 3: International Telecommunication Prices

Service	Chile	Ireland	Mexico	South Africa	Peru
Residential Rental	9.22	21.22	16.76	6.40	14.49
Business Rental	9.22	21.22	21.20	8.50	15.92
Peak Local Call - 3 minute(US\$)	0.1	0.14	0.16	0.09	0.08
Off-Peak local call - 3minutes (Local currency)	12.00	0.04	0.04	1.18	0.13
	Poland	Spain	Turkey	United Kingdom	
Residential Rental	8.56	11.08	4.18	14.48	
Business Rental	8.56	11.02	2.49	24.06	
Peak Local Call - 3 minute(US\$)		0.07	0.13	0.18	
Off-Peak local call - 3minutes (Local currency)			0.13	0.05	

Source: ITU Indicators, ICASA

8.7. Price comparisons with a broader range of countries outside Africa are more complex. Telkom scores well in respect of prices for connection and rentals (standing charge) in respect of which Telkom has kept prices down in order, so far as possible, to maintain the affordability of fixed network connection. Usage charges, on the other hand, particularly charges for international services, are understandably not as low as in countries with more competitive telecommunications sectors. This can be expected to be corrected in due course, as the telecommunications sector in South Africa becomes more competitive. Until then, users will have to rely on regulation for protection from inefficiently high prices.

Telkom's financial results

9.1. During the period 2001 to 2004 Telkom has strongly improved its financial position, as can be seen from Table 4.

Table 4: Telkom's Financial Results

Year ending 31 March (R'000)	2001	2002	2003	2004
Operating revenue	R 31,243	R 34,807	R 37,507	R 40,795
Operating profit	R 4,984	R 4,191	R 6,514	R 9,088
Operating Profit Margin	15.95%	12.30%	17.40%	22.30%
Net Profit	R 1,622	R 1,221	R 1,630	R 4,523
ROCE	12.3%	7.1%	13.4%	19.4%

Source: Telkom annual accounts and Telkom

9.2. As can be seen above, Telkom has recorded strong growth in its operating revenue and improvement in its profitability. In the year ended 31 March 2004 the fixed network part of its business had a return on capital employed (ROCE) of 19.4%, substantially above its estimated cost of capital. This is in strong contrast to the position in 2001-2002, when Telkom's finances were still adversely affected by the uneconomic build out of fixed lines that it had been required to undertake in the period up to May 2002 and it was at that stage unable to cover its cost of capital. The improvement in Telkom's performance over this period is also due in part, to the favourable movement in the value of the South African Rand. The strengthening Rand over the period 2002-04 in particular lowered Telkom's debt servicing cost, as much of its foreign debt is denominated in Euro.

Regulatory accounts

9.3. In addition to its published financial accounts, Telkom has now submitted the management accounts for its fixed network operations, in accordance with the requirements of its COA/CAM. It is now possible to see, on the basis of the methodology in the COA/CAM regulations, the extent to which the prices charged for Telkom's services on its fixed network cover the costs that it is currently incurring for each category of the services it provides.

Financial results by service

9.4. The COA/CAM management accounts, which have been lodged on a commercially confidential basis, show that the costs of Telkom's access network are under-recovered from fixed charges for fixed lines. There is consequently a need to recover these costs from call charges. A proportion of these costs are currently recovered from long distance charges. This means that, on the basis of its present tariff, Telkom would be vulnerable to competition from competing networks that did not have to bear the cost of providing their own fixed lines and were therefore able to charge less for long distance calls.

9.5. Telkom will need to find ways of recovering these access costs in a manner compatible with competition. Significant increases in fixed charges, which under the price control arrangements would, of course, have to be accompanied by offsetting reductions in call charges, would have the effect of making fixed services less affordable to low users in particular. They might also stimulate more users to transfer to mobile networks.

9.6. An alternative approach, widely pursued in other competitive telecommunications environments, is to develop alternative tariff packages available to users to allow them to choose between several options which allow them to offset higher fixed charges with lower call charges. Telkom is already providing such packages for large business customers and, judging by experience elsewhere, can be expected, as competition develops, to broaden the range of such packages to take in many of its residential customers as well. The

mobile operators already provide extensive packages of this nature to their contract customers.

Efficiency

10.1. Much of the improvement in Telkom's financial position can be ascribed to the efforts it has been making to increase its efficiency through improvement both of its network operations and of the development and marketing of its services. Increased efficiency in network operation has reduced costs and improvement in the marketing of services has increased turnover, the results of both are evident in Table 4. These benign developments have contributed to the reduction of unit costs and resulted in enhanced productivity as shown in Table 5 below.

Table 5: Telkom productivity

Productivity Ratios	2001	2002	2003	2004	% Δ
Population	45,500 000	46,100 000	46,700 000	47,300 000	3.96%
No of lines	4,962 000	4,924 000	4,844 000	4,821 000	-2.84%
Lines per person	0.11	0.11	0.10	0.10	-6.54%
Fixed-line employees	43,758	40,030	35,942	32,934	-24.74%
Revenue per employee	R 713,99	R 869,52	R 1,043.54	R 1,238.68	73.49%
Profit per employee	R 113.89	R 104.69	R 181.23	R 275.94	142.27%
Fixed lines per fixed-line employee	113	125	137	149	31.86%

Source: Telkom Annual Accounts

10.2. These improvements are the fruits of an intensive programme of fixed network transformation that Telkom has been pursuing in preparation for competition. The aim has been to change the orientation of the fixed line business to a market and profit-oriented business. The programme has included reorganising the fixed line business along functional lines, changing the corporate culture, improving employee skills, increasing marketing efforts, outsourcing non-core operations and managing revenue generation and operating expenses more effectively.

10.3. Employee-related expenses, which are a significant component of Telkom's fixed line operating expenses, have been reduced through expenditure of R373 million, R244 million and R373 million in years ending March 2002, 2003 and 2004 on its employee restructuring programme. Fixed line employee numbers have declined substantially, as noted at Table 5 above, and are intended to continue to do so in the years ahead.

10.4. Outsourcing, since March 2000, has included the motor vehicle fleet, some security operations, electronic workshop, light engineering workshop, catering

services and building management operations. Receipts have been re-invested in core fixed line network operations and debt reduction.

10.5. Further efficiency gains can be expected to have come from the technological and commercial improvements to its fixed network business that Telkom has been carrying out.

Quality of service

11.1. The quality of the services that are subject to price regulation is an important component of decisions about the level of control since to a large extent, as far as the user is concerned, a decline in quality of a service is equivalent to a price increase. It is therefore important to be satisfied that the quality of regulated services will be maintained or improved and that there is no question of lowering service quality being used as a means to reduce costs without improving efficiency.

11.2. Generally speaking, with modernisation of the network, the quality of Telkom's fixed network services has been improving. Table 6 shows the progress made since the last review.

Table 6: Telkom quality of service

	Year ended March 31,			
	2002	2003	2004	% Δ in QoS
Installation				
Avg time to install voice (days)	8	9	8	0.00%
Avg time to install business voice (days)	5	2	4	20.00%
Avg time to install corporate voice (days)	3	0.4	2	33.33%
Avg time to install ISDN (days)	31	15	16	48.39%
Avg time to install 2 Mb data (days)	35	26	20	42.86%
Avg time to install subtrates data (days)	23	20	14	39.13%
Repair				
Avg time to repair residential voice (hours)	17	13	14	17.65%
Avg time to repair business voice (hours)	16	13	14	12.50%
Avg time to repair corporate voice (hours)	14	7	7	50.00%
Avg time to repair 2 Mb leased lines (hours)	3	3	3	0.00%
Avg time to repair substrate leased lines (hours)	6	4	4	33.33%
Service Measures				
No of residential faults per 1,000 lines	528	482	476	9.85%
No of business faults per 1,000 lines	265	242	234	11.70%
No of faults per 1000 subtrates	919	847	880	4.24%
No of faults per 1000 2 Mb	925	669	498	46.16%
Percentage of coin payphones in service	95	96	96	1.05%
Percentage of card payphones in service	98	98	98	0.00%

Source: Telkom Annual Reports

Telkom's prospects

Investment

12.1. Telkom has not been able to quantify to ICASA its future investment programme beyond the current year, in which it has said that it is committed to total fixed network investment of Rand 4.6 billion. This is a slight reduction on the previous year. However, by way of general guidance on its investment intentions, Telkom has said that it does not aim to extend the fixed network significantly except to connect to new users where it considers it economic to do so. Otherwise, its main investment objectives will be concentrated on upgrading and improving its existing network.

12.2. Accordingly, ICASA notes that Telkom's investment will continue on a level or slightly declining trend over the next four years. It should therefore have an opportunity to continue to reduce its borrowing and so lower its debt and optimise its financing costs.

Are there any arguments refuting ICASA's assessment of Telkom's future investment?

Impact of competition

13.1. Telkom is facing the prospect of fixed network competition over the next three to four years for the first time. Once it becomes established, the SNO can be expected to give priority to penetrating the business market, particularly the prime Johannesburg market. Precedents elsewhere suggest that this could result in the early loss of a significant market share, particularly in the profitable international market, which the SNO will be able to serve from its own international gateway. Though most corporate users would be likely to dual source such services and the take up could be delayed by Telkom's long term contracts with many large business customers.

13.2. An earlier impact may be felt from the liberalisation measures announced by the Minister of Communications on 2 September, which are due to take effect from February 2005. These measures include the freeing of mobile operators to provide their own fixed links, or purchase them from others than Telkom; the freeing of value added network service (VANS) providers to provide voice services using any protocol, including voice over Internet protocol (VoIP); greater flexibility in the use of network facilities by VANS providers and in trading in VANS services; and greater freedom to resell private network capacity.

13.3. All these developments have the potential for the transfer of activities from Telkom's network, following the end of current restrictions, and a consequent reduction in Telkom's revenue. But the outcome is most unlikely to be as simple

as that. First, Telkom can be expected to respond vigorously to threats to its market share by reducing prices where necessary and developing new competing services. Secondly, the new freedoms can be expected to create a strong stimulus to market growth. Telkom, as the established network operator, with a ubiquitous and well loaded network, can be expected to benefit greatly from such growth. The new services have to go somewhere and many will end up on Telkom's network, even if they did not originate there.

13.4. Estimating the effects of these changes on Telkom's income streams, some years in advance, is therefore somewhat problematic. Reduction of market share, as rival service suppliers become established, is likely to be offset by growth in the overall size of the market. Incumbent operators have a way of benefiting from market opening initiatives, at least in the early stages when cost advantages tend to be strongly in their favour.

13.5. On balance, we consider it likely that Telkom's fixed network revenue will continue to increase during the current year and into next year, stabilising the year after and possibly declining slightly the year after that.

Please comment on ICASA's assessment of possible impact of competition?

Cost of capital

14.1. One of the costs that must be met by any business, if it is to be able to maintain itself on a sustainable basis, is the cost of the capital that is being used to finance the business and that will be needed to finance investment in the future. To assess these costs, it is necessary, first, to look at what the business is paying for the capital it is currently employing and, secondly, to assess its likely future investment and how that will affect its cost of capital.

14.2. In a fully competitive market, if a firm is efficient, it should be able to meet its cost of capital but, due to competitive pressure from other firms in the market, it ought over time to earn no more than the cost of capital. In competitive markets a firm can sometimes earn a return above its cost of capital, but this usually triggers firms to expand production and for other firms to enter the market, the effects of which lead to lower prices and consequently a reduction in the return on capital employed. The converse also applies. However, in a monopoly market or in a market where there is insufficient competition, competitive forces are unable to rein back returns on capital employed when they exceed the cost of capital. In this market it is therefore important for ICASA to decide an acceptable rate of return, as market forces are currently not effective at reining back an excessive return on capital employed. Furthermore, ICASA does not expect competition to become effective over the period of the price-cap. Where it falls to the regulator, rather than the market, to determine this rate, the determination of an acceptable rate of return which plays an important part in deciding what the level of prices should be once the firm has achieved its target efficiency improvement.

Return on capital employed

14.3. ROCE is a measure of the returns a company is realising from the capital it employs and can be calculated in a number of ways. ICASA calculates the ROCE of Telkom as profit before interest and taxation divided by total assets less current liabilities. This method of calculating ROCE is widely used to assess a firm's performance and provides a simple way of comparing the profitability of different firms.

14.4 Table 7 shows the ROCE in Telkom's fixed network business from 2000 to 2004 estimated by ICASA using the method described above. It can be seen that Telkom's overall ROCE has markedly improved over the last three years, and particularly over the last complete financial year. From a return of 6.1% three years ago, Telkom recorded a ROCE of 19.4% in 2003-04.

Table 7: Telkom Financial Information

Year R (Million)	2000	2001	2002	2003	2004
Group assets	42,276	53,537	55,316	53,229	52,984
Vodacom assets	9,864	12,342	15,574	16,966	20,098
Telkom assets	37,344	47,366	47,529	44,746	42,935
Current Liabilities	14,382	15,314	12,765	14,197	14,443
Vodacom current liabilities	5,883	7,267	8,205	7,159	9,833
Telkom current liabilities	11,441	11,681	8,663	10,618	9,527
Telkom capital employed	25,904	35,686	38,867	34,129	33,409
Group EBIT	3,908	4,984	4,191	6,514	9,088
Vodacom EBIT	2,364	2,553	3,621	4,330	5,234
Telkom EBIT⁷	2,726	3,707.50	2,380.50	4,349	6,471
Telkom ROCE⁸	10.5%	10.4%	6.1%	12.7%	19.4%

Source: Telkom Form 20-F, 25 June 2004

⁷ Telkom EBIT is less than Group EBIT as Telkom has a 50% attribution of Vodacom

⁸ ROCE is calculated as (EBIT over capital employed)

14.5 As can be seen in Table 7, which is based on the more usual net assets method, shows that, during the year ended March 2004, Telkom made a return on capital employed on its fixed line business in excess of 20%. Adjusting to take account of the regulated services only gives a figure of 18.9% for the regulated part of Telkom's fixed network business.

Acceptable rate of return

14.6. In order to determine the acceptable rate of return on capital employed, ICASA needs to examine the cost of funding Telkom's business; that is, Telkom's cost of capital. The capital employed by a firm comprises debt and equity (shares) and an acceptable ROCE would allow Telkom to cover the cost of capital. Telkom's cost of debt and cost of equity are dependent on a number of factors, including the mix of debt and equity already held by Telkom. In general debt can be a cheaper source of funding, but can be more risky since interest must be paid on it each year, and equity can be a more expensive source of funding but may carry less risk because the dividend on shares can be waived, if circumstances demand it, without the future of the business necessarily being put at risk.

14.7. In general a business seeks to choose a mix of debt and equity that minimises its weighted cost of capital; that is, the sum of the cost of debt and cost of equity weighted by the proportion of debt and equity in total capital employed. The weighted average cost of capital (WACC) usually follows a 'U' shape, such that a firm with a low proportion of debt faces a high cost of equity capital and a firm with a low proportion of equity faces a high cost of debt funding. Higher levels of debt tend to be seen as increasing the level of risk, in which case equity investors will look for a higher rate of return, so increasing the cost of capital. Lower levels of debt will mean that the advantages of this cheaper form of funding have not been maximised.

14.8. The cost of equity is the more difficult component to estimate of the WACC, as it depends on how the stock market views the prospects of the firm. A widely used method to assess the cost of equity is the Capital Asset Pricing Model (CAPM). This is based on assessments of how the market responds to the volatility of the share price over a period. Generally, in a stable economy, the market will look for a return substantially above the "risk free rate", the theoretical interest rate at which an investment may earn interest without incurring any risk. The return in excess of the risk free rate is known as the "market risk premium" or "equity risk premium".

14.9. In practice, the risk free rate is usually assumed to be equivalent to the rate associated with a short term government bond. According to the PricewaterhouseCoopers "Business Enterprise Value Survey" 2003, the R153 South African government bond is the most popular proxy for the risk free rate used by firms. Furthermore, in the same survey it is shown that over 70% of

managers use the spot rate of the R153 to determine the risk free rate. ICASA therefore takes the yield of 8.88% on the R153 on 12 October 2004 as the proxy for the risk free rate (as shown on the South African Central Reserve Bank website: <http://www.reservebank.co.za/>). The market risk premium is currently estimated in South Africa to lie between 5% and 8% (see PricewaterhouseCoopers "Business Enterprise Value Survey" 2003). ICASA believes that a reasonable market risk premium to use for Telkom is 6%. Therefore the return on equity is on average around 15%.

Please comment on ICASA's assessment that a reasonable market premium to use for Telkom is 6% and therefore the return on equity is on average around 15%?

14.10. How near to 14.88% the shares of the company concerned are valued in the market will vary depending on how volatile the share price is and hence, how risky investing in these shares is thought to be. The greater the volatility, and hence the perceived risk, the higher the dividend payments will need to be to maintain the share price at a level sufficient to enable the firm to draw on equity finance reasonable economically.

14.11. This calculation normally makes use of a formula relating to the volatility of the share price, compared to the market as a whole, called the "beta" of the share. However, in order to have a meaningful beta, it is necessary for the share to have an established history. Telkom was only privatised with the IPO of March 2003 and since then the share price has risen strongly, well ahead of the market as a whole. The market appears to be expecting a profitable and probably stable future for the company, but the IPO happened to coincide with a trough in the market, so it is difficult to discern how far the share price can be taken as suggesting that the market will be satisfied with a lower than average rate of return on its investment. Certainly the history of the share appears too short to establish a reliable "beta".

14.12. In these circumstances, it is necessary to use an estimate of the beta of Telkom. An established monopoly utility is likely to be regarded as particularly stable and to have a beta below one. As competition develops, the beta is likely to go above one. For the purposes of the review we consider that a beta of between 0.95 and 1.05 is appropriate. The cost of equity therefore lies in a range as shown in Table 8:

Table 8: Estimate of Beta

Beta	0.95	1	1.05
Cost of equity	14.58%	14.88%	15.18%

Source: ICASA estimate

14.13. Telkom's split between debt and equity is 36% debt and 64% equity (as of end March 2004). Applying the figures referred to above gives a current WACC estimate as shown in Table 9:

Table 9: ICASA's estimate of Telkom's WACC

Beta	0.95	1	1.05
WACC ⁹	12.85%	13.04%	13.23%

Source: ICASA estimate

14.14. We have concluded that, for the purposes of the review, the cost of capital, looking forward, should be taken as 13.04%. This estimate lies slightly above the cost of capital used internally by Telkom, as provided to ICASA.

Please comment on ICASA's figure of 13.04% as an estimate for the cost of capital? Please explain any departure from this figure.

Future price control regime

Need for and coverage of price controls

15.1. As indicated above, ICASA considers that the requirement for price control will continue for several more years. During this time we do not regard it as likely that sufficient alternative services to those provided by Telkom will be available to users to provide an adequate assurance that price levels will be at competitive levels without regulatory intervention.

15.2. With this in mind, ICASA considers that the existing coverage of price controls should be maintained. Regulation would accordingly continue to apply to approximately 80% of Telkom's fixed network revenues.

Permitted individual price increases of 5% per year

15.3. Under the existing regulations, Telkom is not permitted to increase any individual price by more than 5% above the rate of inflation in any one year, unless specific approval is obtained from ICASA. Such approval will only be given in exceptional circumstances where it can be demonstrated to ICASA's satisfaction that the cost of providing the service concerned would justify such an adjustment.

15.4. Thus, in addition to the price-cap, a further constraint is applied to the prices set for the basket services, limiting the real increase in prices to be no more than 5%. In practice, this works by limiting the nominal price change in year T to a percentage value that cannot exceed the annual inflation rate plus 5% measured at September in the previous year. The CPI measure of inflation for September 2003 was 3.7%, which means that the nominal price increase for any service in the basket services cannot exceed 8.7% in 2004.

⁹ It should be noted that these are estimated from the post-tax WACC and not the pre-tax WACC used in the calculation of X

15.5. With competition likely in some segments of the market, and especially in the non-voice elements of the market, ICASA believes that a maximum price increase of 5% across all services is not appropriate. As competition is expected to develop with the SNO entering the market after March 2005, Telkom will face competitive constraints in some parts of its business – particularly for services provided to mid to large size business users.

15.6. Consequently ICASA proposes to relax the effect of the maximum price increase constraint. For the price-cap over the period 2005-08 the 5% real increase constraint shall only apply to all services included in the residential services basket, and to business line rentals, all ADSL services and leased services up to and including those offering 2Mbps capacity, business installation charges and ISDN rental charges. ICASA is proposing to exclude all other services, including leased lines. Although these services are to be excluded from the maximum price increase constraint, they will continue to feature in the overall price-cap.

Please comment on ICASA's proposal that for the price cap period 2005-08 the 5% real increase constraint shall only apply to all services included in the residential services basket, and to business line rentals, business installation charges and ISDN rental charges.

Calls to mobile handsets

15.7. ICASA does not believe it is appropriate to include all components of the revenues associated with calls made to mobile handsets.

15.8. As the number of mobile handsets has grown markedly over the period of the current price-cap, a significant component of revenues is now accounted for by calls made to mobile networks this revenue amounts to nearly 18% of Telkom's gross revenue. In 2003/04 Telkom earned R7.3 billion from calls made to mobile handsets. All of these revenues count towards the regulated business in the current price-cap, amounting to approximately 20% of Telkom's regulated revenue base. However, a little over R5 billion of the revenue from these calls was handed over to the mobile network operators in 2003/04 to pay for termination services provided to Telkom.

15.9. As noted above, a substantial portion of the revenues earned from calls made to mobile handsets is passed through to the mobile operators and this represents costs incurred by the mobile operators. Further, the costs of terminating calls onto mobile networks are beyond the direct control of Telkom. As one of the main objectives of the price-cap is to encourage Telkom to be efficient, the inclusion of other operators' costs in the regulated basket of services exposes Telkom to variations in costs over which it has little or no control.

15.10. For example, if the mobile network operators were to increase the price for terminating calls onto their networks, Telkom might react to this by increasing the retail prices of calls to mobile handsets. So as to comply with the current price-cap these price increases would necessitate price reductions (or lower price increases) for other services included in the basket. Telkom could therefore be forced to lower prices (or reduce price increases) for some of its services due entirely to circumstances beyond its control, and this would unfairly penalise Telkom.

15.11. Conversely, if the mobile network operators were to decrease the price for terminating calls onto their networks, Telkom could react to this by lowering the retail prices of calls to mobile handsets to a level that ensures it earns the same margin (on a per minute basis). The effect of this would lead to higher profits, as call volumes increase due to lower retail prices. In the current price-cap Telkom could increase prices for other services in the basket to levels above what otherwise could have been permitted under the price-cap. This would unfairly penalise the public and arises due to circumstances beyond the direct control of Telkom.

15.12. Under the current regulations Telkom is therefore being blamed for failure or credited with success in respect of a large chunk of revenue which it cannot directly influence. ICASA therefore regards the treatment of revenues attributable to calls to mobile handsets in the current price-cap as unsatisfactory. ICASA proposes to modify the treatment of these revenues in the next price-cap.

15.13. ICASA has identified two options for solving the problem:

- **Option 1:** amend the regulations to control in effect only the amount in the price of calls to mobile that Telkom retains (the retention rate). This would be achieved in practice by creating a "cost-pass through" for the cost of mobile termination for Telkom. This would take the form of a formal ICASA determination that, in calculating the application of the price control rules, it would count the cost of mobile termination as a cost incurred by Telkom and deduct this total amount from the revenue used in the price control compliance calculation. By allowing cost-pass through this would result in an average tariff per minute for mobile cellular outgoing calls equal to the average cost of retention per minute.

15.14. Adopting this approach means that if the cost of mobile termination were to fall and the retail prices of calls to mobile remain unchanged, then by implication this would be treated as an increase in Telkom's retention rate. In this setting Telkom would need to lower either: the retention rate (and hence the retail price of fixed to mobile calls) and/or lower the prices of other services in the services basket. This approach does not guarantee a one-for-one pass through of reductions in mobile termination rates.

15.15. We regard this as the best solution, since it is relatively simple and straightforward, removes mobile termination revenues from the regulated basket and does not alter the simple way in which the price cap works.¹⁰

- **Option 2:** create a new separate basket for call retention. This would have the advantage of specifically targeting the service where there is no or insufficient competition taking place, and ensure that Telkom is not unduly exposed to variation in call termination charges.¹¹ Furthermore, the approach would also ensure that reductions in mobile call termination charges are passed on a one-to-one basis to the final consumer.

15.16. The drawback of this approach is that it treats one service differently from the other services included in the services basket. It could be argued therefore that separate baskets should apply to other identified services, such as short distance calls or residential line rentals.

15.17. ICASA regards the establishment of separate price-caps as too onerous a requirement and that one of the principal benefits of price-cap regulation would be sacrificed, i.e. price flexibility. ICASA therefore favours option 1 over option 2.

15.18. ICASA proposes to apply Option 1 above.

Please comment on ICASA's proposal of option 1 to deal with the issue of revenues associated with calls made to mobile handsets.

Change to services basket

15.19. Since the last price-cap Telkom has introduced ADSL services and as of March 2003 there were approximately 20,000 ADSL lines in service. The price for ADSL service is currently excluded from the price-cap.

15.20. ICASA proposes to include the price (defined as installation and rental) for ADSL services in the next price-cap. The ADSL services branded "Home" will be included in the residential price-cap; all other ADSL services will be included in the overall price-cap.

15.21. ICASA believes that there is a considerable likelihood ADSL services will grow in significance and therefore their significance for the purposes of price-control will increase.

15.22. ICASA seeks to encourage further take-up of ADSL and sees its inclusion in the services basket as helping in this regard. As the current prices for ADSL are relatively high, it is highly likely that Telkom will decrease in real terms the price of ADSL services over the next few years. As this will contribute positively

¹⁰ A version of Option 1 is currently applied in the UK by Ofcom.

¹¹ This approach was formerly adopted in the UK. In 1999, Ofel imposed a reduction in BT's retention rate and applied a separate price-cap where $X=7$ over the period 1999-2002.

towards compliance with the overall price-cap, the inclusion of ADSL in the services basket should benefit Telkom.

15.23. By including ADSL services in the basket Telkom will have an additional incentive to lower ADSL charges, which will promote wider take-up of broadband connections.

Please comment on ICASA's proposed change to the basket of services that is to include the price (defined as installation and rental) for ADSL services in the next price-cap.

Form of the price cap

Appropriate index

16.1. Over the last four years the price-cap has used the all items metropolitan areas CPI price index compiled by Statistics South Africa.¹² ICASA has considered whether an alternative measure of the price index may be more appropriate. For example, the Reserve Bank of South Africa uses the CPIX price index which omits mortgage costs to target inflation in the range 3-6%.

16.2. Over the years 2000 and 2004 changes in the CPI and CPIX indexes have resulted in the following estimates of annual inflation rates:

Table 10: Inflation rates in South Africa using the CPI and CPIX prices indexes

CPI and CPIX price indexes from September to September		
Year	CPI	CPIX
2001	4.4%	5.8%
2002	11.2%	10.8%
2003	3.7%	5.4%
2004	1.3%	3.7%

Source: Statistics South Africa

16.3. There are three reasons why the current price index CPI used in the price-cap should be replaced by the index CPIX.

16.4. Firstly, ICASA believes that the index used in a price-cap should be understood by the public. ICASA attaches great weight to transparency and believes that there would be advantages from moving from using CPI to using CPIX, as due to the highly visible policy of inflation targeting by the Reserve Bank of South Africa, CPIX is the price index most familiar to the public.

16.5. Secondly, as the CPI does not exclude costs which are irrelevant to Telkom's costs (i.e. mortgage interest payments), this means, for example, that

¹² Data series P0141.1, <http://www.statssa.gov.za/MoreIndicators/CPI/CPIHistory.pdf>, Statistics South Africa.

Telkom has in the past derived benefit from increases in mortgage interest costs. This is another reason to favour shifting to the use of CPIX.

16.6. Thirdly, the methods used by ICASA to establish the value of X in the price-cap imply an inflation rate consistent with CPIX rather than CPI. Hence, the price-cap calculated by ICASA that ensures Telkom can meet its cost of capital implies an inflation rate derived from the CPIX index. As the CPIX measure of inflation has recently diverged considerably from the CPI measure of inflation, allowing Telkom to earn a return on assets that is implicitly based on the CPI measure runs the risk of unduly penalising Telkom.

Please comment on ICASA's proposal to replace the current price index CPI used in the price-cap by the index CPIX.

Application of "CPI/CPIX"

16.8. Under the present regulations the measure of inflation used is the rate of increase in CPI during the previous year up to 30 September. The permitted adjustment in prices, from 1 January each year, is the amount of the increase in CPI up to the previous 30 September less the level of X (currently 1.5%).

16.9. This means that there is an appreciable time lag before prices can be adjusted to take account of inflation. When inflation moves upwards comparatively rapidly, as it did in South Africa during 2002, Telkom suffers a delay before catching up with inflation, although users benefit from the delay in upward price adjustments.

16.10. Previously, a forecast level of CPI for the next year had been used. This avoided the time lag effect but it turned out that, even though expertly administered, the forecast process consistently resulted in the level of CPI being overestimated. As a result, users paid about 2% more than necessary for telecommunications services over a period of three years.

16.11. One possibility to address this issue is that a composite estimate of CPI/ might be used, half based on the historic rate for the previous year and half based on an estimate for the next year. A provision could be made for readjustment at the end of the year should the estimate turn out to be inaccurate. This would, however, be considerably more complicated than the present system. It would be far less transparent to most users, for whose benefit the CPI was being used and it would be a departure from the basic principle that price control should be based on real price levels, after allowing for inflation.

16.12. ICASA accordingly does not propose to change the present system for applying CPI.

Time period

16.13. The length of the next price control period is an important decision for ICASA in framing its proposals. It is generally acknowledged that much of the incentive properties of price cap price control derive from the length of time that the management of the regulated company has to respond to the price control target. This needs to be several years if the incentive effect is to be maximised.

16.14. On the other hand, the further ahead it is necessary to estimate the performance of a company the more uncertain such an estimate is likely to be. This consideration usually limits price control periods to between three to five years.

16.15. In view of the large amount of uncertainty that there is about the future shape of the market in South Africa and the time that it will take to develop, we consider that the new price control period should not extend for more than four years. It now appears likely that it will not be possible to make the price changes necessary to bring Telkom into line with the revised price control target until some time into 2005. We therefore suggest that the new price control period should be whatever period remains in 2005 after the revised regulations come into effect plus a further three years.

16.16. The new price control period would therefore run until 31 December 2008 and the next price control review would be carried out during 2008, in time for the revised price control regulations to be in place by the end of that year.

Please comment on ICASA's proposed time frame for the new price control period?

Volume changes

16.17. One of the most important determinants of the economic viability of the fixed network is the extent to which it is used. The full fixed network is expensive to provide and yet much of it lies idle for most of the time. The more traffic the network carries the lower the cost of carrying each unit. As a result, comparatively minor increases in traffic volume are likely to have a big impact on profitability.

16.18. The difficulty of forecasting the impact of this effect in the future has led some to suggest that there should be an automatic volume cut off point at which the regulated company should be required to share some of the extra profits generated by gains in traffic volume in the form of additional price reductions. Such an arrangement would, however, weaken the incentive effects of the price cap price regulatory approach. ICASA accordingly does not propose to adopt it.

Setting of price controls

Processing of information available

17.1. Regulatory decisions on the setting of a price control target involve consideration of a complex set of inter-acting influences on the regulated business looking forward. The effect of these inter-actions is difficult to capture against the background of the inherent uncertainties involved. Regulators accordingly usually model these influences using a computer based model of the regulated business. This enables possible financial outcomes for the business to be considered against a range of values for X (the efficiency improvement target). It allows differing ranges of assumptions to be considered and the magnitude of their impact on the financial outcome to be assessed. From this the degree of sensitivity associated with each assumption can be determined.

17.2. ICASA has carried out such a modelling exercise, based on the information available and using the assumptions drawn from the conclusions described in the preceding text. The aim has been to reach as informed a judgement as possible on the level of efficiency improvement requirement that is most likely to provide a challenging but achievable target for Telkom management and that will result in the regulated part of Telkom's fixed network business making an acceptable rate of return at the end of the price control period.

Key assumptions

17.3. The value of X in the price-cap depends on a number of variables, but a significant determinant is the coverage of the basket itself which has been discussed above. The other key variables which have the greatest impact on the value of X are:

- forecasts of volume growth for the market for the capped services in the basket
- forecasts of Telkom's market share
- assumptions of Telkom's efficiency gains
- cost of capital and asset base

17.4. Decisions on these variables are not issues of policy but rather questions of judgement as to the most appropriate value. The judgement involved in deciding a value for the first two variables is qualitatively different from that for the last two. The first two are forecasts based on the best evidence available to ICASA, from Telkom and others, of what the future market will look like. The second two are less forecasts and more in the nature of seeking the best available evidence about more objective factors. ICASA has taken external evidence on other telecoms operators' efficiency and, from analysis of financial markets, on cost of capital values.

17.5. The level of X in the proposed price-cap, which is 4%, has been estimated by assessing Telkom's existing tariffs and unit costs and equating these at the

end of the price control period. This approach is in line with international best practice and ensures that Telkom earns a return on the capital it employs equal to its weighted average cost of capital.

17.6. The following additional factors were considered cost volume elasticities, which recognize that costs comprise both fixed and variable elements, of 75%.

- Projected numbers of residential and business lines, based on historical growth and changes in GDP. The growth in lines has been estimated at 3% and 6% per year respectively, based on annual GDP growth of 3% over the price control period.
- Demand for calls, based on existing average use per line and the effects of elasticities of demand (i.e. reduction of prices should stimulate demand).
- Projected Telkom market share based on the introduction of the SNO and liberalization of the market. It has been estimated that Telkom will retain an 80% market share in fixed voice and 70% in leased lines, data and broadband services in 2008.
- Levels of efficiency based upon historical improvements, Telkom's estimates and global trends in efficiency levels resulting from improved technologies and cheaper equipment. The level of efficiency has been estimated at approximately 3.5% per annum.
- Cost volume elasticities, which recognize that a proportion of costs are fixed. It has been estimated that 25% of costs are fixed and 75% are variable.
- Pre-tax nominal cost of capital, which as discussed below is estimated at 18%.

17.7. ICASA has modelled Telkom's business using submitted audited cost accounting data and estimates that a one per cent increase in the following variables would give rise to changes in X as follows:

Table 11: Sensitivity Analysis

Increase by 1%	Change in X
Efficiency	+1 %
Cost of capital	-0.3 %
GDP	+0.2 %
Business line growth	+0.1 %

Source: ICASA estimates

17.8. As can be seen in the Table 11 above, the effect of efficiency gains plays a critical role in influencing the value of X. ICASA has applied relatively conservative estimates for efficiency gains achievable by Telkom over the next price-cap period, reflecting real constraints relevant to the South African context.

Are there any additional assumptions that should underpin this study that have not been considered?

Level of X

17.9. Based on these assumptions, we have concluded that the appropriate level of X for the next price control period is 4%. We accordingly propose that the revised regulations should require Telkom to reduce the average prices in the general price control basket by 4% below the level of inflation each year, or proportionately for each part of a year, until the end of 2008.

17.10. We also propose that the same value of X should apply to the residential basket throughout the new price control period.

Do you have any comment with respect to ICASA's level of X?

Timing of application of controls

18.1. It now appears likely that the revised regulations will not have been finalised before Telkom is due to file its price adjustments for 2005, by the end of November this year. The delay in carrying out the review has been almost entirely due to the time that it has taken Telkom to finalise the submission of its management accounts under its COA/CAM requirements. In these circumstances, ICASA does not consider it appropriate for users to be asked to wait for a further year before the revised level of annual reduction in average prices becomes effective. In our view, means should be found to ensure that customers receive the benefit of overall efficiency gains by Telkom from an earlier date.

18.2. ICASA accordingly proposes that the revised price regulations should contain a provision requiring Telkom to re-file its tariff, within a defined period, with appropriate adjustments to achieve the revised reduction of average prices for the remainder of the year from the date that the regulations come into effect.

Impact on customers

Information for consumers

19.1. We consider it important that users should have as much information about prices as possible and, in particular, that they should receive as early warning as possible about intended price changes. At present, there is no obligation on Telkom to publish its tariff changes when these are submitted to ICASA for validation that they are in accordance with the price control requirements. This is in contrast the more open approach adopted in other countries. We consider that South Africa should come into line with international best practice in this regard.

19.2. We accordingly propose that the revised price control regulations should include a requirement for Telkom to publish its tariff proposals at the time that it submits them to ICASA.

Summary of proposals

(1) Structure of the regime

ICASA proposes that the broadly speaking the present structure of the price control regime should remain unchanged except for the following revisions:

- CPIX adopted rather than CPI
- The 5% real increase constraint shall only apply to all services included in the residential services basket and to business line rentals, all ADSL services and leased services up to and including those offering 2Mbps capacity, business installation charges and ISDN rental charges.
- ICASA does not believe it is appropriate to include a substantial component of the revenues associated with calls made to mobile handsets.
- ICASA proposes to include the price (defined as installation and rental) for ADSL services in the next price-cap.

(2) Period of price control

ICASA proposes that the revised price control regulations should last for a period of approximately four years, up to 31 December 2008, unless exceptional circumstances require an earlier review.

(3) Efficiency improvement target

ICASA proposes that the revised annual efficiency improvement target should be set at a level of 4%. Telkom will accordingly be required to reduce the average of it regulated prices by 4% below the level of inflation each year.

(4) Publication of tariff proposals

ICASA proposes that Telkom should be required to publish its tariff proposals at the time that it submits them to ICASA.

(5) Timing of the implementation of the revised price control requirements

ICASA proposes that the revised price control regulations should incorporate a provision requiring Telkom to file a new set of price adjustments within 30 days of the regulations coming into effect. The price adjustments at that time will be required to reflect the average price reduction required at the new rate of 4%] below the rate of inflation for the remainder of the price control year (i.e. to 31 December 2005). Thereafter, the normal timing of the application of the price control target will be resumed. In this way the delay that has been experienced in moving to the revised price control levels, while Telkom has implemented the requirements of its fixed network COA/CAM, will be minimised.

Please comment on any issues or assumptions included in this document as ICASA is interested in obtaining opinions on the review of the PSTS price cap.

ANNEX A

Table 1: Summary of Price Changes Controlled by Licence Condition 2001-2004

	Jan-01 Index Number	Jan-02 Index Number	Jan-03 Index Number	Jan-04 Index Number	Cumulative Price Δ
Change in CPI base Period	7.1 ¹³	5.00 ¹⁴	11.20 ¹⁵	3.70 ¹⁶	27.00
Forecast CPI used by Telkom	6.90 ¹⁷	5.50 ¹⁸	12.5 ¹⁹	3.70 ²⁰	
Efficiency target or X	1.50	1.50	1.50	1.50	
Permitted Increase	5.60	3.50	9.70	2.20	
Change in effective price of installation charges					
Residential (ZAR % Δ)	2001	2002	2003	2004	% Δ
Billed	182.25	209.65	235.95	240.66	32.05
Prepaid	105.26	121.05	136.20	138.95	32.01
ISDN - Basic rate	379.75	436.71	330.87	337.50	-11.13
Business					
Billed	182.25	209.65	235.95	240.66	32.05
ISDN - Basic rate	379.75	436.71	330.87	337.50	-11.13
Change in effective price of rental					
Residential					
Billed	55.00	59.40	66.84	71.84	30.62
Residential, PrepaidFone	34.09	36.82	41.43	44.56	30.72
ISDN - Basic rate	129.12	139.25	150.44	161.65	25.19
Business					
Billed	73.07	78.92	88.80	95.44	30.62
ISDN - Basic rate	153.71	163.83	177.00	190.19	23.73
Domestic Telephone Calls					
Residential					
0-50km	0.29	0.33	0.37	0.40	37.93
>50km	0.85	0.83	0.92	0.92	8.24
Callmore					
0-50km	0.18	0.20	0.16	0.20	11.11
>50km	0.46	0.46	0.46	0.46	0
Domestic Telephone Calls					
Business					
0-50km	0.29	0.35	0.39	0.43	48.28
>50km	0.85	0.85	0.95	0.96	12.94
Callmore					

¹³ CPI: January 2001

¹⁴ CPI: January 2002

¹⁵ CPI: September 2002

¹⁶ CPI: September 2003

¹⁷ Telkom CPI Forecast January 2000 to January 2001

¹⁸ Telkom CPI Forecast January 2001 to January 2002

¹⁹ Telkom CPI Forecast September 2001 to September 2002

²⁰ Telkom CPI Forecast September 2002 to September 2003

0-50km	0.18	0.18	0.20	0.30	66.66
>50km	0.46	0.49	0.55	0.57	23.91
National Calls- PrepaidFone					
0-50km	0.31	0.39	0.42	0.45	45.16
>50km	0.69	0.67	1.07	1.09	57.97
Callmore					
0-50km	0.19	0.21	0.17	0.22	15.79
>50km	0.38	0.38	0.54	0.56	47.37
Public Payphone Calls					
0-50km	0.36	0.40	0.57	0.65	80.55
>50km	0.72	0.73	1.56	1.80	150.00
Callmore					
0-50km	0.21	0.22	0.35	0.39	85.71
>50km	0.40	0.39	0.90	1.04	160.00
Worldcall Calling card					
0-50km	0.358	0.396	0.57	0.58	67.57
>50km	0.72	0.73	1.56	1.56	116.66
Mobile cellular Calls (Ordinary)					
Rate group 1-Vodacom	0.942	1.424	1.65	1.66	76.22
Rate group 2 - Vodacom	0.618	0.775	0.97	1.03	66.48
Rate group 1-MTN	0.942	1.424	1.65	1.61	71.34
Rate group 2 - MTN	0.618	0.775	0.97	0.99	60.19
Rate group 1-Cell C	0.942	1.424	1.65	1.61	70.91
Rate group 2 - Cell C	0.618	0.775	0.97	0.99	60.19

ANNEX B: Technical Annex

2004 Price Control Review

This annex consists of a number of sections dealing with some of the technical issues related to the price-cap regulation applied to Telkom. The main purpose of the annex is to demonstrate that ICASA has designed a price-cap for the period 2005-08 to enable Telkom to earn a fair return on the assets it employs.

1. The objectives of price-cap regulation

Price-cap regulation is intended to protect consumers and to provide Telkom with flexibility over the structure of prices, while promoting incentives for it to reduce costs. Telkom ought to be allowed to earn at least the cost of capital on the assets it employs in the regulated sector under price-cap regulation and should be encouraged to be efficient.

The application of a price-cap on Telkom is based on a 'tariff basket' methodology.²¹ This approach constrains the average price changes of the services falling into the "basket services" (section 2 discusses the coverage of the basket). The current price-cap features an overall basket and a residential sub-basket. The purpose of including a residential sub-basket is to ensure that residential consumers benefit from the application of price controls.

Definitions:

CPI_t = Consumer Price Index in September of year t

p_{it} = price of service i to apply in year t

q_{it} = quantity demanded of service i in year t

X = Productivity offset factor²²

The price-cap applied on Telkom is known as 'CPI – X' and requires that the average change in the price of Telkom's regulated services be no greater than inflation (the CPI element) minus X the productivity offset factor. Hence, if the productivity offset factor X is greater than inflation, the average change in nominal retail prices is (on average) negative. In the current price-cap X was set at 1.5%.

Algebraically the application of CPI – X constrains a weighted average of price changes not to be greater than the inflation rate less the productivity offset factor:

²¹ The Telkom price cap currently applied is described in the Government Gazette Regulation No. 23986, 24 October 2002, "the Regulations".

²² The value of X is calculated by ICASA and for the price-cap considered in this review is determined using audited cost accounting information supplied by Telkom, and other relevant economic data. Details of the calculation of X are shown below in section 5 of this annex.

$$\sum_i w_{it} [(p_{it} - p_{it-1}) / p_{it-1}] \leq (CPI_t / CPI_{t-1}) - 1 - X \quad [1]$$

where:

w_{it} = the weight attached to service i (this is specified in more detail below) in period t .

The right hand side of [1] is sometimes known as the controlling percentage.

Consider the case where inflation is zero ($CPI_t / CPI_{t-1} = 1$) and the productivity offset factor is also zero ($X = 0$). In this case expression [1] simplifies to:

$$\sum_i w_{it} [(p_{it} - p_{it-1}) / p_{it-1}] \leq 0. \quad [1a]$$

Expression [1a] requires that the weighted average price change must not be positive, or in other words that prices on average cannot increase in real terms. This constraint could be met, for example, by keeping prices constant (i.e. $p_{it} = p_{it-1}$ for every service in the basket) as this would result in the left hand side of [1a] equalling zero.

For the tariff basket approach to be consistent with economic efficiency the weights w_{it} applied in the formula shown in [1] should be based on the previous year's revenue data:

$$w_{it} = (p_{it-1} q_{it-1}) / \sum_i p_{it-1} q_{it-1}. \quad [2]$$

In addition to the point about economic efficiency, the advantage of using past data is its availability which helps remove uncertainty from the process. This transparency benefits both the public and Telkom. Substituting the weights in [2] for w_{it} in expression [1] leads, after some algebraic manipulation, to the following expression:

$$\mathbf{p}_t \mathbf{q}_{t-1} / \mathbf{p}_{t-1} \mathbf{q}_{t-1} \leq (CPI_t / CPI_{t-1}) - X. \quad [3]$$

The left hand side of the expression in [3] is in vector notation, where $\mathbf{p}_t \mathbf{q}_{t-1} = \sum_i p_{it} q_{it-1}$ and $\mathbf{p}_{t-1} \mathbf{q}_{t-1} = \sum_i p_{it-1} q_{it-1}$, and is a Laspeyre index of prices.²³

The Laspeyre index on the left hand side in [3] is a measure of the effect of the price changes and can be written (for relatively small percentage price changes) as $1+g$, where g is the average percentage increase of the prices for the basket services. Similarly CPI_t / CPI_{t-1} can be written as $1+inf$, where inf denotes the inflation rate. Hence, [3] can be rewritten as:

$$g \leq inf - X. \quad [3a]$$

²³ A Laspeyre price index is compiled using historical data and is used by many of the world's statistical agencies, including Statistics South Africa.

This modified version of [3] states simply that the percentage increase in the average price of the basket services cannot exceed the inflation rate less the productivity offset factor.

2. Coverage of price-cap: the basket services

The services included in the price-cap over 2000-04 are defined in the Regulations. These are the “basket services” and comprise three broad categories of service.

Table 1: Services Basket October 2002	
Installation services	Business and Residential Exchange lines; ISDN Exchange lines; Lines for Telematic services
Rental services	Provision and maintenance of: Exchange lines to Business and Residential; ISDN lines to Business; Lines for switched Telematic services; Leased lines
Call services	Short Distance and Long Distance domestic calls, calls to mobile, and International calls made from terminal connection points from customers premises equipment and public payphones; Calls made on switched Telematic services; Directory Information services; Telephone Operator services.

Source: Regulations

At present there are two price-caps applied to services. One price-cap applies to all services in the basket, and the other price-cap focuses only on what are termed residential services. Residential services comprise line rentals, installation, and calls, but exclude data services and business services. The proportion of the regulated business revenue attributable to residential services is around 33%. In the current price-cap the productivity offset factor X applied in both baskets is identical at 1.5%.

ICASA intends to continue applying two price-caps to services, one applied to residential services and the other to the overall service basket.

3. Applying price-cap regulation

The current price-cap has been applied to Telkom's prices in the services basket over the period 2001-04 and works as follows. Telkom files to ICASA towards the end of a “price control year” (calendar year), in accordance with condition 7.1 of its PSTS licence and Regulation 6 in the Regulations, the proposed tariffs and fees for basket services for implementation to take effect from 1 January in the following calendar year.

In the filing Telkom has to ensure that in each price control year the percentage increase in prices charged for the basket services shall be set so as to not exceed the controlling percentage, as shown below:

$$(RC(t)/RR(t-1)) 100 \leq \Delta CPI(t-1) - X(t) + CO(t-1) \quad [4]$$

Where:

- (t): the current year in the price control period
 (t-1): the preceding year
 X (t): the productivity factor
 $\Delta\text{CPI (t-1)}$: the year-on-year change in the Consumer Price Index, which is defined as follows:

$$\Delta\text{CPI (t-1)} = ((\text{CPI (t-1)} - \text{CPI (t-2)}) / (\text{CPI (t-2)})) 100$$

and:

- (t-2): the year preceding (t-1)
 CPI (t-2) : the Consumer Price Index for the month of September the year (t-2).
 CPI (t-1) : the Consumer Price Index for the month of September of year (t-1)

$$X (t) = 1.5\%$$

- CO(t-1) is the percentage of the unused part, if any, of the allowed revenue increase in year (t-1) carried over to year (t), which is calculated as follows:

$$\text{CO(t-1)} = (\Delta\text{CPI (t-2)} - X (t-1)) - ((\text{RC (t-1)} / \text{RR(t-2)}) 100)$$

- RC (t) : the total Revenue Change, which is calculated as follows:

$$\text{RC (t)} = \sum_{i=1}^n \text{RC (i,t)}$$

Where:

- n: the number of services in the basket
 RC (i, t) : the revenue change of the i-th service in year (t), which is calculated as follows:

$$\text{RC (i, t)} = \text{RR (i, t-1)} \Delta P (i, t)$$

Where:

RR (i, t-1): the Reported Revenue of Telkom for the i-th service in the basket from the relevant financial year ended 31 March commencing with 31 March, 2001 for the first year and each subsequent financial year ended 31 March for the duration of the Price control period.

ΔP (i, t) : the average percentage change in the unit tariff of the i-th service, in year (t), which is defined as follows:

$$\Delta P (i, t) = [(\text{Average unit tariff of the i-th service at the end of year (t)}) / (\text{Average unit tariff of the i-th service at the end of year (t-1)}) - 1] 100;$$

RR (t-1): the reported revenue of Telkom, in year (t-1), of all the services in the basket, and is calculated as follows:

$$RR (t-1) = \sum_{i=1}^n RR (i, t-1).$$

The formula in [4] above is the same as that shown in [3] above. This can be seen by looking closely at the left hand side of [4]:

$$(RC (t)/RR (t-1)) = [\sum_{i=1}^n RR (i, t-1) \Delta P (i, t)] / RR (t-1)$$

Note that $RR (t-1) = \mathbf{p}_{t-1} \mathbf{q}_{t-1}$ and the percentage change in price $\Delta P (i, t) = (\mathbf{p}_t - \mathbf{p}_{t-1}) / \mathbf{p}_{t-1}$.

Hence,

$$(RC (t)/RR (t-1)) = [\mathbf{p}_{t-1} \mathbf{q}_{t-1} ((\mathbf{p}_t - \mathbf{p}_{t-1}) / \mathbf{p}_{t-1})] / \mathbf{p}_{t-1} \mathbf{q}_{t-1} = [\mathbf{p}_t \mathbf{q}_{t-1} / \mathbf{p}_{t-1} \mathbf{q}_{t-1}] - 1 = g.$$

By definition carryover $CO (t-1)=0$ in the first year of a price-cap, the expression in [4] can be rewritten as:

$$g \leq \inf - X.$$

This is identical to the expression shown in [3a] above and demonstrates that the current price-cap is consistent with economic efficiency.

ICASA assesses compliance with the price-cap by ensuring that Telkom's proposed price changes are consistent with expressions [3a] or [4] (or their equivalents allowing for carryover).

Compliance for 2004 is shown in Table 2 below.

Table 2: Price-cap compliance 2004			
A	September 2002 CPI		118.1
B	September 2003 CPI		122.5
C	Percentage increase in CPI		3.7%
D	Productivity offset factor X		1.5%
E	CPI – X	C-D	2.2%
F	Carryover of excess reductions from 2003 (overall)		1.9%
G	Carryover of excess reductions from 2003 (residential)		1.5%
H	Controlling percentage basket (overall)	E+F	4.1%
I	Controlling percentage basket (residential)	E+G	3.7%
J	2004 regulated revenue overall (reported revenue 2002/03)		R23,460m
K	Target in revenue terms (overall)	HxJ	R962m
L	Maximum allowable regulated revenue (overall)	J+K	R24,422m
M	Actual regulated revenue change (overall)		R641m
N	Actual regulated revenue total (overall)	J+M	R24,101m
O	Actual percentage increase (overall)	(M/J)	2.7%
P	2004 regulated revenue residential (reported revenue 2002/03)		R7,686m
Q	Target in revenue terms (residential)	IxP	R284m
R	Maximum allowable regulated revenue (residential)	P+Q	R7,960m
S	Actual regulated revenue change (residential)		R279m
T	Actual regulated revenue total (residential)	P+S	R8,259m
U	Actual percentage increase (residential)	(S/P)	3.5%

It can be seen in the above table that Telkom's price changes for 2004 complied with the overall price-cap (2.7%<4.1%) and the residential sub-cap (3.5%<3.7%). However, the average nominal price increases in the residential basket exceeded the price changes in the overall basket, which suggests that residential users were relatively worse off compared to business users.

The CPI – X, is by its nature, a constraint applied to an average measure of prices. Thus it is possible for some prices in the basket services to increase and for other prices to decrease, while overall prices on average decline in real terms. For example, between 2001 and 2004 the application of CPI – X on Telkom required a cumulative average decline in the price of Telkom's regulated services of almost 6% in real terms. But over the same period, the price for residential line rentals increased by a little over 15% in real terms, and the cost of a 3 minute peak time short distance telephone call (within 50km) increased by nearly 70% in

real terms. By contrast was a real reduction of 13.6% in the price for a peak period three minute long distance call.²⁴

In-year monitoring

With the onset of competition expected following the market entry by the SNO sometime after March 2005, it is likely that over the course of the next price-cap that Telkom will wish to make price changes within the price-cap year (1 January through December 31). Until now in-year price changes has not been an issue.

Looking forward the price-cap needs to be modified to allow Telkom flexibility to respond to competitive pressures. ICASA will therefore monitor through the year the effects of changes to prices for services in the price-cap baskets.

Over the course of this price-cap ICASA expects competition to occur largely in the business segment of the market. Hence, ICASA will permit in-year price changes for services outside of the residential basket. For services within the residential basket, Telkom will continue to make an annual filing and consequently no in-year price changes will be permitted.

Accommodating in-year price changes for some services in the basket means that compliance cannot be formally checked until the end of the calendar year (the price-control year). ICASA will undertake a programme of ongoing monitoring of Telkom's prices to minimise the chance of Telkom failing to meet the price-cap control.

In enabling in-year price changes ICASA proposes to weight price changes such that the effect is as if the cumulative effect of price changes occurred on 1 January. For the purpose of complying with this provision, Telkom shall take all reasonable steps to secure that the revenue it accrues as a result of all relevant individual charge changes during any calendar year shall be no more than that which it would have accrued had all of those changes been made at 1st January in the calendar year.

For the avoidance of doubt, this obligation shall be deemed to be satisfied where, in the case of a single change in charges during the calendar year, the following formula is satisfied:

$$RC (1-D) \leq TRC$$

Where:

RC is the revenue change associated with the single charge change made in the calendar year, calculated by the relevant percentage change immediately following the charge change multiplied by the revenue accrued during the last financial year;

²⁴ Source: Telkom Price list 2001, 2004 and Statistics South Africa, taking CPI mid-year (June).

TRC is the target revenue change required in the calendar year to achieve compliance, calculated by the percentage change required in the calendar year to achieve compliance multiplied by the revenue accrued during the last financial year; and D is the elapsed proportion of the calendar year, calculated as the date on which the change in charges takes effect, expressed as a numeric entity on a scale ranging from 1st January = 0 to 31st December = 364, divided by 365. In the case of a leap year it is calculated as the date on which the change in charges takes effect, expressed as a numeric entity on a scale ranging from 1st January = 0 to 31st December = 365, divided by 366.

Price discounts

In the current price-cap ICASA has included price discounts offered by Telkom. As discounts tend to be offered to large volume users, the effect of this can lead to price increases for small volume users above what may otherwise have occurred had price discounts been excluded from the price-cap.

ICASA therefore proposes to remove price discounts for all services outside of the residential basket.

4. The price index in the price-cap

Over the last four years the price-cap has used the all items metropolitan areas CPI price index compiled by Statistics South Africa.²⁵ ICASA has considered whether an alternative measure of the price index may be more appropriate. For example, the Reserve Bank of South Africa uses the CPIX price index which omits mortgage costs to target inflation in the range 3-6%.

Over the years 2000 and 2004 changes in the CPI and CPIX indexes have resulted in the following estimates of annual inflation rates:

Table 3: Inflation rates in South Africa using the CPI and CPIX prices indexes from September to September		
	CPI	CPIX
2001	4.4%	5.8%
2002	11.2%	10.8%
2003	3.7%	5.4%
2004	1.3%	3.7%

Source: Statistics South Africa

There are three reasons why the current price index CPI used in the price-cap should be replaced by the index CPIX.

²⁵ Data series P0141.1, <http://www.statssa.gov.za/MoreIndicators/CPI/CPIHistory.pdf>, Statistics South Africa.

First, ICASA believes that the index used in a price-cap should be understood by the public. ICASA attaches great weight to transparency and believes that there would be advantages from moving from using CPI to using CPIX, as due to the highly visible policy of inflation targeting by the Reserve Bank of South Africa, CPIX is the price index most familiar to the public.

Secondly, as the CPI does not exclude costs which are irrelevant to Telkom's costs (i.e. mortgage interest payments), this means, for example, that Telkom has in the past derived benefit from increases in mortgage interest costs. This is another reason to favour shifting to the use of CPIX.

Thirdly, the methods used by ICASA to establish the value of X in the price-cap imply an inflation rate consistent with CPIX rather than CPI. Hence, the price-cap calculated by ICASA that ensures Telkom can meet its cost of capital implies an inflation rate derived from the CPIX index. As the CPIX measure of inflation has recently diverged considerably from the CPI measure of inflation, allowing Telkom to earn a return on assets that is implicitly based on the CPI measure runs the risk of unduly penalising Telkom.

Therefore ICASA proposes to use the CPIX index over the next price-cap period.

5. The calculation of X

The value of X in the price-cap depends on a number of variables, but a significant determinant is the coverage of the basket itself which has been discussed above. The other key variables which have the greatest impact on the value of X are:

- forecasts of volume growth for the market for the capped services in the basket
- forecasts of Telkom's market share
- assumptions of Telkom's efficiency gains
- cost of capital and asset base

Decisions on these variables are not issues of policy but rather questions of judgement as to the most appropriate value. The judgement involved in deciding a value for the first two variables is qualitatively different from that for the last two. The first two are forecasts based on the best evidence available to ICASA, from Telkom and others, of what the future market will look like. The second two are less forecasts and more in the nature of seeking the best available evidence about more objective factors. ICASA has taken external evidence on other telecoms operators' efficiency and, from analysis of financial markets, on cost of capital values.

The level of X in the proposed price-cap, which is 4%, has been estimated by assessing Telkom's existing tariffs and unit costs and equating these at the end

of the price control period. This approach is in line with international best practice and insures that Telkom earns a return on the capital it employs equal to its weighted average cost of capital.

The following additional factors were considered in deriving expected unit prices at the end of the price control period:

- Projected numbers of residential and business lines, based on historical growth and changes in GDP. The growth in lines has been estimated at 3% and 6% per year respectively, based on annual GDP growth of 3% over the price control period.
- Demand for calls, based on existing average use per line and the effects of elasticities of demand (i.e. reduction of prices should stimulate demand).
- Projected Telkom market share based on the introduction of the SNO and liberalization of the market. It has been estimated that Telkom will retain an 80% market share in fixed voice and 70% in leased lines, data and broadband services in 2008.
- Levels of efficiency based upon historical improvements, Telkom's estimates and global trends in efficiency levels resulting from improved technologies and cheaper equipment. The level of efficiency has been estimated at approximately 3.5% per annum.
- Cost volume elasticities, which recognize that a proportion of costs are fixed. It has been estimated that 25% of costs are fixed and 75% are variable.
- Pre-tax nominal cost of capital, which as discussed below is estimated at 18%.

ICASA has modelled Telkom's business using submitted audited cost accounting data and estimates that a one per cent increases in the following variables would give rise to changes in X as follows:

Table 4: Sensitivity Analysis for X	
Increase by 1%	Change in X
Efficiency	+1 %
Cost of capital	-0.3 %
GDP	+0.2 %
Business line growth	+0.1 %

As can be seen in the Table 4 above, the effect of efficiency gains plays a critical role in influencing the value of X. ICASA has applied relatively conservative estimates for efficiency gains achievable by Telkom over the next price-cap period, reflecting real constraints relevant to the South African context.

Efficiency gains

The most significant variable affecting the value of X is the efficiency estimate. It can be seen in Table 4 that a 1% improvement in Telkom's efficiency leads to a 1% increase in the value of X. ICASA is therefore especially in opinion about Telkom's efficiency over the period 2005-08.

Cost of capital

In a fully competitive market, if a firm is efficient, it should be able to meet its cost of capital but, due to competitive pressure from other firms in the market, it ought over time to earn no more than the cost of capital. In competitive markets a firm can sometimes earn a return above its cost of capital, but this usually triggers firms to expand production and for other firms to enter the market, the effects of which lead to lower prices and consequently a reduction in the return on capital employed. The converse also applies. However, in a monopoly market or in a market where there is insufficient competition, competitive forces are unable to rein back returns on capital employed when they exceed the cost of capital. In this market it is therefore important for ICASA to determine an acceptable rate of return, as market forces are currently not effective at reining back an excessive return on capital employed. Furthermore, ICASA does not expect competition to become effective over the period of the price-cap. The determination of an acceptable rate of return plays an important part in deciding what the level of prices should be once the firm has achieved its target efficiency improvement.

Return on capital employed

ROCE is a measure of the returns a company is realising from the capital it employs and can be calculated in a number of ways. ICASA calculates the ROCE of Telkom as profit before interest and taxation divided by total assets less current liabilities. This method of calculating ROCE is widely used to assess a firm's performance and provides a simple way of comparing the profitability of different firms.

Table 5:

Group assets	42,276	53,537	55,316	53,229	52,984
Vodacom assets	9,864	12,342	15,574	16,966	20,098
Telkom assets	37,344	47,366	47,529	44,746	42,935
Current Liabilities	14,382	15,314	12,765	14,197	14,443
Vodacom current liabilities	5,883	7,267	8,205	7,159	9,833
Telkom current liabilities	11,441	11,681	8,663	10,618	9,527
Telkom capital employed	25,904	35,686	38,867	34,129	33,409

ROCE			5.9%	12.2%	19.2%
Group EBIT	3,908.00	4,984.00	4,191	6,514	9,088
Vodacom EBIT	2,364.00	2,553.00	3,621	4,330	5,234
Telkom EBIT	2,726.00	3,707.50	2,380.50	4,349.00	6,471.00
Telkom ROCE	10.5%	10.4%	6.1%	12.7%	19.4%

Source: Telkom Form 20-F, 25 June 2004

Table 5 shows the ROCE in Telkom's fixed network business from 2000 to 2004 estimated by ICASA using the method described above. It can be seen that Telkom's overall ROCE has markedly improved over the last three years, and particularly over the last complete financial year. From a return of 6.1% three years ago, Telkom recorded a ROCE of 19.4% in 2003-04.

In order to determine the acceptable rate of return on capital employed, ICASA needs to examine the cost of funding Telkom's business; that is, Telkom's cost of capital. The capital employed by a firm comprises debt and equity (shares) and an acceptable ROCE would allow Telkom to cover the cost of capital. Telkom's cost of debt and cost of equity are dependent on a number of factors, including the mix of debt and equity already held by Telkom. In general debt can be a cheaper source of funding, but can be more risky since interest must be paid on it each year, and equity can be a more expensive source of funding but may carry less risk because the dividend on shares can be waived, if circumstances demand it, without the future of the business necessarily being put at risk.

In general a business seeks to choose a mix of debt and equity that minimises its weighted cost of capital; that is, the sum of the cost of debt and cost of equity weighted by the proportion of debt and equity in total capital employed. The weighted average cost of capital (WACC) usually follows a 'U' shape, such that a firm with a low proportion of debt faces a high cost of equity capital and a firm with a low proportion of equity faces a high cost of debt funding. Higher levels of debt tend to be seen as increasing the level of risk, in which case equity investors will look for a higher rate of return, so increasing the cost of capital. Lower levels of debt will mean that the advantages of this cheaper form of funding have not been maximised.

The cost of equity is the more difficult component to estimate of the WACC, as it depends on how the stock market views the prospects of the firm. A widely used method to assess the cost of equity is the Capital Asset Pricing Model (CAPM). This is based on assessment of how the market responds to the volatility of the share price over a period. Generally, in a stable economy, the market will look for a return substantially above the "risk free rate", the theoretical interest rate at which an investment may earn interest without incurring any risk. The return in excess of the risk free rate is known as the "market risk premium" or "equity risk premium".

In practice the risk free rate is usually assumed to be equivalent to the rate associated with a short term government bond. According to the

PricewaterhouseCoopers "Business Enterprise Value Survey" 2003, the R153 South African government bond is the most popular proxy for the risk free rate used by firms. Furthermore, in the same survey it is shown that over 70% of managers use the spot rate of the R153 to determine the risk free rate. ICASA notes that the yield of on the R153 was 8.88% on 12 October 2004 and therefore takes 9% as the proxy for the risk free rate (as shown on the South African Central Reserve Bank website: <http://www.reservebank.co.za/>). The market risk premium is currently estimated in South Africa to lie between 5% and 8% (see PricewaterhouseCoopers "Business Enterprise Value Survey" 2003). ICASA believes that a reasonable market risk premium to use for Telkom is 6%. Therefore the return on equity is on average around 15%.

How near to 15% the shares of the company concerned are valued in the market will vary depending on how volatile the share price is and hence how risky investing in these shares is thought to be. The greater the volatility, and hence the perceived risk, the higher the dividend payments will need be to be to maintain the share price at a level sufficient to enable the firm to draw on equity finance reasonable economically.

This calculation normally makes use of a formula relating to the volatility of the share price, compared to the market as a whole, called the "beta" of the share. However, in order to have a meaningful beta, it is necessary for the share to have an established history. Telkom was only privatised with the IPO of March 2003 and since then the share price has risen strongly, well ahead of the market as a whole. The market appears to be expecting a profitable and probably stable future for the company, but the IPO happened to coincide with a trough in the market, so it is difficult to discern how far the share price can be taken as suggesting that the market will be satisfied with a lower than average rate of return on its investment. Certainly the history of the share appears too short to establish a reliable "beta".

In these circumstances, it is necessary to use an estimate of the beta of Telkom. An established monopoly utility is likely to be regarded as particularly stable and to have a beta below one. As competition develops, the beta is likely to go above one. For the purposes of the review we consider that a beta of between 0.95 and 1.05 is appropriate. The cost of equity therefore lies in a range as shown in Table 6:

Table 6

Beta	0.95	1	1.05
Cost of equity	14.70%	15.00%	15.30%

Source: ICASA Estimates

The cost of debt is made up of a risk free component and a premium to reflect company specific risks. For large companies like Telkom historical evidence suggests that the risk premium is relatively small, in the order of around 1%. ICASA therefore takes a value of 10% to represent the cost of debt pre-tax, or 7% after tax (with corporation tax currently at 30%).

It is also likely to be useful to check the return thought to be necessary for Telkom's fixed network business against returns offered by other large South African firms who are competing in the same market for capital. Table 5 shows the return on capital employed (using the net assets method) of a selection of such companies, together with the current return on their ordinary shares.

Telkom's split between debt and equity is 36% debt and 64% equity (as of end March 2004), and ICASA assumes that this level of gearing is close to its optimal position on a going forward basis. Applying the figures referred to above gives a current WACC estimate as shown in 7:

Table 7 ICASA's estimate of Telkom's pre-tax and post-tax WACC

Beta	0.95	1	1.05
WACC Post	11.91%	12.10%	12.29%
WACC Pre	17.01%	17.28%	17.55%

14.17. We have concluded for the purposes of the review that the pre-tax nominal cost of capital for Telkom to apply in the calculation of X to apply in the general price control formula, looking forward, should be taken as 17.3%.

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