

Annexure A

Please note that the following comments by Telkom on the Authority's LLU Discussion paper should not be read in isolation to Telkom's LLU submission which mainly focuses on general issues and the conceptual framework underpinning any discussion on LLU. In this regard, Telkom believes that a detailed discussion on the practicalities of LLU implementation is inappropriate considering the fact that the Authority has not addressed issues of the relevance and need for LLU. However, in the interest of contributing to the process Telkom has provided comments on the Authority's Discussion paper. For ease of reference, Telkom's comments have been shaded in grey.

1. Executive Summary

1. The Independent Communications Authority of South Africa (ICASA) seeks stakeholders' inputs on the manner in which to ensure access to the "local loop."

Telkom would like to express its concerns in respect to the Authority's approach to the issue of allowing access to the local loop. Firstly, it is not clear what is meant by the 'local loop' and secondly it appears that the Authority has already made a finding in so far as access must be provided to the local loop and the only outstanding issue is the manner in which this access must be provided. For example, does the local loop apply to all licensees?

2. ICASA's view is that access to the local loop is mandated in terms of the obligation to lease facilities (Section 43(1)) of the Electronic Communications Act, no. 36 of 2005 (the "ECA"), and any facilities leasing agreement is governed by the Electronic Communications Facilities Leasing regulations as stipulated in Government Gazette 33252 of 31st May 2010

It is Telkom's understanding that based on the above explanation, all licensees including those that provide mobile cellular services will be obliged to provide access to their local loops.

3. ICASA has identified four possible options for access to the local loop, namely:
 - Bitstream access
 - Shared loop unbundling
 - Full-loop unbundling
 - Sub-loop unbundling

It is Telkom's understanding that the 2007 Marwala LLU Report only recommended three forms of LLU, namely Full unbundling, Line sharing and Bitstream (wholesale) access

4. ICASA seeks stakeholders' inputs on the following:
 - Is ICASA's proposed approach to unbundling the local loop through the implementation of the facilities leasing regulations reasonable, feasible and acceptable?
 - What form of local loop unbundling do stakeholders realistically favour in the South African market?

- What other cost items should be included in each form of local loop unbundling (LLU)?
- Should a standardised ordering and specifications system be developed?
- In the event that an access line deficit is identified, would you be willing to contribute to an access line deficit recovery scheme?

Telkom will address these questions separately in the Telkom submission

2. Introduction

2.1 Purpose

5. The purpose of this discussion paper is to outline the Independent Communications Authority of South Africa's (ICASA) initial views on the process to be followed to unbundle the fixed line "local loop".

It is of material concern that the Authority states that the purpose of the Discussion paper is to outline the process that will be followed but subsequently provides no further clarity or direction on the process to be followed in this document but rather deals with substantive issues.

Furthermore, this section seems to limit LLU to fixed lines which is contrary to statements made by the LLU Committee at the Media Press briefing that LLU would apply to all licensees irrespective of the underlying technology used. It would be of significant concern to Telkom if the Authority had to take a technology specific view on this matter which ignores convergence and the principle of net-neutrality.

2.2 Background

1. The South African Government, through the Minister of Communications as well as ICASA has undertaken a number of initiatives over the past ten years to introduce local loop unbundling. This section provides a brief background to these initiatives and the legislative framework for the introduction of local loop unbundling.

The Authority states that LLU initiatives was commenced over 10 years ago but subsequently state in par 2.2.1.2 that the "The South African Government adopted the open-access approach to regulating the electronic communications sector with the introduction of the Electronic Communications Act (ECA) in 2005".

2.2.1 The open-access approach to regulation of the electronic communications sector

1. The open-access approach to regulating electronic communications services may be summarised by the following points

It is not clear to Telkom where and how this approach has been defined and whether this is informed by policy.

- a technology-neutral framework that encourages innovative, low-cost delivery to users;

Telkom assumes that the reference to 'users' is not meant to be exclusive of society at large. Telkom is of the view that LLU would only benefit certain segments of the population and not all users.

- competition at all layers in the network, allowing a wide variety of physical networks and applications to interact in an open architecture

It would appear to Telkom that in spite of the above statement, the Authority has chosen to inconsistently apply this approach only to telecommunications providers (and perhaps to fixed line

operators only) to the exclusion of broadcasters. Telkom believes that the principle of open access, including access to the local loop and the equivalent thereof in the broadcasting environment, should be equitable, proportionately applied to all licensees in the communications industry.

- transparency to ensure fair trading within and between layers that allows clear, comparative information on market prices and services
 - the circumstances where everyone can connect to everyone else at the layer interface so that any size organization can enter the market and no one takes a position of dominant market power; and
 - devolved local solutions rather than centralized ones encouraging services that are closer to the user.
2. The South African Government adopted the open-access approach to regulating the electronic communications sector with the introduction of the Electronic Communications Act (ECA) in 2005.
 3. The ECA aims to promote competition in the sector, not only through infrastructure competition (i.e. licensing a new vertically integrated participant), but through the introduction of service-based competition at different levels within the network where licensees are able to access components of existing network assets of another licensee to provide services.
 4. This open access approach is espoused in Section 2 of the ECA, the Objects of the ECA. The Objects listed below have particular reference to unbundling the local loop:

Telkom would like to point out that the primary aim of the EC Act is “to promote convergence in the broadcasting, broadcasting signal distribution and telecommunications sectors and to provide the legal framework for convergence of these sectors; to make new provision for the regulation of electronic communications services, electronic communications network services and broadcasting services; to provide for the granting of new licences and new social obligations; to provide for the control of the radio frequency spectrum; to provide for the continued existence of the Universal Service Agency and the Universal Service Fund; and to provide for matters incidental thereto”.

Telkom is concerned that the Authority’s approach is one of promoting competition in the telecommunications sector rather than promoting convergence and competition between broadcasting and telecommunications providers.

Telkom has noted that the Authority has conveniently omitted the primary object of the EC Act which is to “provide for the regulation of electronic communications in the Republic in the public interest and for that purpose to-”. Telkom submits that it is incumbent on the Authority to illustrate how LLU is in the public interest and will increase consumer welfare rather than linking some objects of the Act to LLU. Indeed, Telkom submits that LLU regulation will fail the primary test of the EC Act, i.e. to regulate in the public interest.

“(b) promote and facilitate the development of interoperable and interconnected electronic networks; the provision of the service contemplated in the Act and to create a technologically neutral licensing framework;

Telkom submits that should the Authority adhere to this objective, it will need to apply the unbundling of the local loop or its equivalent to all licensees including broadcasters and providers of mobile cellular services.

(f) promote competition within the ICT sector;

Telkom submits that should the Authority adhere to this objective, it will need to apply the unbundling of the local loop or its equivalent to all licensees including broadcasters and providers of mobile cellular services.

(g) promote an environment of open, fair and non-discriminatory access to broadcasting services, electronic communication networks and to electronic communications services;

Telkom submits that should the Authority adhere to this objective, it will need to apply the unbundling of the local loop or its equivalent to all licensees including broadcasters and providers of mobile cellular services.

(m) ensure the provision of a variety of quality electronic communications services at reasonable prices; and

(n) promote the interests of consumers with regard to the price, quality and the variety of electronic communications services.”

Telkom submits that the introduction of LLU in South Africa may have unintended consequences that may be contrary to this objective.

5. Specific provisions in the ECA, namely the obligation to interconnect (Chapter 7) and the obligation to lease facilities (Chapter 8), seek to ensure the open-access model. A discussion of these obligations takes place in Section 3 of this discussion paper.
6. South Africa re-iterated its commitment to the open-access approach by signing the Kigali Protocol which supports an open access approach to national, regional and international network of networks in Eastern and Southern Africa.¹

2.2.2 Policy directive from the Minister of Communications

1. The Minister of Communications has, in terms of section 3(2) of the ECA , discretionary powers to issue to ICASA policy directions consistent with the objects of the ECA and of the related Legislation in relation to-
 - (a) *“The undertaking of an inquiry in terms of section 4B of the ICASA Act on any matter within ICASA’s jurisdiction and the submission of reports to the Minister in respect of such matter;*
 - (b) *The determination of priorities for the development of electronic communications networks and electronic communications services or any other service contemplated in Chapter 3; and*
 - (c) *The consideration of any matter within ICASA’s jurisdiction reasonably placed before it by the Minister for urgent consideration”.*
2. Through these powers, the then Minister of Communications, the late Honourable Dr Ivy Matsepe-Cassaburi, issued a policy direction to ICASA to implement local loop unbundling based on the findings of the Local Loop Unbundling Committee. The policy direction is repeated below for reference:

“I HAVE TAKEN THE POLICY DECISION that, given the complexity of (the) local loop unbundling process on the one hand and the urgency for South Africa to enable all operators appropriately licensed to have access to the local loop on the other hand, the unbundling process in South Africa should be urgently completed and implemented by 2011. In addition, ICASA should, as appropriate, take advantage of the report of the Local Loop Unbundling Committee and its recommendations on the proposed unbundling models”.²

Telkom respectfully submits that the Authority’s reliance on a Policy Direction from the Minister to ‘legitimise’ the introduction of LLU, and as a basis for the Authority’s powers is flawed in law and

¹ <http://www.eafricacommission.org/projects/126/nepad-ict-broadband-infrastructure-network>

² Government Gazette No. 30308 dated 17 September 2007

incorrect. Telkom will however address this issue under a separate section of the Telkom submission.

3. The current Minister, the Honourable Radhakrishna Padayachie, re-affirmed the policy direction to implement local loop unbundling in November 2010.

Telkom submits that, apart from some media statements, it is not clear to Telkom how and where the Honourable Minister has re-affirmed the policy direction. In addition, it would appear as if the Authority very conveniently and selectively quotes the Minister's approach. In an article by Mr Duncan McLeod (TechCentral on 28 February 2011) with the heading 'Padayachie wants new model for unbundling' it is clear that the Minister is calling for a new model. It is evident that the Authority has not considered the call for a new LLU model as part of its Discussion paper or requested comments on any of the issues raised by the Minister.

2.2.3 An outline of earlier steps to introduce local loop unbundling

1. In 2006 the then Minister of Communications (Minister) announced a committee headed by Professor Tshilidzi Marwala to recommend how incumbents' local loop networks could be unbundled. The overall task of the committee was to investigate possible Local Loop Unbundling (LLU) methods and to make appropriate recommendations in this regard.
2. In the report³ presented to the Minister in 2007 the LLU committee recommended that:
 - a combination of three unbundling models would be appropriate;
 - any form of collocation of facilities for LLU must be allowed; and
 - any operator appropriately licensed by ICASA should have access to the local loop to deliver voice and/or broadband regardless of who owns it.
3. As a result of this report, it was proposed that a regulatory guideline be developed and overseen by ICASA to ensure that strategic issues such as the quality of the local loop, its maintenance and technical compatibility are optimised for regulation and service delivery. It would also be necessary to prescribe regulations that govern access pricing. It was also recommended that ICASA should implement carrier pre-selection regulations to support successful implementation of LLU.
4. The report further recommended that Telkom form a new facilities and services management entity on such terms and conditions as shall be agreed with ICASA. It was also emphasised that ICASA must be capacitated to physically inspect the incumbent's premises for issues that may be required for the implementation of the unbundling of local loop.

Telkom has noted that the Authority has very selectively and randomly considered the Committee's recommendations. The Authority has not been transparent in its decisions or explained why some recommendations seemingly have been accepted while others have not. Furthermore, it is not clear why the Authority has decided to expand the Committee's three recommended models to four LLU models.

5. ICASA published a notice on 28 February 2008 to invite stakeholders to take part in the LLU process. The notice process was followed by an exploratory workshop on LLU on 23 September 2008.
6. However, access to the local loop represents a specific form of facilities leasing, which is governed by the principles in Chapter 8 of the ECA. ICASA chose to refrain from continuing work on local loop unbundling until the framework regulations for electronic communications facilities leasing agreements were finalised as required by Section 44 of the ECA.

³ Department of Communications: Local Loop Unbundling: A way forward for South Africa.

It is of great concern to Telkom that the Authority seems to be rushing the implementation of LLU or finalise some form of LLU framework while the Authority itself 'chose to refrain from continuing to work on LLU' for a period of almost 3 years. Telkom believes that considering the complexities of LLU, it is irresponsible for the Authority to expect industry to provide detailed comments on the Authority's Discussion paper within a period of 3 months after a delay of almost 3 years.

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7. ICASA published the electronic communications facilities leasing regulations, on 31 May 2010, which outline the required content of all facilities leasing agreements.

Telkom respectfully submits that even if the Authority would use the finalisation of facilities leasing regulations as the reason for refraining from continuing to work on LLU, such regulations were finalised in any event 12 months earlier. Once again, Telkom believes it is irresponsible and unjust for the Authority to rush industry to meet the November 2011 deadline while the Authority by its own admission has been inactive on continuing work on LLU for many years.

8. As part of fulfilling the recommendations made by the Local Loop Unbundling Committee (LLUC) and in line with Section 42 of the Act, ICASA further published regulations on carrier pre-selection, on 27 September 2010, as precursor regulations for the successful implementation of LLU.

2.2.4 Legislative Framework

1. Section 4B of the ICASA Act states that ICASA may conduct inquiries into any manner with regard to, amongst others:
"4B(1)(a)The achievement of the objects of this Act or the underlying statutes;"
2. This inquiry into unbundling of the local loop is based on the objectives of the ECA being to introduce an open-access architecture to the interconnection to and use of existing electronic communications facilities, as defined in the ECA.
3. The factors around the open-access goal is discussed in more detail in the remaining sections of this discussion document

Telkom will provide comments on the legislative framework under a separate section of the Telkom submission.

3. Open access, local loop unbundling and facilities leasing

3.1 Why unbundle the local loop?

1. The "local loop" is a physical circuit connecting the electronic communications network termination point at the subscriber's premises to the main distribution frame or equivalent facility in an electronic communications network and/or means the physical twisted metallic pair circuit connecting the electronic communications network point at the subscriber's premises to a connection point at the edge of the provider's network or a specified intermediate network.
2. Local loop unbundling is the process whereby a licensee is obliged to provide access to the local loop at a wholesale price so that other licensees may access end-users

Telkom would like to point out that it is not necessary to implement LLU in order to allow other licensees to access end-users. This can also be achieved through interconnection and CPS, both

which are existing obligations on communications licensees. In this regard it is clear that LLU may not be proportionate and may even be excessive.

3. Unbundling the local loop is similar to number portability. Number portability allows an end-user to switch service providers without having to change the number. Unbundling the local loop allows an end-user to utilise the same physical connection e.g. a traditional telephone line whilst having the choice of a service provider to access the services that are available over this physical connection.
4. With the introduction of number portability, licensees had to either reduce prices or enhance retail offerings in an effort to maintain their customers. Fostering consumer choice introduced a contestable market, thus increasing competition.

Telkom is of the view that this statement by the Authority is unsubstantiated. The Authority has not provided any empirical evidence to substantiate this claim. Indeed, many stakeholders have questioned the success of Number Portability (NP) in South Africa especially in light of the costs incurred to establish NP. Irrespective, by the Authority's own admission, LLU is similar to NP (sub paragraph 3 above) and NP has been very successful (sub paragraph 4 above). In light of the aforesaid and the Authority's claim that NP has already increased competition, Telkom will argue that LLU is excessive and inappropriate.

5. Unbundling the local loop is expected to have exactly the same effect where service providers will have to either reduce prices, enhance retail offerings or a combination of the two in order to remain competitive.

From the above, it is Telkom's understanding that the Authority's rationale for introducing LLU is to see a reduction in prices, enhance retail offerings or a combination thereof.

This rationale for implementing LLU given above, is different to the Authority's media release which intimated that LLU had at its core the more effective and efficient sharing of existing infrastructure.

3.2 Providing access to the local loop

Telkom will provide comments on the regulatory framework under a separate section of the Telkom submission.

1. The current regulatory framework offers a range of tools to foster competition by unbundling the local loop. These tools have been and always will be hotly debated between licensees with a substantial presence in the market and new entrants/smaller players as well as ICASA.
2. Some argue that LLU promotes service-based competition and represents a barrier to investment and increased facilities-based competition. Others argue that the ladder of investment approach to regulating access to the local loop is one of the only tools to ensure that future investment takes place (Bourreau, M and Dogan, P (2003).
3. The matter of essential facilities, pro-competitive remedies and the obligation to lease electronic communications facilities are discussed in this section before concluding with ICASA's proposed approach to ensuring the provision of access to the local loop.

3.2.1 Defining the Local Loop as an essential facility as per s43(8) and undertaking a Market Review process for purposes of s67(4)

1. The requirement for a regulatory authority to prescribe a list of "essential facilities" is an outcome of the introduction of regulatory reform in the ICT sector in both the United States of America (USA) and Europe.
2. The principle for prescribing a list of "essential facilities" was to identify particular facilities which the regulatory authority deemed inefficient to duplicate (i.e. inefficient investment). This list of essential facilities was then used as an input to market review processes to identify whether any particular operator maintained control over an essential facility and if so, whether the conduct of the particular operator led to a lack of effective competition.
3. The ECA recognises this approach in Section 67(6)(b)(ii)(dd) by requiring a market review to consider whether any licensee has "control of essential facilities." Furthermore, the ECA states the following regarding a determination as to whether a licensee has significant market power:
"67(5) A licensee has significant market power with regard to the relevant market or market segment where the Authority finds that the particular individual licensee or class licensee—
(a) is dominant;
(b) has control of essential facilities; or
(c) has a vertical relationship that the Authority determines could harm competition in the market or market segments applicable to the particular category of licence."
4. Therefore, the ECA recognises the traditional role of a list of essential facilities in determining whether any particular licensee has significant market power, and such power warrants the introduction of particular access obligations as pro-competitive terms and conditions.

3.2.2 The adoption of the open access regime and the obligation to lease facilities

1. The ECA introduces an open access regime by introducing the obligation to interconnect (Section 37(1)) and to lease electronic communications facilities (Section 43(1)).
2. However, the open access regime that is specified in the ECA differs from open access regimes developed in other nations. The traditional open access regime has led to broad commitments, with certain access obligations being specified on specific licensees, such as OfTel's imposition of local loop unbundling obligations on British Telecom.
3. The ECA took the events of other jurisdictions a step further, by specifying that all electronic communications network service (ECNS) licensees are obliged to lease electronic communications facilities as defined in the ECA. The ECA defines these facilities as follows:
"electronic communications facility" includes but is not limited to any—
(a) wire;
(b) cable (including undersea and land-based fibre optic cables);
(c) antenna;
(d) mast;
(e) satellite transponder;
(f) circuit;
(g) cable landing station;
(h) international gateway;
(i) earth station; and

(j) radio apparatus or other thing, which can be used for, or in connection with, electronic communications, including where applicable—

(i) co-location space;

(ii) monitoring equipment;

(iii) space on or within poles, ducts, cable trays, manholes, hand holds and conduits; and

(iv) associated support systems, sub-systems and services, ancillary to such electronic communications facilities or otherwise necessary for controlling connectivity of the various electronic communications facilities for proper functionality, control, integration and utilisation of such electronic communications facilities;”

4. The obligation to lease the above facilities is mandatory under Section 37(1) of the ECA. It should be noted that this obligation does not only apply to identified firms, but rather to all those firms with an ECNS license.
5. The ECA implicitly considers the potential for firm-specific behaviour that may undermine transparency and therefore ensures that all electronic facilities leasing agreements are to abide by the principle of non-discrimination (Section 43(7) of the ECA).
6. The ECA further recognises that such an obligation, whilst it in principle aims to foster the efficient use of networks, may not always be possible in practice. For this reason the ECA allows for a dispute mechanism in Section 43(4):
“For purposes of subsection (1), a request is reasonable where the Authority determines that the requested lease of electronic communications facilities—
(a) is technically and financially feasible; and
(b) will promote the efficient use of electronic communication networks and services.”
7. The open access regime as discussed above provides for a wide range of potential access points within an electronic communications network for any licensee which requests such access.
8. This obligation on electronic communications network service licensees effectively provides licensees with an opportunity to avoid the requirement to comply with onerous and specific obligations which ICASA may impose on specific licensees through a market review process.
9. Based on the obligation to lease electronic communications facilities, providing access to the local loop is already mandatory based on the obligation imposed under Section 43(1). It is important to note that this obligation affects all firms with an ECNS licence, unless exempted by ICASA in terms of section 44(5) of the ECA.
10. Furthermore, Regulation 9(3) of the Electronic Communications Facilities Leasing regulations (the “regulations”) states the following:
“An electronic communications facilities provider must apply similar terms and conditions, including those relating to rates and charges, in similar circumstances to itself, affiliates and other electronic communications facilities seekers requiring similar services, unless otherwise requested by the electronic communications facilities seeker”
11. Regulation 10(3) states the following:
“Charges for electronic communications facilities must be sufficiently unbundled so that an electronic communications facilities seeker does not have to pay for anything it does not require for the requested electronic communications facility or facilities.”

12. These requirements are tempered by the necessity of a request to lease the local loop to be "reasonable" as per Section 43(4).
13. Although Regulation 12 provides for exemptions based on whether a licensee has significant market power in the provision of a particular service, given that no ECNS licensee has been declared to have SMP, the requirements under Regulation 9(3) and 10(3) of the regulations apply to all ECNS licensees.
14. It is also important to note that Regulation 12 of the regulations cannot be used as a mechanism to exclude certain licensees from the requirement to provide services in a non-discriminatory manner, as this is a requirement under Section 43(7) of the ECA.
15. Another point is that the ECA is explicit in allowing the regulations to include "the manner in which unbundled electronic communications facilities are to be made available" (Section 44(3)(m)).
16. Although the current regulations do not explicitly prescribe the manner in which such unbundling should take place, the right for an ECNS licensee to request access to unbundled facilities is enshrined through the definition of electronic communications facilities in the ECA and the requirement under Regulation 10(3) of the regulations.

3.3 ICASA's view and proposal

Telkom will provide comments on the legislative framework under a separate section of the Telkom submission.

3.3.1 ICASA's view on successful unbundling of the local loop

1. ICASA is of the view that, in the context of the South African regulatory framework, LLU is mandatory. Section 43(1) of the ECA provides that access to electronic communications facilities, including the local loop, must be provided by any ECNS licensee to any other ECS/ECNS licensee or exempted network operator who requests access, unless the request for access is unreasonable. ICASA has the power, in terms of Section 44(5) of the ECA, to exempt particular licensees from this requirement where the licensees do not have SMP in the relevant market or market segment. However, ICASA has not yet exercised its power to do so. As such, at the present time, all ECNS licensees are subject to this obligation.
2. However, in reality, in the absence of detailed regulatory rules regarding how such access must be provided, licensees may not easily be able to exercise their rights to obtain access to the local loop.
3. The relationship between the obligation to lease facilities (Section 43(1)) and the requirement to specify a list of essential facilities (Section 43(8)) needs to be unpacked. On the one hand section 43(1) provides that all ECNS licensees must grant access to facilities unless exempted by ICASA on the basis that they do not have significant market power (SMP) and, on the other hand, section 43(8) provides that ICASA must prepare a list of certain facilities which must be leased in terms of section 43(1). Regardless of this situation it is apparent that the local loop is definitely one of the types of electronic communications facilities that will always be subject to the leasing obligations in section 43(1) of the ECA.

4. The ECA includes, in section 43(7), a requirement that facilities must be leased on a non-discriminatory basis. Although this requirement has an influence on the pricing of leased facilities in that an operator cannot charge competing operators more to lease facilities to them than it charges either itself, its affiliates or other competing operators (unless there is an objectively justifiable basis on which the facilities leased to the different parties are not comparable), it is not the same as a price control. A price control is generally imposed on either wholesale or retail services to bring prices closer to cost-based levels. This is not necessarily the effect of the non-discrimination requirement which is imposed on ECNS licensees in terms of section 43(7) of the ECA in relation to their facilities-leasing activities.
5. The Facilities Leasing Regulations are required to be published by ICASA, in terms of section 44(1) of the ECA, to facilitate the conclusion of the facilities leasing agreements in terms of which access to the facilities of network operators will be given. These Facilities Leasing Regulations do not cover all the matters contemplated in section 44, but do include certain provisions which are similar to provisions which are already contained in the ECA itself. For example, regulation 9(3) provides that the terms and conditions on which ECNS licensees lease facilities, including access charges which are levied, must be similar regardless of the person to whom the facilities are being leased.
6. This provision has substantially the same effect as section 43(7) of the ECA. Regulation 12 of the Facilities Leasing Regulations provides that those ECNS licensees who are found not to have SMP will not be required to comply with regulation 9(3) or with regulation 10(3) which mandated that facilities leasing charges be unbundled. At present, given that no ECNS licensees have been declared to have SMP, the Facilities Leasing Regulations as well as Chapter 8 of the ECA are applicable to all ECNS licensees in their entirety.
7. Although ICASA has the power to exempt particular ECNS licensees from some or all of the obligation to lease facilities where those licensees do not have SMP in the relevant market or market segment, the effect of regulation 12 of the Facilities Leasing Regulations is only to exempt certain licensees (with effect from the time that a market review has been conducted) from the application of certain provisions of the Facilities Leasing Regulations.
8. Regulation 12 does not have the effect of exempting those ECNS licensees which do not have SMP in the relevant market from the same or similar provisions of the ECA itself e.g. the obligation to lease facilities on a non-discriminatory basis in terms of section 43(7). This is on the basis that the Facilities Leasing Regulations cannot replace or supersede the provisions of the empowering legislation.
9. To assist electronic communications network service and electronic communications service licensees in making electronic facilities leasing agreements with respect to the local loop, ICASA proposes to prescribe guidelines on leasing the local loop that will guide licensees. These guidelines will provide clarity on the issues of access to the network and efficient pricing and will follow the principles governing the leasing of electronic facilities contained in s43 (7) of the Act, namely non-discrimination and technical quality.
10. ICASA's intention in adopting this approach to local loop unbundling is to give effect to object 2 (b) of the Act – to provide for the regulation of electronic communications in the Republic in the public interest and for that purpose to 'promote and facilitate the development of interoperable and interconnected electronic networks'.
11. As mentioned above, ICASA is of the view that access to the local loop is already available in terms of Chapter 8 of the Act and is to be effectively introduced on the basis of the Electronic Facilities Leasing regulations.

3.3.2 The benefits of ICASA's approach

1. According to the International Telecommunications Union (ITU), the main reason for the sharing of infrastructure is to lower the costs of building and deploying the electronic communications network infrastructure. Local loop unbundling is one of the important ways to promote the sharing of infrastructure, by granting new entrants access to existing networks
2. ICASA's proposed approach above focuses directly on the benefits of infrastructure sharing, whilst also introducing a form of competition among licensees in the provision of services to end-users.
3. Furthermore, the approach prevents inefficient investment through preventing duplication of access networks, thus artificially increasing network operating inefficiencies. The infrastructure sharing approach also reduces the disruption of streets and the environment due to construction of new access networks.
4. The proposed infrastructure sharing approach introduces two distinct benefits to a licensee with an access network:
 - Improved internal efficiencies: the licensee who faces a form of competition has an opportunity to focus on internal dynamics to improve efficiencies and therefore actually improve revenue generation. The improvement of efficiencies will not only retain customers in a competitive market but will also lead to the provision of new and improved services, thereby leading to an increased customer base.
 - Providing access to its network will generate wholesale revenues not seen as a revenue stream before. Although this may be viewed as a loss owing to customer switching behaviour, it should also be used as an opportunity to generate a revenue stream where other licensees actually incur the costs of attempting to attract customers to utilise either under-utilised network capacity, or capacity that is not utilised at all. Any form of infrastructure sharing product that generates some revenue from assets which previously have not been utilised should be viewed as an opportunity and not a threat.

Telkom submits that the Authority's assumption that infrastructure sharing, i.e. LLU, will generate revenues from assets that have not previously been used is fundamentally flawed. If this is the case then LLU should be limited to those facilities that are not currently being used. The reality is that competitors will target existing customers and the most profitable customers. It will only be those customers that already enjoy the benefits of being connected to the network that will further benefit from LLU. Furthermore, the Authority only provides an unsubstantiated qualitative assessment of the benefits of the Authority's approach without providing any factual or empirical evidence. Of more concern is the fact that the Authority totally ignores the costs that will be incurred to provide such benefits which Telkom believes will in any event be limited and furthermore be limited to a small segment of customers. In summary, it is very disconcerting that the Authority is providing such a high-level assessment without providing any detail as to how the Authority's approach will increase public interest and promote society welfare at large. In this regard, Telkom requests that the Authority should initiate a proper Regulatory Impact Assessment to indicate that its proposed approach will best-serve public interest.

3.4 Conclusion on open access, local loop unbundling and facilities leasing

1. This section concludes with the view that access to the "local loop" is mandated under Chapter 8 of the ECA and more specifically the Electronic Communications Facilities Leasing regulations. Furthermore, as a point of departure being that of infrastructure sharing, ICASA is of the view that a measure of competition in the use of the "local loop" will improve network utilisation and internal network efficiencies, with the potential for an overall net gain to those licensees with an access network.

4. Developing a guideline to introduce local loop unbundling: the way forward

1. ICASA has identified four options for unbundling the local loop, described below.

It is not clear to Telkom what the nature of the Authority's 'guidelines' is. Telkom submits that if it is only a guideline in the true meaning of the word it has no effect of force of law. It is also not clear why the Authority has decided to expand the Committee's three recommended models to four LLU models.

4.1 Option 1: Bitstream access- Wholesale access

1. Bitstream service may be defined as the provision of transmission capacity between an end-user connected to a telephone connection and a facilities seeker, where the point of interconnection available to the licensee that requests access to facilities is upstream of the network providers network edge broadband equipment (for example, upstream of a DSLAM)

Telkom finds no reference to Bitstream or the concept thereof in the EC Act. The Authority appears to consider Bitstream to fall under facilities leasing, which could consequently imply the Authority consider all other forms of network services to fall under facilities leasing. To the extent that the Authority appears to have taken the view the Chapter 8 of the EC Act allows the Authority to unbundle operator networks, reductio ad absurdum the Authority could use Chapter 8 to force operators to make any point in an operators' network (subject to technical and financial feasibility) available to any other operator – whether operators have significant market power or not. Telkom considers the Authority to have gone beyond its powers in this regard.

Furthermore, the definition submitted by the Authority is problematic in that terms are used that are defined neither in the EC Act nor any subsequent regulations. Specifically the terms "telephone connection" and "transmission capacity" are not defined and the generally accepted use of this term in telecommunication engineering is not applicable in the case of Bitstream. Also, terms such as "network providers network edge broadband equipment" and "upstream of a DSLAM" are equally vague and undefined.

More to the point, the terms "telephone connection" and "DSLAM" find context only within a fixed network form of Bitstream. This clearly does not align with public assurances from the Authority that LLU was to be implemented by all licensees across both fixed and wireless.

There appears to be no placeholder in the EC Act for the definition of Bitstream; however if such a definition was required, Telkom would suggest:

Bitstream is the making available of the broadband access networks of an operator in a framed, digital format at any point technically and financially feasible for handover to an Internet Service Provider's equipment.

Bitstream is a technology neutral remedy that can be applied to copper, hybrid fiber/copper or wireless broadband access. The multiplexers per technology have different names and functions, however the concept of a virtual stream of bits/ or a channel, can be applied to all.

2. In most cases Bitstream access depends in part on the PSTN or Electronic Communication Network (ECN) operator and may include other networks such as the ATM network.

Telkom would like to point out that reference to a 'PSTN' (operator) as something different to an ECN is outdated and simply incorrect. Furthermore, the Authority has ignored the principle of technology neutrality by referring to 'PSTN' and / or "ATM networks". In this regard Telkom believes that such reference is inappropriate. Licensees should make Bitstream available on any appropriate technologies. In this instance, Telkom would like to refer the Authority to Telkom's proposed definition of Bitstream which is sufficient without reference to any specific technologies i.e. it makes 4.1.2, 4.1.4 and 4.1.6 redundant.

3. It is important to note that direct resale offerings are not a substitute for Bitstream access because they do not allow facilities seekers to differentiate their services from those of the facilities provider

It is Telkom's view that 'Resale' is indeed a form of Bitstream. In this regard, Telkom would like to refer the Authority to the DoC's report (Local Loop Unbundling: A way forward for South Africa) which states (pg 35/208) "*1.12.3 Resale of local traffic services is Bitstream access whereby the incumbent sells traffic services to new entrants at a wholesale price for the new entrants to resell at a retail price.*"

4. In providing a bitstream service, the facilities provider typically provides both the transmission medium (e.g. copper cables) and transmission system (e.g. xDSL transmission on copper cables). Technically, bitstream can be provided to any transmission system, since it requires reservation of a specified bandwidth, rather than dedicated use of a physical loop.
5. This option does not entail any unbundling of the copper pair, but employs the high frequencies of the copper loop as in the case of shared use of the copper pair, for example. A facilities seeker does not have access to the actual network infrastructure elements of the facilities provider but has access to the bit stream on the network side of the Digital Subscriber Line Access Multiplexer (DSLAM). In this case, the DSLAM is installed and operated by the facilities provider who sets up the speed and quality of service (QoS) of each user's DSL access link.

The entire paragraph find relevant only within the context of ADSL. It is consequently technology specific and should be removed.

6. This type of service may be attractive to the facilities provider as it does not involve physical access to copper pairs.
7. In a situation where the facilities seeker would be able to distinguish their services, such as VoIP and email, from those of the facilities provider, the seeker must be granted access at a point where they can control certain technical characteristics of the service to the end-user and/or make full use of their own network or other network offerings. This would present facilities seekers with an opportunity to change the quality of services or other factors such as adjusting their offerings in terms of rates, contention ratio or other features.

The Authority appears to have taken an amplified interpretation of the concept of Bitstream to the point of incorrectness and at the expense of engineering minimalism i.e. good design and cost minimization. Should the Authority wish to retain this paragraph, Telkom would rather propose:
"An operator providing Bitstream services to other licenced operators (OLO's) must provide those operators with the same technical capabilities that it provides its own internal technical divisions competing in downstream markets with the other licensed operators."

Bitstream by its very definition does not afford OLO's control of the capabilities of the providing operators network. Instead Bitstream is provided in a predetermined configuration to other licensed operators, with the possible exception of real-time bandwidth on demand capabilities. Unless OLO's are purchasing local Bitstream, the contention ratio is fixed for all OLO's – certainly not customizable on an operator by operator basis. Similarly unless the party providing Bitstream has build a QoS architecture, it would be unreasonable on an OLO to demand a QoS architecture from the Bitstream provider. The same logic applies for capabilities such as multi-cast.

8. The advantage with the bitstream access option is that it would not hinder any progressive modernisation of the local access network by replacing copper cables with optical fibre cables.

The Authority is essentially asserting the notion that an obligation on an operator to make available their networks in some form on a wholesale basis does not impair the investment case for that network. The Authority's statement has no factual basis and appears to be merely speculation.

Moreover the point, the factual accuracy of the statement is dubious. Clearly if Telkom were to build passive optical networks, then Bitstream would not be applicable to such architectures. Telkom refers the Authority to Ofcom's "Review of the Wholesale Access Market" (2010) where Bitstream remedies were applied to Market 5 and VULA (GEA) to Market 4 i.e. Ofcom found PON networks to be in a different market to ADSL.

9. It should be noted that Bitstream is normally offered only for subscribers at locations where the incumbent already offers broadband. Therefore the capital costs of establishing a broadband capability will already be covered.

The Authority appears to view telecoms as a static market where capital investment is made at the start, and the operators reap the gains thereof. It should be noted that Telkom continually reinvests in its network so as to increase broadband penetration, increase line speeds, increase backhaul capacities and in general improve the customer experience. Hence although a customer may have broadband, a wholesale remedy disincentivises Telkom to modernise the network and keep the technology updated. The incentive for reinvestment appears to have been completely ignored by the Authority.

10. However, in providing a bitstream service, a facilities provider is likely to face upfront capital costs, including:
 - Specifying and establishing the ordering system and internal procedures
 - Establishing the backhaul
 - Establishing the testing arrangements

Telkom submits that the Authority's list of costs is not comprehensive and underplays the costliness of implementing LLU. In this regard, the Authority appears to act disingenuously in providing a short list as opposed to a more extensive list which highlights the true costs for provision of the service. Other major cost items which have been overlooked by the Authority include:

- Product migration procedures e.g. customer moves from ADSL to Bitstream and impacts on AAA databases
- Provisioning systems and procedures, in particular IP Address management from OLO's
- Dual honing arrangement from DSLAM's to BRAS's
- Technical upgrade capabilities to IP Network to build L2TP functionality
- Fault logging systems and procedures
- Pricing regime & billing databases
- Commercial contracts & negotiations

11. A facilities provider will also face certain variable costs, including:
 - The costs of the DSLAM
 - Per subscriber order costs
 - Per subscriber modem costs
 - Traffic volume costs of backhaul services
 - On demand testing costs
12. Figure 1 below illustrates a simplified arrangement for bitstream access.
13. In evaluating the introduction of a bitstream service, certain quality of service parameters also have to be established. Below is a list of such parameters that have to be standardised:
 - Packet loss in the backhaul.

- Maximum delay added by the backhaul
- Maximum delay variation added by the backhaul.

As per Telkom's comment on par 4.1.8, the Authority appears to be presuming it has powers to make technical demands on an operator's network beyond those capabilities currently provided. Clearly there is no legal basis for the Authority to regulate Quality of Service on the network layer, especially to the extent of specifying QoS metrics. Further it is difficult to reconcile the Authority's predilection for "gold plated" service with the Department of Communications stated intent to make broadband affordable to the masses.

In order to enforce L2 and L3 QoS, network operators need to control both points of the service over which such QoS is measured. To the extent that broadband services terminate in a CPE, which is by its very definition not part of an operator's network, operators cannot measure or control L2 and L3 QoS from the CPE to the broadband concentrator – notwithstanding that this element of a broadband service is the most vulnerable in terms of QoS problems. It is absolutely against all engineering common sense to measure QoS on only a portion of an ADSL service i.e. the backhaul as advocated by the Authority in paragraph 4.1.13.

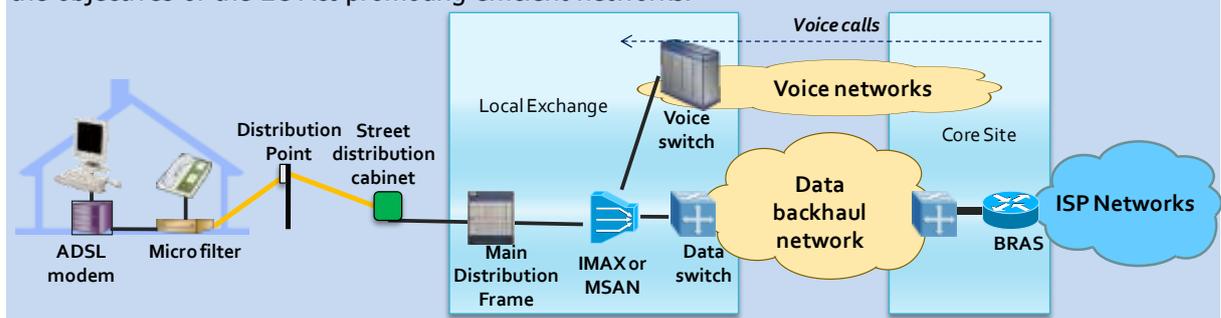
To the extent that Telkom currently does not have the capabilities to make such measurements, Telkom would be unable to comply. (The measurements Telkom currently makes are from BRAS to BRAS – as per other ISP's).

4.2 Option 2: Line Sharing (Shared Access to the Local Loop)

Telkom would like to point out that the technical architecture which forms the basis of this section and which the Authority places great reliance on, is obsolete and certainly not reflective of the technical design of Telkom's network. Whereas in during the 1999-2002 period when LLU was first introduced in the EU it certainly would have been common to have splitters on the MDF or a splitter bank in an exchange, since the advent of NGN architectures, and in particular the IMAX (Integrated Multiple Access Node) circa 2004, operators globally and Telkom specifically have done away with splitter banks. This in itself is indicative of how complex the introduction of LLU is and why the Authority should not rush the process of implementation before understanding the full implications of the various forms of LLU.

Telkom's modernized network architecture employs what is known as a Combo card in a concentration device. What this implies is that whereas previously operators used to generate voice dial tone from a DEC or DLC, while "broadband dial tone" from a DSLAM; the two sets of concentrators now form an integrated device from which both voice dial tone and broadband modulation is derived from a single termination point on the IMAX or MSAN (Multiple Service Access Node). Frequency splitting occurs internal to the card. Incidentally, this is a key reason why Telkom regards calls in the industry for "Naked ADSL" as ill informed and nonsensical.

Consequently Telkom advises the Authority that Naked ADSL should not be considered a realistic option for discussion considering the technical architecture of current networks. Clearly retrofitting an NGN with legacy splitter banks would lead to both technical and economic inefficiencies – contrary to the objectives of the EC Act promoting efficient networks.



⁴ Telkom defines "Naked ADSL" to entail the provision of an ADSL service without a voice dial tone on a line. Consequently customers would not pay separate analogue line rental and ADSL access fees, however a combined price of the sum of the two.

Figure 1. How Modern Network architectures do not cater for Shared Access

Having discussed the impracticality of the matter, Telkom would like to address some further assumptions the Authority makes, without prejudicing our aforementioned position.

1. Line Sharing takes place when the facilities provider retains use of the loop for its baseband, PSTN services, but unbundles the higher frequency part of the spectrum for use by a facilities seeker. This model enables facilities seekers and providers to share the same line where both the facilities provider and the seeker provide different services such as voice and data on the same loop.

Again, Telkom would like to point out that the Authority's reference to PSTN services is inappropriate, outdated and contrary to the principle of network neutrality.

Furthermore, it would be more accurate to speak of "voice and broadband" as opposed to "voice and data". The fact is that shared access can only be used for (asymmetric) xDSL based technologies, and not for (symmetric) data technologies such as SHDSL and E1-TDM.

2. In this situation, consumers can acquire data services from facilities seekers while retaining the voice services of the facilities provider. Some facilities seekers may choose to offer data services only, so with line sharing consumers can retain their facilities provider service for voice calls while getting higher bandwidth services from another operator without needing to install a second line.

What the Authority neglects to deal with is how costs will be recovered and who will be paying the analogue line rental.

3. Technically, a splitter is connected to the wires in the Main Distribution Frame (MDF). The splitter separates the frequencies for voice telephony and those for higher bandwidth services. It is located between the MDF and the facilities provider's local switch – downstream of the network edge. It is connected to both the facilities provider's switch and to the DSLAM connected to the facilities provider's high-speed network. The local loop normally includes the splitter which remains a part of the facilities provider's network.

As previously explained, this is not the technical configuration of Telkom's network.

4. Furthermore, line-sharing allows the facilities seeker to provide the service of their choice by covering either low frequency bands or high frequency bands. For instances, when one frequency band is occupied by one operator the other frequency band can be occupied by another operator.

Although the above is correct in theory, the statement contradicts the Authority's own definition of shared access in set out in paragraphs 4.2.1, 4.2.2 and 4.2.5. Furthermore, international norms are that line sharing makes available the higher frequencies only. Again, the definition does not deal with the quintessential issue of cost recovery and who pays for the line rental charge.

Technically providing Shared Access over both low and high versus just high frequencies would be different. Hence more development work would be required for such a theoretical product.

Lastly, whereas in high frequency only Shared Access, Telkom would retain the voice service and identify the line by the voice number, in a low frequency version, Telkom would not offer a voice service and consequently lose the ability to identify the line. This is the same problem faced in Full LLU and would involve the same scale of solution.

5. This option would broaden choices available to the end-user as it would allow them to retain the network operator as its provider for voice telephony services and at the same time choose the new entrant or any operator as the provider for broadband high-speed internet services over the same loop.

The Authority's statement is based on a premise that customers have no choice for the broadband internet service. The current reality is that to the extent that Telkom wholesales ADSL, customers

have a wide range of operators to choose from when selecting a broadband internet service provider.

6. However, in providing a shared service, a facilities provider is likely to face upfront capital costs, including:
 - Specifying and establishing the ordering system and internal procedures
 - Establishing the testing arrangements

IT is Telkom's view that the above can be construed as a misleading statement and a grossly inaccurate oversimplification of the matter.

Shared Access is technically a very difficult service to develop. Firstly the Authority has curiously omitted the fact that Shared Access requires the development and enforcement of various spectrum masks. Moreover the Authority has not made known the operational complexities that arise from two operators sharing the same passive facility – especially when spectrum interference issues may arise.

Telkom's current POTS/ADSL product is designed such that when a fault is reported, through various processes Telkom is able to identify whether it is a line fault, ADSL modem fault, ADSL fault, ISP fault or other. In Shared Access Telkom is 'blind' to the ADSL service element of the line, which creates problems in terms of root cause analysis. For Telkom to be able to repudiate claims from ISP's that it is the line service that is at fault, Telkom would need to have the ability to test the higher frequency characteristics of the line. Currently this is done from the DSLAM (and associated back-end systems); however in Shared Access Telkom no longer has a DSLAM connected to the line. Hence Telkom would need to develop the capability to either manually (using spectrum analyzers) or automatically (using a line test block) run spectral analyses and Layer 1&2 tests e.g. BER&FER on the line.

On the customer side of a line, Telkom would no longer have the ability to run various tests to the ADSL modem i.e. to the extent that customers take their broadband service from an OLO. Hence Shared Access would require the installation of Intelligent Wall Jacks in customer's homes to allow Telkom to test the copper loop.

Further, to avoid operators "blasting" the line i.e. exceeding the power spectral densities in an effort to increase line synch rates, Telkom would have to pre-qualify a line in terms of maximum synch rate in advance of handover. Telkom does not have line pre-qualification abilities which would have to be procured.

Then if Telkom were to develop such a service, there are matters of splitter bank design and procurement, MDF wiring, operator blocks on the MDF etc. Furthermore, as per Full LLU, operators would need to connect to the high frequency part of the MDF, and this would be done through a Handover Distribution Frame that would need to be installed.

In addition, the Authority fails to admit to the various commercial complications that arise with such sharing e.g. if a customer fails to pay their voice and analogue line rental bill, the party providing shared access would suspend all services on the line until such bill is up to date. In the event of line outages due to natural phenomenon e.g. fire, floods, lightning etc. would Telkom have to reimburse the operator providing broadband services?

Thus in summary, technical matters that would require addressing prior to the introduction of Shared Access would, inter alia, include:

- New service operator activation synchronization business rules
- Line Outage (natural) business rules
- Line Outage (theft, sabotage, breakage) business rules
- Line suspension business rules
- Product migration procedures e.g. customer moves from ADSL or Bitstream to Shared Access
- Access Deficit Recovery pricing matters
- Spectrum Masks
- Spectrum testing equipment

- Loop pre-qualification
- Splitter banks/ blocks, MDF rewiring, test blocks & Handover distribution frame (HDF)
- Intelligent Jack
- Fault logging systems and procedures
- Billing databases
- Commercial contracts & negotiations

7. A facilities provider will also face certain variable costs, including:
 - The costs of the DSLAM
 - Per subscriber order costs
 - Per subscriber modem costs
 - On demand testing costs
8. Figure 2 illustrates a simplified arrangement for shared loop unbundling

4.3 Option 3: Full Local Loop Unbundling (Full Access)

1. The Full Unbundling option assigns the entire copper local loop to the facilities seeker, which means that the facilities seeker gains access to the copper local loop and sub-loops or other format of loop (network). This option enables the facilities seeker to install its own broadband equipment and co-locate, i.e. the facilities seeker may place all required equipment inside or outside the facilities providers' premises, depending on which co-location model is most appropriate.

At the outset, the Authority should note that Full LLU is premised upon firstly the existence of copper from the exchange to a customer, and secondly that there are no remote multiplexers e.g. pair gain systems/ Digital Line Concentrators (DLC's) along the path of the loop. For simplicity of discussion one can presume that Telkom's network is built in such a manner that when there is a remote DLC or other such device, the backhaul from what is likely the Street Distribution Cabinet (SDC) will be fibre. The point is still that the local loop on this architecture cannot technically be unbundled as per Full LLU.

Moreover, if Telkom is given the detail of customer X, at address Y, with telephone number Z; we cannot instantaneously identify whether said customer is served by a full copper (legacy) architecture, or a modernized network i.e. part fibre/part copper. Hence if Full LLU were to be implemented, Telkom's first check in the feasibility testing phase would be a manual correlation between customer and network architecture. In the event that a customer is served by a modernized architecture, the request for Full LLU would be dismissed on the indisputable grounds of technical infeasibility i.e. there is no "loop" to unbundle.

2. In this option, the facilities seeker takes over the full operation of the allocated local loop. It also means that it will have access to both low and high frequency. In some cases this option may mean that the facilities seeker has all loops dedicated to it. The capital costs incurred by the facilities provider are represented by:
 - Specifying and establishing the ordering system and internal procedures
 - Installing a handover frame
 - Co-location costs
 - Establishing the testing arrangements.

The Authority's explanation is ambiguous. In Full LLU the party providing LLU still maintains field maintenance of the local loop, and builds this service element in the pricing of local loop line rental. Telkom cannot understand what is meant by "all loops dedicated to it" since it is simply inconceivable that a facilities seeker would unbundle an entire exchange.

As per Telkom's comments in relation to paragraph 4.2.6, this again grossly oversimplifies the matter to the point of a misleading and in fact meaningless statement. As per the discussions on Shared Access there is no mention of spectrum masks nor practices operators need to put in place to deal with spectral issues in relation to cross talk between cables. There is no mention on the fact on the operational difficulties associated in testing a loop where Telkom no longer manages the DSLAM and ADSL CPE.

Moreover the Discussion paper is silent on issues related to synchronization between number porting and Full LLU, and moreover how loops are to be identified in the absence of an associated telephone number per se. If customer addresses are given, Telkom would need to resolve the address to a directory number (at the CRM layer) and then further resolve DN number to a circuit ID.

There is no mention made of the decommissioning of customer services currently on a loop, especially in cases where Carrier Selection is being actively used by customers on the loop. What are the inter-operator processes? Telkom would envisage that the processes would be similar to those used for number portability i.e. a customer can only be handed over once he is billed and his account is settled. To the extent that Telkom's billing systems are fixed in the intervals over which they bill, hand over could only conceivably occur at the end of a billing cycle and once payment has been received.

It must also be noted that the discussion document speaks of Full LLU in the context of "broadband equipment" only. Telkom's POTS/ADSL systems and Diginet IT systems are separate physical systems with individual processes and capabilities. A particular challenge in the case of Diginet is that it is an end-to-end service, whereas POTS/ADSL is a point-cloud service. Hence the decommissioning of Diginet entails not one, but two loops. Currently Telkom is unable to automatically correlate the "B-side" of a Diginet circuit from the "A-side". This complexity has not been recognized in the Authority's document. Further our Diginet service systems do not have an undergirding facilities database. Hence if the Diginet service is decoupled from the loop, Telkom would need to perform various system upgrades to allow the transfer of the facility to another database, which may not be the same system/database where Telkom's unbundled POTS/ADSL loops are stored i.e. the POTS/ADSL system is "closed". Telkom presume this part of the discussion is moot, since Full LLU would apply to broadband lines only. Similarly Full LLU would exclude ISDN lines.

It is legally debatable whether the LLU regulations may impose service obligations more onerous than those already imposed by the End User Subscriber Charters. It is also unclear to which degree the End User Subscriber Charters indirectly regulate operator to operator service levels e.g. hand-over timeframes or time to install on unbundled loops. Without outlining Telkom's legal views on the matter, we simply wish to note here that the ability to install and repair lines within short timeframes is premised upon accurate information in Telkom's copper loop databases. Telkom cannot assert authoritatively how accurate this information currently is (as that in itself would entail an audit). Telkom would hence need, on a per exchange area basis, to undertake a field exercise (technician in the field) to update the information in our copper access databases so as to improve time to install as well as fault identification and isolation capabilities.

It is also worth noting at this point that loops are not individual, isolated facilities – a loop is a single pair of a much larger copper cable. Hence, depending on the circumstances, maintenance and repair work would likely involve not only one loop, however indeed re-conditioning an entire cable of loops. In this regards costs are "lumpy", although at full utilization such methods are economically efficient i.e. lowest cost per loop.

Further, the LLU discussion document does not address all the required processes. For instance several steps are undertaken from the time an LLU request is made, to the point where the loop is handed over. To simplify:

LLU order → Feasibility study → Pre-Conditioning or Decommissioning → Pre-qualification →

Transfer → Activation

No mention is made of for example of the various sub-processes and technical capabilities involved in Pre-qualification. This sub-process entails:

- establishing the purposes for which the copper loop is to be used
- matching the desired use to a spectrum masks
- stress testing within the spectrum mask, however at order specification
- noting the previous profile of the copper loops and the synch profile thereof
- qualifying whether the specified speed can be reached, and if not what speed can be reached

In particular the Discussion paper does not deal with an instance where a loop is found not to be able to perform to the standard by the party requesting LLU. Telkom would in the majority of cases be unable to do anything technically to improve the performance of the loop (since the standard remedy is to "shorten the loop" i.e. replace copper with fibre).

The Discussion paper also does not deal with issues such as MDF expansion, installation of line termination blocks for OLO's on the MDF or any re-wiring issues. Note that Telkom's MDF's have integrated Test Block Matrices and this element is not shown in Figure 2.

The matter of whether only an active line (current customers) can be unbundled or whether dead line (no customer) lines are subject to unbundling has not been clarified. In the case of the latter there are additional complications, namely:

- To the extent that loops do not have customers, they do not have numbers (nor customer addresses) and consequently have no means for identification. Telkom would likely have to undertake a field investigation to firstly establish whether such a loop exists, and secondly whether it is in working order.
- To the extent that a loop is "dead" it would not have received maintenance from the time the previous customer disconnected. Hence pre-conditioning work would likely be required to bring the loop back into working order. In the event that cable segments need replacement, or various cross connects re-wiring, it may take several weeks, perhaps months to perform such work.

The Discussion paper also does not take cognisance of the significant operational difficulties inflicted on all through copper theft in South Africa. If an unbundled copper line is stolen, Telkom will presume that we are not under obligation to replace the line. Further due to the maintenance of copper based networks becoming increasingly economically unattractive, it is quite conceivable that in the near future Telkom will seek to substitute various loss making exchanges with wireless networks. To the extent that attackers will likely not seek to unbundle in these exchanges in the first place, LLU and copper decommissioning will likely be geographically separate. Never-the-less Telkom would reserve its rights, should LLU be implemented, to cease providing LLU services in areas where copper is to be replaced.

Thus in summary, technical matters that would require addressing prior to the introduction of Full LLU would, inter alia, include:

- Loop identification for ordering
- Decommissioning processes
- Loop repository i.e. Facilities Database for decoupled lines
- Cross connect (strip & line) Information in Facilities Database
- Line Outage (natural) business rules
- Line Outage (theft, sabotage, breakage) business rules
- Access Deficit Recovery pricing matters
- Spectrum Masks
- Spectrum testing equipment
- Loop re-conditioning
- Loop pre-qualification
- MDF rewiring, test blocks & Handover distribution frame (HDF)
- Intelligent Jack
- Fault logging systems and procedures
- Billing databases
- Commercial contracts & negotiations

It is not so much that these problems are technically insurmountable, as indeed, with the exception of copper theft and copper replacement, these issues have all been addressed in other jurisdictions –

however at a cost. Given the high set-up costs, it would be unreasonable for Telkom to have any exchange "Full LLU ready" from day 1. Instead a "threshold of demand" must be crossed before Telkom commits capital to exchange upgrades; or else Telkom runs the risk of being unable to recover our costs. Hence if LLU is to be implemented, Telkom would likely indentify a select few exchanges at the start for LLU. All other exchanges would have a waiting list, whereby only once Telkom had sufficient demand to recover its costs within a reasonable time frame would Telkom set about making that exchange "Full LLU ready"

3. The variable costs to be faced by the facilities provider are the:
 - Per subscriber order costs
 - On demand testing costs.

4. Figure 3 below shows a simplified arrangement for full loop unbundling

4.4 Option 4: Sub Loop Unbundling

1. Sub Loop Unbundling represents a situation where the facilities seeker accesses the network of the facilities provider at the primary connection point (PCP) within the network, at street level. This form of unbundling may be used for emerging technologies such as VDSL, which requires very high bandwidth and therefore a much shorter length of cable. In this situation the facilities seeker would provide its own network all the way to the PCP
2. In this situation the equipment that transfers the connection from the facilities provider to the facilities seeker is adjacent to the PCP, rather than in the exchange.
3. In all other respects, sub-loop unbundling is analogous to full-loop unbundling.

The Authority appears not to have a full appreciation of the various forms of LLU. There are certainly many more differences between sub-loop unbundling and full loop unbundling than there are similarities. To list such differences:

- 1) SDC's do not have MDF's. They have cross connects which perform a similar function, yet are still different. Telkom's SDC's would require re-engineering to connect to the adjacent SDC of an OLO.
- 2) In Full Loop Unbundling, Telkom maintain "visibility" of the loop through the Integrated Test Block Matrix that is integrated into the MDF. The cross connects at SDC's do not have these capabilities. Hence once a sub-loop is unbundled Telkom is "blind" to the loop. What this means is that whereas with Full LLU Telkom can run various pre-qualification and fault finding tests "remotely" i.e. a person at the call centre activates the test, sub-Loop Unbundling entails full manual processes. Thus every time a fault is reported a field trip must be undertaken to the affected sub-loop. Naturally Telkom will have to recover such costs from the Access Seeker.
- 3) In sub-loop unbundling spectrum testing e.g. for pre-qualification is run from the exchange i.e. from a locally centralized point. At best such testing is also performed "remotely", at worst by a specially trained technician in an exchange with expensive spectral analysis equipment. In sub-loop unbundling Telkom cannot perform remote or exchange-based testing on the sub-loop.
- 4) OLO's are requesting construction upon municipal land as opposed to collocation in the exchange. Whereas Telkom is well placed to be able to establish if/when collocation space is available, it could take years before operators have all the relevant municipal permits. Telkom would not start to begin to make modifications to an identified SDC until the relevant permits have been obtained.
- 5) Whereas Full Loops have a directory number or circuit ID, Telkom does not have an asset identification scheme for sub-loops.

4. The capital cost incurred by the facilities provider is the cost of the link between the PCP and the facilities seeker's network. Variable costs, including maintenance of the line should be negotiated between the facilities seeker and provider.

Again, the Authority has not sufficiently addressed costs that would be incurred. For instance, Telkom would incur capital costs in re-engineering our SDC's such that they are capable of extending the sub-loop to the OLO's SDC. Furthermore, as per Full LLU Telkom would likely require smart jacks on customers' premises which costs should be recovered from the Access Seeker.

Telkom has not yet appreciated all the implications of sub-loop unbundling to the extent that it has only recently been placed on the table for consideration. Never-the-less we cannot rule out capital costs associated with making modifications to IT databases that were not designed with sub-loop unbundling in mind.

Furthermore, the Opex costs are not insignificant, mainly as a result of the amount of manual work involved in transferring and testing lines. It should also be noted that LLU would impose different requirements on Telkom and hence would require substantive re-training of the field force. Telkom notes with interest that the monthly line rental price of an unbundled sub-loop in the UK, is higher than a full-loop!

5. Conclusion and stakeholder input

Telkom will not repeat comments already made in respect of some of the conclusions made by the Authority.

Telkom would like to point out that the Authority's Discussion paper has failed to acknowledge that the introduction of LLU is complex and costly. Quite to the contrary, the Authority has underplayed the substantive resources that would be required by all stakeholders (including the Authority) to oversee the implementation of LLU. Also, the Authority has oversimplified the requirements and processes needed to introduce LLU. The Authority has failed to deal with how prices for unbundled local loops would be set or the context of commercial negotiations. It is furthermore with regret that Telkom has noticed the absence of any form of RIA or even an attempt by the Authority to quantify the possible costs that would be incurred and the potential benefits that may accrue from LLU. The Authority has not been transparent on how it has come to its conclusions or illustrated how the introduction of LLU is relevant, proportionate and in the public interest.

It is also with regret that Telkom has noticed that Authority has not taken a clear technology neutral position as much of the focus and content of this document deals with fixed line broadband based copper networks. This is contrary to the Authority's statements on the importance of technology neutrality. Telkom believes that the principle of open access, including access to the local loop and the equivalent thereof in the broadcasting environment, should be equitable, proportionately applied to all licensees in the communications industry.

As previously communicated to the Authority, Telkom would strongly caution against the Authority proceeding with a LLU framework as there has not been sufficient discourse on this topic and the Authority has not considered the implications and possible unintended consequences of LLU.

1. This discussion document represents ICASA's proposed approach to the introduction of local loop unbundling in South Africa. The approach may be summarised as follows:
 - Access to the local loop is mandated under the obligation to lease electronic communications facilities
 - All ECNS licensees face this obligation until otherwise exempted

- The pricing of access to the specified facilities must be non-discriminatory at all times
- There are four potential options for the introduction of access to the local loop, namely:
 - Bitstream
 - Shared loop unbundling
 - Whole loop unbundling
 - Sub-loop unbundling
- To ensure the introduction of a stable regime of gaining access to any ECNS licence holders' network it is crucial to standardise the format in which any request for access to facilities is governed by an industry-wide accepted standard.
- This standard, specified as a guideline from ICASA, is necessary so as to facilitate the actual conclusion of facilities leasing agreements

2. ICASA therefore seeks stakeholder input on the following:

It is not clear to Telkom how the Authority would use responses to the questions in formulating a possible framework for LLU. Telkom will not address the following questions in any detail as these questions have either been addressed in Telkom's earlier comments on this document or as part of Telkom's general comments.

- Is ICASA's proposed approach to unbundling the local loop through the implementation of the facilities leasing regulations reasonable, feasible and acceptable?

Telkom is of the view that the Authority's reliance on its facilities leasing regulations is flawed in law and open to legal challenges. Telkom believes that the Authority's reliance on these regulations are unreasonable, infeasible and not acceptable.

- What form of local loop unbundling do stakeholders realistically favour in the South African market?

Telkom is of the opinion that this question is leading and does not address the real issue of why LLU should be introduced and whether this would promote society welfare (public interest). A more appropriate and relevant question would have been whether LLU is appropriate for South Africa considering the developmental agenda and considering low fixed line penetration. Telkom does not believe that any form of LLU would promote public interest and indeed quite to the contrary would serve the interests and benefit a minority segment of the South African public.

- What other cost items should be included in each form of local loop unbundling?

Telkom is of the view that any costs incurred by the Access Provider in order to facilitate the introduction of LLU should be funded by the Access Seeker. Telkom is of the view that since Access Seekers would be the beneficiaries of LLU, it is only fair that they should fund any implementation costs associated with LLU. Telkom believes that it is unfair and unreasonable to expect the Access Provider to cross-subsidise Access Seekers, i.e. Access provider must incur costs to facilitate introduction of LLU. Furthermore, Telkom believes that a fundamental principle to the implementation for LLU is full cost recovery including the recovery of the Access Line Deficit (ALD).

- Should a standardised ordering and specifications system be developed?

Telkom believes that this question is superfluous and nonsensical. Telkom is surprised that the Authority would even ask this question considering that it has imposed such obligations in respect of NP and CPS and that LLU cannot logically be introduced without standardised ordering and specifications systems.

- In the event that an access line deficit is identified, would you be willing to contribute to an access line deficit recovery scheme?

Telkom is perplexed that the Authority is asking the question as if it is not aware of the ALD. Indeed, Telkom has been submitting Regulatory Financial Statements to the Authority confirming the ALD. Telkom submits that it must be allowed to fully recover the costs of unbundled access lines from Access Seekers and that it cannot reasonably and fairly be expected to cross-subsidise competitors.

3. On the basis of stakeholder responses, ICASA seeks to establish two collaborative working groups. The first working group, the Access Working Group will address technical matters. The second working group, the Pricing working group, will address pricing and non-discrimination concerns.

It is not clear to Telkom how these working groups would form part of the regulatory process and the Authority's enquiry process. It is also not clear how such working group would function and what the ultimate scope and objective of such working group would be. How would decisions be reached, how binding would any decision/ recommendation be and how differences in positions be addressed.