



RESPONSES TO QUESTIONS RAISED IN
CALL FOR SUBMISSIONS

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EXECUTIVE SUMMARY

ECN has consistently engaged with policy, legislative and regulatory processes conducted by ICASA, the DOC, the DTPS and Parliament, and was a leading player in the initial intervention by ICASA to reduce call termination rates in 2010 in terms of Chapter 10 of the Electronic Communications Act 36 of 2005.

ECN is both a consumer of electronic communications services and a provider of electronic communications services.

ECN is a service provider in the markets for wholesale and retail voice call termination.

ECN submits that the principal reason for the high cost of mobile data is the lack of competition in the provision of retail mobile data services. This is direct result of competitive and regulatory failures in the upstream market for wholesale mobile data services.

ECN seeks to submit evidence of anti-competitive conduct in the wholesale mobile data services market.

ECN does not support the view that fixed data services currently operate as a substitute for mobile data services.

ICASA has not exercised its ex ante powers under Chapter 10 of the ECA to intervene in the mobile or fixed data services market at all. This has favoured the incumbents by preserving the status quo.

There is an ongoing policy implementation process governed by the National ICT Policy White Paper which represents very recent Government policy on much of the subject matter of this Inquiry.

INFORMATION ABOUT ECN

ECN - a wholly owned subsidiary of Reunert Limited - was founded in March 2005. It is the holder of an individual ECS and an individual ECNS license issued in January 2009. ECN is headquartered in Johannesburg and has developed an electronic communications network with points of presence (POPs) in Johannesburg, Durban, and Cape Town.

ECN is a major player in the delivery of affordable and accessible converged voice and data solutions that are at the forefront of the next generation network.

- The first new entrant in the market to bilaterally interconnect to all of the incumbent networks including Telkom, Cell C, MTN and Vodacom.
- Fastest growing alternate voice and data network in SA, with a critical mass of large corporate customers and fixed line voice minutes.
- Compelling customer value proposition that provides unparalleled value in respect of price, quality and service.
- Extensive converged voice and data skills in the areas of billing, switching, networking and hosted services.

RESPONSES TO QUESTIONS RAISED IN CALL FOR SUBMISSIONS

ECN has noted the specific questions raised by the Commission in its Call for Submissions, and sets out below direct responses to these questions:

Data prices and services in South Africa

1. ***Current market research suggests that data prices in South Africa are significantly higher than many other countries, both in Africa and internationally. In light of the recent research, the following questions pertain to prices for data services in South Africa:***

- 1.1. ***In your view, how do data prices in South Africa compare to other countries?***

ECN is not in a position to provide an authoritative response but is aware of the work undertaken by independent organisations such as Research ICT Africa and Tariffic as well as analysis undertaken by ICASA.

We also believe it is significant that this issue is still contentious and has not been authoritatively determined by ICASA or any other body. It is clear that the complexity of the product offerings in the retail market make like-for-like comparisons potentially difficult and offer space for arguments by incumbent operators that comparative pricing complaints are not valid.

- 1.2. ***For which specific data markets, products or services (whether for data services alone or a product that includes additional services) are prices high in South Africa? Please substantiate your response.***

ECN refers to its previous response. ECN's submissions are focused on the market for wholesale mobile data services and the relationship between wholesale and retail pricing in the provision of mobile data services. ECN submits that discriminatory / exclusionary pricing practices in the wholesale mobile data services market inhibit competition resulting in ineffective pricing in the downstream retail market.

ECN submits that the wholesale and retail markets for fixed data services exhibit signs of healthy and developing competition, particularly where fibre deployments are changing the economics applicable to the provision of these services.

- 1.3. ***In your view, what are the main causes for the higher prices for data services in South Africa? In your answer you could refer to probable causes such as cost issues, competition issues or regulatory issues. Please elaborate and provide any available evidence.***

ECN identifies the main causes of higher data prices as:

- A complete failure to regulate competition in the wholesale and retail mobile data services markets as required of ICASA by Chapter 10 of the ECA read with the objects of that Act, with particular reference to section 2(f) which requires ICASA to promote competition in the ICT sector. Further detail on this submission is set out below.
- A lack of competition in the provision of retail mobile data services created by anti-competitive practices evident in the provision of upstream wholesale mobile data services. Further detail on this submission is set out in ECN's response to **question 3** below.

- 1.4. ***With regards to data services and related products used in South Africa, please list all services that you currently use as an end-consumer and/or as a business or other such entity. Please provide details on the following:***

ECN is both:

- An end-user of electronic communications services
- A provider of electronic communications services

The responses to this section are provided in ECN's capacity as an end-user.

1.4.1. ***The exact products/services used;***

ECN uses both fixed and mobile data services.

[CONFIDENTIAL INFORMATION REMOVED]

1.4.2. ***Whether you use these as a private consumer or business/organisation (or both where appropriate);***

ECN uses all of the above services as a business.

1.4.3. ***The name of the service provider/s; and***

ECN's primary service providers for data services are as follows:

[CONFIDENTIAL INFORMATION REMOVED]

1.4.4. *The pricing and contractual arrangements involved.*

The pricing and contractual arrangements for fixed line services is much more complicated than for mobile services. The pricing of fixed line services varies depending on factors such as:

- Speed of line
- Distance of line
- Fibre or copper technology
- GPON or active Ethernet fibre
- Dedicated or shared bandwidth
- Supplied with or without data
- Data cap / uncapped

Contractual arrangements are entered into generally on the terms and conditions of the ECS / ECNS provider. There is usually very little room to negotiate contractual arrangements with ECS / ECNS providers.

The pricing of mobile data services is straightforward in comparison to fixed data services. Wholesale mobile data is purchased from mobile network operators (MNO's) on a per MB basis. The data price varies depending on:

1. Usage level;
2. Whether bandwidth is in or out of bundle.

The mobile network operators have 3 models for wholesale data provision:

1. Mobile virtual network operator ("MVNO");
2. Reverse billed APN / Mobile ISP;
3. Service providers/distribution partners such as Chatz Cellular, Blue Label and formerly Nashua and Autopage Cellular.

The data services value chain

2. *Describe the entire value chain for the provision of data services. Include the following in your description:*

2.1. *The different levels of the value chain and the activities thereof;*

Parties involved in the data services value chain include:

1. **Content & platform providers:** includes the owners and publishers of data content, so-called over the top (“OTT”) providers¹ such as Google, YouTube, Facebook, Instagram, Netflix and Naspers; software vendors such as Microsoft, Apple and Google; and local and international content providers including, for example, CNN, BBC, FNB, Standard Bank, Media 24, Yuppiefchef and Kulula.
2. **Data centre operators:** includes large carrier-neutral data centres such as Teraco, Hetzner, JINX, DINX and CINX and privately-operated data centres run by ECNS providers (e.g. Internet Solutions, Vodacom, Telkom, MTN, Liquid) and large companies (e.g. Old Mutual, Standard Bank). These data centres allow telecommunications networks to interconnect with each other and facilitate the high-speed transfer of data between electronic communications networks, including the global Internet².
3. **Undersea cable networks:** provide South Africa with international data connectivity via high capacity undersea fibre optic networks. SAT3’s undersea cable monopoly was broken when Seacom landed in South Africa in 2007. EASSy and WACS landed in South Africa in 2010 and 2012 respectively. These 4 undersea cable systems provide South Africa with incredibly fast, secure international bandwidth. Since Seacom landed in 2007,

¹ The OTT operators are often accused of eroding the MNO’s service revenue (e.g. Whatsapp calling and messaging erode mobile call and sms revenue). However, on balance, the OTT operators probably increase MNO data revenue far more than they erode the MNO’s voice and sms revenue.

The OTT operators are a critical part of the data value chain and there is no commercially viable way for the MNO’s to “tax” these operators. Interestingly, the fixed ECS providers do not complain about OTT operators eroding their service revenue. They long ago accepted that businesses such as Skype provide critical services to their subscribers and, on balance, drive up the adoption of their services.

² Most large content providers host their data content at the data centres outlined in the section below. More and more international data content is hosted locally. The biggest global content providers such as Google and Facebook co-located in South Africa a few years ago. Other large international content providers such as Microsoft and Amazon have announced their intention to extend their data centre infrastructure into South Africa in 2018.

the cost of international data services has plummeted leading to faster, cheaper internet services to South African consumers and businesses. As can be seen from <https://manypossibilities.net/african-undersea-cables/> there is a lot of future capacity planned and this element of the data services value chain is increasingly competitive.

4. **ECNS Providers:** there are approximately 540 Individual Electronic Communications Network Service (“ECNS”) and 637 class ECNS licensees in South Africa which could potentially offer network services. Individual ECNS licensees were licensed pursuant to the licence conversion process in 2009/10 to operate electronic communications networks of national or provincial scope. Telkom’s legal monopoly over fixed electronic communications facilities was destroyed as a result of this although it still enjoyed and enjoys a large head start over all of the other ECNS providers in the market. The 637 class ECNS licences have been issued by ICASA since 2009.
5. **ECS Providers:** there are approximately 540 Individual Electronic Communications Service (“ECS”) licensees and 642 class ECS licensees in South Africa which could potentially offer ECS. These operators were licensed in 2009 to offer electronic communications services in South Africa. ECS providers typically provide subscribers with data connectivity services. Most ECS providers operate as ISPs, voice providers and specialised data service providers.
6. **Mobile ECNS Providers:** there are only 6 Individual ECNS licensees with access to large assignments of valuable GSM/high-demand spectrum in South Africa (Vodacom, MTN, Cell C, Telkom Mobile, Liquid Telecommunications SA and Multisource). Vodacom and MTN were licensed in 1994 to provide mobile network services in South Africa. These incumbent mobile network operators (MNOs) enjoyed a long period without other competition in the mobile market. Cell C was licensed in 2001 and Telkom Mobile licensed in 2010.

Vodacom and MTN’s first mover advantage allowed them to establish large national networks and to secure most of the market share in the mobile data market prior to the entry of Cell C and Telkom Mobile. This advantage over their competitors from a network perspective has allowed them to invest in bigger, more ambitious network and technology upgrades than their mobile competitors.

Telkom Mobile has enjoyed the advantage of having access to Telkom’s balance sheet and its well-developed national fibre network.

Both Cell C and Telkom Mobile have discounted their voice and data tariffs in efforts to win market share from the incumbent mobile operators.

7. **Mobile ECS Providers:** There are different forms of mobile ECS providers:

- a. Mobile Network Operators (MNOs) – Vodacom, MTN, Cell C and Telkom Mobile are the sole providers of mobile ECS provision in the South African market. Unlike the largest ECNS providers in the fixed market (e.g. Telkom, Liquid, Seacom and DFA), the dominant mobile operators do not separate their wholesale and retail divisions. SA's most dominant MNO, Vodacom does not offer varied and compelling wholesale data services.
- b. Mobile Virtual Network Operators (MVNO's) – these ECS providers negotiate wholesale access to the MNO's mobile data networks. The largest MVNO operators are Virgin Mobile, PEP Mobile, Red Bull Mobile and FNB (all on Cell C's network). Interestingly, Vodacom, MTN and Telkom Mobile have not concluded MVNO arrangements with any channel partners. As the most dominant Mobile and Fixed ECNS providers, this is hardly surprising. Vodacom, MTN and Telkom Mobile appear to want to completely own relationships with end customers.
- c. Mobile Service Providers – these ECS providers negotiated sales agreements with the MNO's. Autopage and Nashua Mobile were South Africa's biggest independent mobile service providers. The MNO's largely dismantled the mobile service provider model in 2014 following large cuts to the call termination rates. A few smaller mobile service providers remain in place such as Chatz Cellular and Smartcom. The shutting of the large independent service providers undoubtedly decreased competition in the South African mobile data market.
- d. Mobile ISPs – a few of the larger traditional fixed ECS providers have negotiated wholesale data access to the MNO's networks. The MNOs have reverse billed APN services which allow wholesale customers to aggregate their own customer traffic and provide white-labelled mobile data services to their end customers. Large fixed ECS providers such as Internet Solutions, Vox Telecom, RSAWeb, Afrihost and ECN utilise these reverse billed APN services to provide white-labelled mobile data services to their end customers.

2.2. ***A list of all stake-holders active in each of the levels of the value chain (to the best of your knowledge);***

1. **Content and platform providers** – This list is endless there are millions of content providers and website operators globally including Google, YouTube, Facebook, Instagram, Netflix and Naspers; software vendors such as Microsoft, Apple and Google; and local and international content providers including, for example, CNN, BBC, FNB, Standard Bank, Media 24, Yuppiefchef and Kulula.
2. **Data centre operators:** includes large carrier neutral data centres such as Teraco, Hetzner, JINX, DINX and CINX and privately-operated data centres run by ECNS providers (e.g. Internet Solutions, Vodacom, Telkom, MTN) and large companies (e.g. Old Mutual, Standard Bank). These data centres allow telecommunications networks to interconnect with each other and facilitate the high-speed transfer of data between networks and companies.
3. **Undersea cable networks:** see <https://manypossibilities.net/african-undersea-cables/> for a complete and current list of operational and planned undersea cable network serving South Africa:
4. **Fixed ECNS Providers:**
 - a. National fibre networks –
 - i. Openserve
 - ii. Vodacom
 - iii. MTN
 - iv. Dark Fibre Africa
 - v. Liquid Telecom (formerly Neotel)
 - vi. Fibreco and
 - vii. Broadband Infraco
 - b. Local fibre networks –
 - i. Openserve
 - ii. Dark Fibre Africa
 - iii. Liquid Telecom
 - iv. Vumatel
 - v. MTN
 - vi. Vodacom
 - vii. Dimension Data
 - viii. Metro Fibre Networks

- ix. Frogfoot Networks
- x. Octotel
- xi. Cybersmart
- xii. Mesh Telecom and
- xiii. SA Digital Villages.
- c. Local copper networks –
 - i. Openserve

5. **Fixed ECS Providers:** this includes all ECS licensees who have entered into wholesale agreements with fixed ECNS providers for the provision of network capacity which the ECS licensees use to reach their subscribers. This would include members of the Internet Service Providers' Association and the Wireless Access Provider's Association (WAPA), as well as entities such as:

- a. Telkom
- b. Vodacom
- c. MTN
- d. Cell C
- e. Internet Solutions
- f. Seacom
- g. Liquid Telecom
- h. Vox Telecom
- i. ECN
- j. RSAWeb
- k. Cybersmart
- l. Cool Ideas
- m. XDSL
- n. iConnect
- o. EOH
- p. MWEB
- q. Afrihost
- r. Wireless Internet Service Providers (WISPs)

6. **Mobile ECNS Providers –**

- a. Mobile Network Operators (MNOs)
 - i. Vodacom,

- ii. MTN,
- iii. Cell C
- iv. Multisource (Rain), and
- v. Telkom Mobile

7. **Mobile ECS Providers:** the mobile network operators are all vertically-integrated and providers of both mobile ECNS and mobile ECS.

- a. Mobile Network Operators (MNOs) –
 - i. Vodacom,
 - ii. MTN,
 - iii. Cell C and
 - iv. Telkom Mobile
- b. Mobile Virtual Network Operators (MVNOs)
 - i. PEP Mobile,
 - ii. Red Bull Mobile,
 - iii. FNB and
 - iv. Virgin Mobile (all on Cell C’s network).
- c. Mobile Service Providers
 - i. Chatz Cellular and
 - ii. Smartcom
- d. Mobile ISPs
 - i. Internet Solutions,
 - ii. Vox Telecom,
 - iii. RSAWeb
 - iv. ECN
 - v. Crystal Web and
 - vi. Afrihost (on MTN’s network).

2.3. ***The nature of commercial relationships between the different levels of the value chain; and How each level of the value chain identified above is linked to other parts of the Information and Communication Technology sector, and the economy more broadly.***

1. **Content providers** – Content providers supply businesses and residential data subscribers with the information that drives internet adoption. So-called “OTT operators” like Facebook and Google drive large ever-increasing Internet usage from subscribers.

2. **Data centre operators** – provide the critical meeting points and hubs for data to be exchanged between content providers and ECS providers. Until recently the Internet Service Providers’ Association (ISPA) ran South Africa’s major carrier neutral data centres namely, the Johannesburg Internet Exchange (JINX), the Cape Town Internet Exchange (CINX) and the Durban internet exchange (DINX). Privately-owned and operated carrier-neutral data centres, including Hetzner and Teraco (and its peering partner, NAPAfrica), allow content providers and ECNS and ECS providers to connect their networks to each other. NAPAfrica’s main exchanges are located in Teraco Isando (Johannesburg) and Newlands (Cape Town).

Data centre operators allow for the efficient and reliable transfer of data between ECS providers and content providers. As more content is hosted locally, this allows ECS providers to sell faster and cheaper internet services to end customers. By way of example, approximately 50% of South African ISP data traffic is to Google (including YouTube) and Facebook (including WhatsApp) - both of which now host their data content in South Africa.

Data Centre Operators allow fixed and mobile ECS providers to deliver faster, cheaper and more reliable local bandwidth to their subscribers.

ECN believes that this element of the market is operating efficiently and that there has been significant expansion in data centre capacity in South Africa over the last decade.

3. **Undersea cable networks** – provide South Africa with high speed, fibre optic connectivity to international markets. SAT3 was South Africa’s first undersea fibre optic cable system. Until 2007, it provided Telkom with the exclusive right to provide fibre optic international internet connectivity to London. As a result of this competitive bottleneck, international connectivity was very expensive (and slow) until SAT3’s monopoly was broken in 2007.

The promulgation of the ECA in 2006 provided the legal framework for Seacom to land its carrier neutral undersea cable system in South Africa. When it landed in 2007, it provided a redundant undersea cable route from South Africa up Africa’s East coast to London. SAT3 follows Africa’s West Coast to London. The landing of Seacom in 2007, EASSy in 2010 and WACS in 2012 resulted in major competition in the provision of international bandwidth.

Undersea cable operators allow fixed and mobile ECNS and ECS providers to provide their customers with faster, cheaper and more reliable international bandwidth to subscribers.

4. **Fixed ECNS Providers** – provide ECS providers with the networks required to reach their end subscribers. There is an important distinction to make between core and access networks.

Core Networks:

Core networks link ECNS providers' main communications nodes together. They provide the critical skeleton behind the pervasive access networks. Most high capacity core network providers run fibre networks as the technology provides faster and cheaper data communications than copper or wireless technologies. In many rural areas, high capacity line of sight wireless links are used to link remote areas to core networks. Most of the MNO's core network is built on optic fibre technology. Fibre networks link the MNO's mobile switching centres to their base stations.

National data networks link South Africa's towns and cities to one another. South Africa is a large country and much of the national data network has recently been upgraded from copper to fibre. Until recently, Telkom (and Openserve) dominated the provision of national bandwidth in South Africa. Other fixed operators such as Vodacom, MTN, Dark Fibre Africa, Liquid Telecom (formerly Neotel) and FibreCo have broken Openserve's monopoly on national bandwidth, but some regions of South Africa are still cut off from meaningful competition. National ECNS providers link both local fixed line and mobile operators to South Africa's various towns and cities.

Prior to the launch of Neotel in 2006, Telkom had an exclusive Public Switched Telecommunication Network ("PSTN") license. This provided Telkom with a monopoly to provide fixed telecommunications services to subscribers in South Africa. In 2009, approximately 500 new entrants were provided with Individual ECNS licenses which allowed them to compete with Telkom and Neotel in the ECNS market. Since 2009 there has been a steady increase in competition in the provision of core network services in South Africa.

Dark Fibre Africa (DFA) was launched in 2007 with large funding from Remgro (it had recently sold its shareholding in Vodacom to Vodafone). DFA is the premier open access fibre optic company in South Africa. Its initial customer base was largely limited to

providing fibre connectivity to link Vodacom and MTN's base stations to its dark fibre network. The MNOs were able to replace expensive legacy Telkom core network links with higher capacity dark fibre links from DFA. As DFA extended its network reach and covered SA's major metropolitan centres with its dark fibre network, it was able to extend its service offering to smaller ECNS and ECS operators.

DFA's rapid network expansion over the last 10 years has broken Telkom's dominance of the fixed line core network. DFA has fuelled enormous innovation and competition in the provision of data services to ECNS, ECS and business customers. DFA's network has allowed innovative ECS providers to offer a wide array of data services to the South African business market. As a result, the prices, speed and availability of data services to business customers has improved dramatically in the last 10 years.

In response to increasing competition in the wholesale ECNS market, particularly from DFA, Telkom announced the functional separation of its wholesale and retail operations in 2015 – these businesses now operate independently as Openserve and Telkom respectively. This functional separation ensures that Openserve provides the hundreds of new ECNS providers with access to Telkom's wholesale network on a non-discriminatory basis. This has created a more even playing field and has helped to foster enormous competition in the fixed line market.

Another interesting characteristic of competition in the fixed line ECNS market is the emergence of consortiums of ECNS providers in big infrastructure projects. The new undersea cable networks mentioned above were funded by consortiums of ECNS and ECS providers including Telkom, Liquid Telecom, Vodacom, MTN and Cell C.

FibreCo, which provides a national backhaul network in competition with Openserve and Liquid Telecom, is co-owned by Internet Solutions, Cell C and Convergence Partners.

Access Networks

As noted above there are more than 1000 licensees which hold licences authorising them to provide ECNS. Fixed access networks are built using copper or fibre technology as well as spectrum used by WISPs to connect their customers.

Copper Access Networks

Telkom's legacy national copper network is the most pervasive fixed ECNS access network in South Africa. The slow speeds achievable over copper (typically limited to 10Mbps) and the high cost of maintaining and growing this network have led Openserve to largely abandon investing in copper.

Openserve is in the process of replacing its copper network with a fibre network. This is a slow and expensive process and Openserve is working in a top-down manner starting with the wealthiest commercial and residential areas in South Africa's major cities and towns. Replacing Telkom's copper access network may take several more years.

As a result, many South Africans will only be able to access fixed line services via ADSL for many years to come. Openserve's ADSL network is open access and hundreds of Internet Service Providers' ("ISP's") offer their competing services over this network.

Fibre Access Networks

These range from complex multibillion rand metropolitan fibre rings built by ECNS providers like Openserve, Dark Fibre Africa ("DFA") and Liquid Telecom (formerly Neotel) to local suburban fibre networks built by ECNS providers such as Vumatel, MTN and Octotel to private fibre networks built in major commercial developments or residential estates by a wide array of ECNS providers including Vodacom, MTN, Dimension Data, Metro Fibre Networks, Frogfoot Networks, Octotel, Cybersmart, Mesh Telecom and SA Digital Villages. Fixed access networks provide the so called "last mile" connectivity which links national ECNS providers to end customers.

Fixed ECNS providers have operated in a highly competitive environment since the liberalisation of the SA telecommunications market in 2009. Since 2000, the number of Telkom fixed lines in service in South Africa has dropped from 5.5 million to less than 3 million. The drop in the number of Telkom fixed lines reflects a move from analogue to IP services and a trend of fixed-mobile substitution that was prevalent until recently. Fibre to the home services may reverse this trend as an increasing number of homes repurpose their satellite television spend and install fibre internet lines to use streaming services such as Netflix and Showmax.

5. **Fixed ECS Providers** – there are more than 1000 Individual Electronic Communications Service ("ECS") licensees in South Africa. Fixed ECS providers provide subscribers with

voice, data and value-added services over fixed ECNS networks. ECS data services range in size from small home ADSL services to large, complex enterprise data networks.

- 6. **Mobile ECNS Providers** – the Mobile Network Operators (MNOs) have built large GSM networks that provide ECNS coverage in most of South Africa’s urban and rural areas.

It is important to note that South Africa’s mobile network is fundamentally a fixed network with only the last few meters or kilometres connected wirelessly. It is access to suitable spectrum for the delivery of mobile access services which enables the provision of mobile network data services and the lack thereof which excludes all other licensees that are authorised under their ECNS and ECS licences to provide such a service.

- 7. **Mobile ECS Providers** – the MNOs are South Africa’s dominant mobile ECS providers. The MNOs are vertically integrated and there is a lack of competition in the provision of wholesale mobile data services. The large independent mobile service providers, Nashua Mobile and Autopage were dismantled by the MNOs in 2014.

Cell C is the only MNO that has built an MVNO channel strategy. Vodacom, MTN and Telkom Mobile have not allowed MVNOs to operate on their networks. They appear to want to completely own the customer relationship.

While Vodacom, MTN and Telkom Mobile have reverse billed APN services in place for wholesale customers and mobile ISPs, the commercial arrangements are unsatisfactory and do not leave room for real competition in the provision of mobile data services.

The relationship between service delivery and licensing under the ECA

ECN believes that it is important for the Commission to have a clear understanding of the service licensing framework under the ECA in order to appreciate the conduct of parties in the data services market.

ECNS Licences	Individual ECNS (IECNS)	This licence allows the holder to roll out and operate an electronic communications network nationwide or across a province and to make capacity available on that network to itself or duly-licensed third parties.
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	Class (CECNS)	ECNS	<p>This licence allows the holder to roll out and operate an electronic communications network in a district or local municipality and to make capacity available on that network to itself or duly-licensed third parties. In other words, the licensee will choose to operate in a municipal area and provide access services in that area.</p> <p>This is the form of licence required by operators wanting to set up their own network focusing on a smaller area.</p>
ECS Licences	Individual (IECS)	ECS	<p>This licence allows the holder to provide services to customers over the network of an ECNS licensee, including voice or VoIP services which use numbers taken from the National Numbering Plan, nationwide or across a province. Examples of other services that can be provided include the following:</p> <ul style="list-style-type: none"> • Internet access • Protocol conversion • Virtual Private Networks (VPN) • Multi-Protocol Labelling Systems (MPLS)
			<p>This licence allows the holder to provide the same services as the Individual ECS licence, except for voice services requiring numbers from the National Numbering Plan, in a district or local municipality.</p>
	Class (CECS)	ECS	<p>Class ECS licences received from ICASA prior to 21 May 2014 allow the holder to provide services nationwide or across a province.</p>

Table 1: Licensing under the Electronic Communications Act 36 of 2005

In the delivery of a data service to a subscriber there must be two licences involved:

- An ECNS licensee makes capacity available on its network to an ECS licensee;
- The ECS licensee uses this capacity to deliver an electronic communications service such as Internet access to its subscribers.

Section 1 of the ECA provides the following definition of an “electronic communications network service”:

“**electronic communications network service**” means a service whereby a person makes available an electronic communications network, whether by sale, lease or otherwise -

(a) for that person’s own use for the provision of an electronic communications service or broadcasting service:

(b) to another person for that other person’s use in the provision of an electronic communications service or broadcasting service; or

(c) for resale to an electronic communications service licensee, broadcasting service licensee or any other service contemplated by this Act,

and “network services” is construed accordingly;

Where Vodacom offers mobile data services to its subscribers there are accordingly two components to this:

- Vodacom operates its network and makes capacity available on that network available to itself. In this instance Vodacom is acting as an ECNS licensee.
- Vodacom uses this capacity to provide a mobile data service to its subscriber. In this instance Vodacom is acting as an ECS licensee.

The ECA also provides for a definition of a reseller of ECS, which is defined as a licence-exempt activity subject to a requirement to register the exemption with ICASA. A reseller would typically enter into a wholesale agreement with an ECS provider (such as Vodacom in the above example) in terms of which they would acquire ECS (such as mobile data services) for resale into the retail market.

ECN submits that it is important to bear in mind this separation in the provision of mobile data services when considering the competition-related submissions below.

The state of competition in the provision of data services

3. *How do existing firms conduct themselves in the markets for the provision of data services, whether with respect to other firms (competitors or potential entrants) or with respect to their customers?*

We have answered this question separately for fixed and mobile data services.

Fixed data services:

The delivery of fixed data services to end-users involves two activities that require service licensing under the ECA:

- Electronic Communications Network Services (ECNS): A fixed network operator makes capacity available on its network, either to itself or to a third party for the delivery of electronic communications services. This is referred to in the industry as the provision of “layer 2” services.
- Electronic Communications Services (ECS): Internet access and other providers of ECS enter into agreements with fixed ECNS providers in terms of which they purchase capacity that allows them to reach their subscribers with their services. This is referred to in the industry as the provision of “layer 3” services.
- The ECA also provides that resellers of ECS are licence-exempt, subject to registration of this exemption with ICASA. Licence-exempt resellers enter into wholesale agreements with ECS providers authorising the reseller to resell ECS.

As outlined in the sections above, the fixed ECNS market has relatively low barriers to entry. There are more than 1 000 ECNS licensees who may all, in theory build competing businesses that provide ECNS. That said, the biggest and best-funded ECNS operators, and those with access to constrained resources, typically dominate the provision of ECNS services. Building electronic communications networks is a capital-intensive business.

As the major fixed line incumbent operator, Telkom has the most pervasive fibre and copper networks in South Africa. This is a tremendous asset and it has provided Telkom with a sustained first-mover advantage in the provision of fixed line ECNS services in South Africa, particularly at the fixed access network level for last mile connectivity to subscribers. Telkom’s dominant fixed line position has been eroded over the last decade by new entrants targeting different parts of the fixed ECNS value chain as well as enforcement action undertaken by the Commission.

Neotel was licensed as South Africa's second network operator in 2006, but true competition was only introduced in 2009 when c. 540 new entrants were provided with Individual ECNS licenses, able to take advantage of the new competition in the provision of international ECNS.

Dark Fibre Africa (DFA) was initially established to provide the Mobile Network Operators (MNOs) with core network fibre to link their base stations together. Once DFA's network was well-established in South Africa's major commercial hubs, ISPs were quick to use DFA's network to connect business customers to high speed fibre internet. In the process, Telkom lost a lot of business from many of its most valuable telecommunications and business customers.

FibreCo and Liquid Telecom have further broken Telkom's monopoly in national fibre connectivity. Both businesses have actively targeted Telkom's biggest national customers, many of which are ECNS and ECS licensees.

In many of South Africa's urban and rural areas that don't have access to fixed ECNS competition or affordable fixed line services, mobile data services provide an alternative to fixed data services. In 2015, in response to increased wholesale competition from other fixed ECNS licensees, Telkom opted to separate its wholesale and retail operations and it launched Openserve to serve its wholesale customers. Openserve has over a hundred ISPs that sell ADSL and fibre internet services over its network to South African business and residential subscribers.

A number of ECNS operators such as Vumatel, Vodacom, MTN, Frogfoot, MFN, Mitsol, SA Digital Villages, TT Connect, Teralink and Octotel provide local access fibre networks in competition with Telkom particularly within wealthy suburbs, residential estates and business parks. The majority of these networks are operated on an "open access" basis. In practice this does not describe a single commercial model, but open access networks will generally exhibit the following features:

- The network is open access at layer 3: this means that ECS licensees can approach the network operator / ECNS provider and enter into an agreement in terms of which the ECNS provider sells capacity on its network to the ECS licensee;
- The ECNS provider does not discriminate as between ECS licensees as regards the nature and price of the services it provides. Pricing is based on factors such as speed of service, volumes purchased and service level agreements.
- The ECNS provider offers a backhaul and an access service. The backhaul service typically runs from a data centre (at which the ECNS and ECS providers interconnect their networks) to an aggregation node in the area or precinct being serviced by the ECNS

provider. The access component runs from this aggregation node and terminates in equipment placed at a subscriber's premises.

There is a split in the model between open access networks where the ECNS provider does not compete downstream in the ECS provision market and those where the ECNS provider or affiliate does compete.

Fixed line data subscribers have benefitted enormously from competition in the fixed line data market. Most ISPs offer their customers uncapped data services, line speeds are increasing and data tariffs tend to decrease each year. There has been a trend of increasing competition in the provision of fixed data services since the introduction of a wholesale model by Telkom in 2002 ("the IPC model"), when Telkom was the only licensed ECNS provider. This has accelerated dramatically with the growth in open-access fibre models.

The extent and benefit of competition in the provision of fixed data services can be seen from comparative websites such as <http://www.fibretiger.co.za>: there are literally thousands of packages available to those falling within the footprint of these providers. Many of these are month-to-month arrangements allowing maximum flexibility for consumers.

Finally, in this regard it must be noted that not all fibre access networks operate on an open access basis. Some providers enter into arrangements with businesses or consumers in terms of which they require that the provider be granted exclusivity in the provision of both ECNS and ECS. Third party ECS providers are therefore not permitted onto the network and there is no competition at the ECS level / layer 3.

ECN submits that the Commission should undertake further investigation into these "closed" networks in order to assess whether they are lawful taking into account the provisions of the Competition Act.

Mobile data services

As with fixed data services, the delivery of mobile services to end-users involves two activities requiring service licensing under the ECA:

- Electronic Communications Network Services (ECNS): A mobile network operator makes capacity available on that network, either to itself or to a third party for the delivery of electronic communications services. This is referred to in the industry as the provision of "layer 2" services.

- Electronic Communications Services (ECS): Internet access and other providers of ECS enter into agreements with mobile ECNS providers in terms of which they purchase capacity that allows them to reach their subscribers with their services. This is referred to in the industry as the provision of “layer 3” services.
- The ECA also provides that resellers of ECS are licence-exempt, subject to registration of this exemption with ICASA. Licence-exempt resellers enter into wholesale agreements with ECS providers authorising the reseller to resell ECS.

Unlike the fixed data services market, however, there are very high barriers to entry in the provision of mobile ECNS. Only six ECNS operators have been provided with valuable assignments of GSM and other high-demand RF spectrum suitable for use in the provision of mobile access network services. You cannot provide ECNS offering mobility in the sense of hand-over between base stations without access to this RF spectrum.

The second barrier to entry is that operators need to invest billions of Rands to build a national mobile ECNS network. The MNOs are quick to point out that it is only feasible for a limited number of ECNS licensees to provide mobile networks in South Africa. These arguments have merit and ECN agrees that only a limited number of mobile ECNS providers can afford to compete at the network level. That said, more can and should be done to provide new mobile ECNS providers with access to high demand RF spectrum.

ECN submits that much more should be done to foster competition in the provision of mobile ECS in the retail market. As outlined below, wholesale mobile data services are priced well above retail mobile data services. This issue needs to be addressed urgently. When wholesale mobile data services are priced below retail tariffs, this will provide a large number of ECS licensees – including those already competing actively in the fixed data services market – with the ability to compete in the provision of retail mobile ECS services.

The critical intervention is in the market for mobile data services. South African fixed line penetration is approximately 5% whereas mobile penetration is higher than 100%. Mobile ECNS coverage is much higher than fixed ECNS coverage. Most South Africans only have access to mobile data services. It follows that addressing the high cost of mobile data services is much more important than addressing the cost of fixed data services. While it can be argued that the cost of fixed data services is an important input cost in the provision of mobile data services, ECN submits that competitive dynamics in the mobile ECS market are the main factor that needs to be urgently addressed.

As the dominant mobile ECS provider, Vodacom has South Africa's most established data network. MTN has a similarly large and well-developed data network. As late entrants into the mobile market, both Cell C and Telkom Mobile have competed fairly aggressively on mobile data service pricing in order to acquire market share.

Vodacom and MTN have been slow to respond to Cell C and Telkom Mobile's lower mobile data tariffs. The incumbent mobile operators' data tariffs are still significantly more expensive than Cell C and Telkom Mobile's data tariffs. Vodacom and MTN's superior network coverage and customer loyalty may be factors in the lack of competitive response from Vodacom and MTN in terms of their mobile data tariffs.

In contrast to fixed line services, mobile data services are fairly homogenous. Most mobile ECS are purchased on a per MB basis. The user experience is impacted by factors such as handset performance, varying GSM coverage and GSM access technology.

The mobile market is limited to (potentially) 6 vertically-integrated ECNS providers. As noted above and elaborated on below:

- Incumbent providers of mobile data services are vertically-integrated and compete in both the upstream and downstream markets for mobile data services.
- The split between the mobile ECNS provider (layer 2) and the mobile ECS provider (layer 3) is not apparent in any of the incumbent providers.
- New entrants in the provision of mobile ECNS – Cell C, Telkom Mobile, Multisource – have all engaged with wholesale models to a degree of their choosing
- The dominant mobile ECNS providers are vertically integrated and do not provide meaningful wholesale ECS services to their competitors.

In direct contrast to the market for retail fixed data services / ECS, there is no evidence of effective competition in the market for retail mobile data services / ECS. ECN believes that this is due to market failure in the markets for wholesale mobile data services / ECNS, and that the correction of this market failure is the single biggest thing that can be done to reduce the cost to communicate for the majority of South Africans.

Mobile penetration is higher than 100% in RSA. For lower data prices to reach subscribers in South Africa, meaningful competition should be created at the service level in the mobile ECS market

3.1. ***Are there firms that operate as monopolies at any level of the value chain for the provision of data services? Are there firms which have market power in any data market, service or product? Elaborate and provide examples.***

ECN submits that it beyond question that Vodacom is dominant in the provision of retail mobile data services in that its share of this market is greater than 45% as contemplated in section 7 of the Competition Act. MTN is likely to fall between 35-45% market share.

ECN submits further that the Commission should give consideration to regarding each of the mobile network operators as dominant in respect of the wholesale market for the provision of mobile data services **on their network**. Consider that an ECS licensee wishing to obtain wholesale mobile data services in order to provide these in the downstream market is required to enter into agreements with each of the mobile network operators.

Stated differently: the only place to acquire Vodacom data for resale in the retail market is from Vodacom.

ECN submits that fixed data services should not be regarded as a substitute for mobile data services. This is because:

- Mobility is a key differentiator.
- Fixed data services have and will continue to have a limited footprint. The vast majority of South Africans are exclusively dependent on their mobile device for access to communications and the Internet (through the use of mobile voice minutes and data). The StatsSA's General Household Survey for the period January to December 2016 reveals that 87% of South African households exclusively use cell phones, with Mpumalanga (95%), Limpopo (94,4%), North West (90,5%) and the Free State (90,2%) topping the list.
- There are technical differences in the manner in which fixed and mobile services are constructed and delivered which impacts on pricing models.

Note that this is not to say that mobile-to-fixed substitution does not take place, particularly in locations where fibre networks have been deployed together with Wi-Fi access networks: rather that this substitution covers a small, high-LSM population.

3.2. *Across the value chain for data services, are there any firms that engage in any conduct that could be seen as unfair or anti-competitive? Please elaborate and provide examples.*

ECN submits that the Commission should investigate potential breaches of the Competition Act in the following respects:

- Whether dominant firms, operating in a vertically-integrated manner in both the wholesale and retail data services markets are engaged in an exclusionary act where the anti-competitive effect of that act outweighs its technological, efficiency or pro-competitive gain. [section 8(c)]
- Whether dominant firms, operating in a vertically-integrated manner in both the wholesale and retail data services markets are selling goods below their marginal or average variable cost. [section 8(d)(iii)]
- Whether actions by dominant firms, as the sellers of goods or services, constitute prohibited price discrimination which is (a) likely to have the effect of substantially preventing or lessening competition, and (b) relates to the sale in equivalent transactions of goods or services of like grade and quality to different purchasers; and (c) involves discrimination between those purchasers in terms of the price charged for the goods or services and/or any discount, allowance, rebate or credit given or allowed in relation to the supply of goods or services and/or the provision of services in respect of the goods or services; where such actions are not excused with reference to the factors listed in section 9(2) of the Competition Act.

ECN's submissions are based both on its own experience as a mobile ISP and its observations in the market.

[CONFIDENTIAL INFORMATION REMOVED]

Telecommunications regulation and spectrum allocation

4. *There are a variety of regulations, legislation, and regulatory bodies – including the Independent Communications Authority of South Africa (“ICASA”), the Department of Telecommunications and Postal Services (“DTPS”), and the Department of Communications (“DOC”) – that inform the functioning of the telecommunications sector in South Africa. In light of this, please answer the following questions:*

4.1. *How does the current regulatory environment in the telecommunications sector impact (i) the ability of existing firms to charge high prices for data, (ii) the level of competition, and (iii) the potential for entry?*

ECN submits that the current regulatory environment in the telecommunications sector does not have any direct impact on the ability of existing firms to charge high prices for mobile data.

ECN submits that the current regulatory environment in the telecommunications sector does not have any direct impact on the level of competition in the provision of mobile data services at either wholesale or retail level.

ECN submits that the current regulatory environment in the telecommunications sector does not have any direct impact on the ability of new competitors to enter into the market for the provisions of mobile data services at either wholesale or retail level.

ECN’s position is that there has been complete regulatory failure and that neither the policymaker nor the regulator have undertaken and completed any process which is designed or calculated or likely to reduce the cost of mobile data in South Africa.

4.2. *Provide your understanding and view of the roles of ICASA, DTPS, DOC and any other relevant body in the sector with respect to prices for data services in South Africa.*

ECN understands that:

- **The DTPS** bears responsibility under the ECA for formulating policy as required with respect to prices for data services in South Africa. The DTPS has in this regard issued a policy direction under section 3 of the ECA to ICASA titled “Policy Direction to the Independent Communications Authority of South Africa on effective competition in

broadband markets and the reduction of data costs”³. This policy direction was issued to ICASA on 4 March 2016.

There is also policy relating to competition in the provision of data services set out in the National ICT Policy White Paper, published in October 2017. The DTSP is in the early stages of effecting amendments to existing legislation, new legislation and restructuring of the institutional framework which it is required to complete before much of this policy can be implemented.

Chapter 6 of the White Paper sets out “interventions to reinforce fair competition and facilitate innovation in the converged environment including approaches to addressing horizontal and vertical integration across the value chain”. The key intervention set out in this chapter is the conducting of market reviews by the communications regulator. The White Paper also, however, recognises the need to first strengthen the capacity of the regulator to undertake market reviews.

- **ICASA** is responsible for the implementation of policy and of the provisions of legislation in the form of the ECA and the ICASA Act. ICASA has extensive powers under Chapter 10 of the ECA in respect of ex ante competition regulation. Outside of the Call Termination Regulations 2010 and the Call Termination Regulations 2014, it has not exercised these powers. This is notwithstanding the fact that ICASA itself had extensive input into the amendments to Chapter 10 of the ECA introduced by the Electronic Communications Amendment Act 1 of 2014, which were intended to simplify the application of the relevant provisions and thereby facilitate their use.

4.3. Provide your view of any recent regulatory changes and proposed amendments to the Electronic Communications Act – such as those focusing on rapid rollout of infrastructure and sharing of network infrastructure – to the extent that they relate to prices for data services and products.

There have been no recent regulatory changes relevant to the affordability of data services in South Africa. Notwithstanding the success of the 2010 and 2014 voice call termination rate interventions in opening up space for competition in the provision of fixed and mobile voice services, ECN’s submission is that the regulatory environment since the commencement of

³ <https://www.ellipsis.co.za/wp-content/uploads/2015/11/DTPS-2016-Policy-Direction-Broadband-Pricing-39781.pdf>

the ECA in 2006 and the completion of the licence conversion process in 2010 has had a negligible impact on the provision of fixed and/or mobile data services in South Africa.

There has been no practical realisation of the rapid deployment regulations or guidelines required to be finalised under section 21 of the ECA. ECN is aware that the DTPS is currently developing a strategy document to present to Cabinet on implementation but regards it as highly unlikely that any progress will be made in this regard in the short term.

ICASA has conducted an inquiry into infrastructure sharing under section 4B of the ICASA Act. The Findings Document⁴ resulting from this inquiry concluded that infrastructure sharing is already accommodated under the existing Facilities Leasing Regulations 2010, with greater attention to be paid to the enforcement of the provisions of those regulations. Further, ICASA will assess the need to amend the Facilities Leasing Regulations 2010 “in order to cater for local loop unbundling”. ECN is not aware of any further process relating to infrastructure sharing outside of the unimplemented policy set out in the National ICT Policy White Paper.

As noted above, ICASA has extensive powers to regulate competition on an ex ante basis in, inter alia, the market for wholesale data services (fixed/mobile and wholesale/retail), which powers are set out in Chapter 10 of the ECA. It does not appear that ICASA – notwithstanding the recent launch of its Priority Markets Study – is capable of completing a Chapter 10 process in respect of these markets. It is further the case that industry has a history of resorting to litigation if it does not like outcomes from these processes.

ECN submits that it is highly unlikely that any intervention from ICASA under Chapter 10 to introduce greater competition in the provision of data services (fixed/mobile, wholesale/retail) will come to fruition in the next five years.

⁴ <https://www.ellipsis.co.za/wp-content/uploads/2016/03/Findings-Document-Regulatory-framework-on-electronic-communications-infrastructure.pdf>

Spectrum

5. *As the demand for data in South Africa escalates, the allocation of, and access to, spectrum in South Africa has become a key issue in the sector and for data services in particular. With regards to spectrum, please answer the following questions:*

5.1. *How do issues of spectrum access and allocation affect competition and the potential for new entry?*

Simply put, it is not possible to provide wholesale mobile data network services without access to radio frequency spectrum which is required to enable this service. There is no potential for new entry absent access to this spectrum.

5.2. *How do you view the role of spectrum in the mobile market and how do you think spectrum affects costs and pricing of data services?*

The mobile network operators consistently maintain that spectrum constraints are a key factor in the pricing of mobile data services. They argue that access to more access spectrum reduces the cost to the network operator of expanding its network and increasing speeds over that network. This in turn, it is argued, results in lower prices to end-users⁵. In this way a simple equation is posited: more spectrum equals lower prices.

ECN agrees that available access spectrum needs to be put to use and acknowledges that this issue is currently provided for in the National ICT policy White Paper and the proposals for a wireless open access network (WOAN) set out therein. It is also clear that this is a highly contentious and increasingly-politicised issue, with ongoing litigation between the Minister and ICASA as well as recent indications that National Treasury favours an auction of available high-demand spectrum.

ECN, however, believes there are also compelling counter-considerations to the argument raised by the mobile network operators:

- Their argument that scarcity of spectrum is inflating pricing or preventing them from reducing the price is not borne out by their pricing models. For any service provider

⁵ See, for example, <https://mybroadband.co.za/news/cellular/234760-mobile-data-could-be-r50-per-gb-mtn.html>.

operating within a constrained supply environment, rates charged are consistent up to a point, beyond which they begin to disincentivise use. The heaviest users are charged more to try and prevent large consumption and allow management of the constrained resource.

Pricing for mobile data services, however, is structured to be the other way around – the more you use the lower the per unit price of use, incentivising heavy use.

- The underlying principle behind future deployment of 5G networks involves densifying the mobile network by bringing access points / base stations closer to consumers, so this densification is in any event part of the strategic plans of the operators.
- The mobile network industry is driven by the need to reduce costs, leading to a substantial increase in infrastructure sharing across the industry. Increasingly it is accepted that this includes sharing of elements of the radio access network itself.

Sunil Mittal, current Chair of the GSMA, expressed this trend as follows:

"Active sharing of infrastructure sharing in the form of the full network needs to be pursued. There are problems, issues because there are operators having a significant lead in the market and don't want to be slowed down by those who don't have the market share or the balance sheet or the wherewithal to roll out the fanciful new networks," he said.

"It's a challenge, but it's something that we have taken upon ourselves in GSMA to put a group together to see how far we can go on network sharing which can lower the cost of the network dramatically and provide more value in the hands of customers."

Adequacy of data supply quality and coverage

6. Please address the following questions:

6.1. In your view, is data supply quality and coverage in South Africa adequate by international standards and the country's development needs? Please elaborate.

ECN recognises that others may be better placed to respond to this question with evidence-based submissions, but notes that:

- Affordable access to an acceptable quality of electronic communications services for all South Africans is fundamental to the future development of South Africa and its citizens.
- Access to data services is largely ubiquitous but affordability is quite obviously an issue for many South Africans.
- The vast majority of South Africans do not have access to fixed data services: they are exclusively reliant on mobile data services.
- There is a disproportionate cost burden placed on indigent persons as a result of the pricing models for retail mobile data services.

6.2. How are businesses and consumers in low-income, under-developed, or rural areas affected by South Africa's data services challenges?

There is evidently an inverse relationship between disposable income and the unit price for mobile data services.

CONCLUSION

ECN submits that the fixed data services market is more competitive and dynamic than the mobile data services market – both at the ECNS and ECS provider level.

Many new competitors have entered the fixed data services market since 2009 when more than 1000 new ECNS and ECS operators were licensed. The biggest fixed operators offer well-priced wholesale fixed data services. This has led to significant competition in the fixed data services market resulting in higher speed services and lower data prices. However, fixed line penetration is low in South Africa, most consumers and small businesses rely on mobile data services for their connectivity.

Based on ECN's experience, competition is severely limited in the mobile data services market. Mobile data prices are very expensive on a per GB basis when compared to fixed data services. The mobile data market is dominated by 6 large, well-funded ECNS and ECS operators with access to significant assignments of GSM and high demand mobile frequency. Although the large mobile network operators have some wholesale services available to large customers and other ECS operators, the pricing of these wholesale services is prohibitively high. The mobile network operators are vertically-integrated, and they have priced wholesale data tariffs well above retail data tariffs.

ECN submits that discriminatory / exclusionary pricing practices in the wholesale mobile data services market inhibit competition resulting in ineffective pricing in the downstream retail market.

ECN further submits that this practice may amount to vertically integrated mobile network operators selling retail mobile data services below their marginal or average variable cost.