



31 January 2020

Vodacom's submission on ICASA's notice on the licensing process for International Mobile Telecommunications ("IMT") spectrum, as published in the Gazette on 1 November 2019



1. Introduction

Vodacom Pty Ltd (**Vodacom**) wishes to thank ICASA for the opportunity to provide written comments on the notice on the licensing process for International Mobile Telecommunications (“**IMT**”) spectrum (notice 597 of 2019), as published in the Gazette on 1 November 2019 (the “**Information Memorandum**”).

ICASA has invited comments in respect of the provisioning of mobile broadband wireless services for urban and rural areas using the complementary bands, IMT700, IMT800, IMT2300, IMT2600 and IMT3500.

We are a committed investor and leading provider of communications services in South Africa and understand the centrality of communications to achieving the Government’s National Development Plan and the Economic Stimulus and Recovery Plan goals for South Africa in terms of creating jobs, supporting growth of the economy and furthering healthcare and education. Subject to a supportive investment and regulatory environment, these opportunities are likely to be realised through new and more widespread mobile and fixed communications technologies.

We support the Authority’s objectives, “*to ensure nationwide broadband access for all citizens by 2030*”. We propose an ambitious set of licence coverage commitments (both in terms of coverage and throughput) that are achievable in real world environments and which may be met through various forms of sharing. We believe the WOAN has a potentially valuable role in assisting the industry to achieve the Authority’s coverage objectives, by acting as a consolidated infrastructure provider to licensees in rural and underserved areas.

In these submissions, we propose an option for spectrum assignment that provides the opportunity for the WOAN and each successful licensee to remain competitive and allow them to be similarly efficient with the deployment of the spectrum that is assigned in this auction. We support the inclusion of 2300MHz and 3500MHz spectrum into the award and their simultaneous assignment with the high demand spectrum.

We support the WOAN benefitting from a capacity pre-commitment from licensees, as well as its enjoying some accommodation on payment for the high demand spectrum. But we believe that passive access and national roaming licence conditions are inappropriate.

Our submissions follow the chapter headings used by the Authority in the Information Memorandum. Our comments are structured as follows:

Section 2: Executive Summary

Section 3: Proposed spectrum for the award

Section 4: Obligations

Section 5: The award process of the spectrum to the industry

Section 6: Process and legal issues



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Glossary

Act (or ECA)	The Electronic Communications Act, No. 36 of 2005
Authority (or ICASA)	The Independent Communications Authority of South Africa
B-BBEE Act	The Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003)
BNetzA	Bundesnetzagentur, the regulatory authority in Germany
Department (or DTSP)	Department of Communications and Digital Technologies
High demand spectrum (or HDS)	Spectrum in the IMT700, IMT800 and IMT2600 bands, as contemplated by the Information Memorandum
Information Memorandum	The Authority's notice on the licensing process for International Mobile Telecommunications spectrum (notice 597 of 2019), as published in the Gazette on 1 November 2019
ITA	Invitation to apply, a process followed by the Authority in assigning radio spectrum
Licensee (or HDS licensee)	A radio frequency spectrum licensee that is assigned, or to be assigned, currently unassigned high demand spectrum, as contemplated in the Information Memorandum
LTE	Long Term Evolution, a 4G wireless broadband technology developed by the Third Generation Partnership Project (3GPP)
Mobile Broadband Discussion Document (or MBDD)	The Authority's discussion document on the market inquiry into mobile broadband services in South Africa, dated 29 November 2019
MNO	Mobile network operator
Objectives	The Authority's objectives for licensing of the high demand spectrum, as set out in section 3 of the Information Memorandum
Policy Direction	The Policy on high demand spectrum and Policy Direction on the licensing of a wireless open access network from the Minister to the Authority, as published in the Gazette on 26 July 2019 (No. 1013)
WOAN	Wireless or wholesale open access network, as contemplated in the Information Memorandum



2. Executive Summary

2.1 The Authority’s objectives

We support the Authority’s objective “to ensure nationwide broadband access for all citizens by 2030”.

In these submissions, we propose that licensees that acquire high demand spectrum in the sub-1GHz band must provide basic data coverage to nearly all citizens - we propose a target of 99.78% of the population. We believe this target is achievable within 5 years after the sub-1GHz spectrum is made available for deployment.

In addition, we propose an aggressive performance benchmark for licensees that acquire high demand spectrum in the sub-1GHz band to provide data services with an average of 30 Mbps downlink and an average of 15 Mbps uplink cell throughput as measured at the Antenna, to 96.8% of the population.

We believe that, by establishing a framework that is supportive of the industry working together in a shared manner, to extend coverage into rural and underserved areas, it will help us move collectively toward achieving the Authority’s goal of nationwide broadband access.

We see that the WOAN could play a pivotal role in aiding licensees to expand their data coverage and meet their licence coverage obligations. As a neutral, wholesale-only entity, the WOAN could help to provide the collective infrastructure base, including backhaul as well as both passive and active infrastructure, that could be accessed by licensees to provide services in these rural and underserved areas.

2.2 Proposed spectrum for the award

(a) Spectrum assignments for the WOAN and licensees

We believe the best overall solution to meet the Authority’s Objectives would result in the licensees and the WOAN each receiving an assignment of high demand spectrum to enable them to sell their services into the same wholesale market on a competitive basis, allowing them to be similarly efficient with the deployment of the spectrum that is assigned in this auction.

With this in mind, we propose another option for the Authority (shown in the diagram below - the WOAN is “A”), which will ensure high quality service delivery, as well as setting the platform for a competitive wholesale and retail environment.

Option	700 MHz		800 MHz		2600 MHz TDD					
6	B0 2x15	C0 2x15	D0 2x15	A 2x15	A 1x40	B1 1x40	RAIN 1x20	C1 10	D1 1x40	E1 1x40

We expect that it is a key objective of the Authority to focus on service quality and to prevent the inefficient fragmentation of the respective bands. In that case, a 2x15MHz assignment for the sub-1GHz spectrum is a more practical and cost effective means of achieving coverage and throughput, as compared to a 2x10MHz or a 2x5MHz assignment.



(b) Separate auctioning of lower and higher bands

The sub-1GHz bands should be auctioned separately to the 2.6GHz band and, as a result, there should not be “packages” of low and high frequency spectrum. Different operators might have different needs, e.g. an operator might be primarily interested in sub-1GHz, but not in high frequency. Indeed, no bidder would be required to acquire spectrum it does not want. However, those bidders who are interested in acquiring both bands can still do so by bidding both on sub-1GHz lots and 2.6GHz lots. Therefore, splitting the auction into one for low frequency and another one for high frequency would improve efficiency.

The assignment of the sub-1GHz and the 2.6GHz spectrum should occur at the same time, notwithstanding that actual deployment may take place at different times. The Authority should proceed with assignment and deployment of the 2.6GHz spectrum to the WOAN and to the operators as soon as possible. In respect of the sub-1GHz spectrum, we propose that there should be an “end-stop” date for availability of this spectrum and we propose 2021.

(c) 2300MHz and 3500MHz bands

To provide the greatest benefit to our citizens and to stimulate economic growth, we propose that all available spectrum be made available to the industry as soon as practically possible. As such, we support the inclusion of 2300MHz and 3500MHz spectrum in the award and propose that this spectrum should be assigned simultaneously with the high demand spectrum and should not be included in any packages. We propose that the WOAN be assigned 1x10MHz of IMT2300 spectrum and that the remaining 1x30MHz in IMT2300 be assigned to licensees.

We also propose additional spectrum blocks be auctioned, along with a migration of existing MNOs in the 3.5GHz band, to allow for an optimal assignment. Our first preference is for the whole of the 3300 MHz – 3800 MHz spectrum range to be included, which results in an additional 200MHz of spectrum to be auctioned, with sizeable and contiguous 1x80MHz lots that allow for significantly greater service growth opportunity.

(d) Reserve prices

We propose that reserve prices should be set at a value which ensures that the reserve price sufficiently values the spectrum as a scarce national resource, while enabling a reasonable final auction price that leaves sufficient headroom for operators to deploy the substantial infrastructure investment that will be required.

We also encourage the Authority, in setting the reserve prices, to take into account the challenging coverage obligations that are required in order to extend data coverage to the more remote areas of the country and the significant investment that all operators will have to make to enhance broadband inclusion.

2.3 Licence obligations

(a) Uplink and throughput obligations

As noted above, we propose a coverage obligation which requires licensees that acquire high demand spectrum in the sub-1GHz band to provide data services with an average of 30 Mbps downlink and an average of 15 Mbps uplink cell throughput as measured at the Antenna, to 96.8% of the population, and must provide basic data coverage to 99.78% of the population, in



each case within five years from the date at which the sub-1GHz spectrum is available for deployment. While these coverage obligations are challenging, we believe they should be reasonably achievable in real world environments.

(b) Sharing arrangements

For any licensee coverage obligations, we submit that they should be capable of being met through various forms of sharing arrangements commercially agreed between licensees, such as commercial network and/or facility sharing in the relevant areas. As noted, we believe the WOAN has a potentially valuable role in assisting the industry to achieve the Authority's coverage objectives.

(c) Rural first condition

We appreciate the Authority's urgency to prioritise broadband coverage for rural areas. While we support the principle of prioritising rural coverage, we caution the Authority on imposing rural-first obligations. We are concerned that rural-first obligations will have the effect of delaying investment into urban and sub-urban areas to the detriment of consumers living in these areas that experience the highest demand. As such, we believe that a rural-first obligation would work counter to the Authority's Objective to reduce data costs and promote investment.

(d) Open access to MVNOs

We believe the WOAN is the optimal vehicle to assist new MVNOs to enter the market and prosper, given that it is a wholesale-focused entity that should be attractive to these wholesale customers. We are, however, concerned that a requirement for a licensee to provide open access to a minimum of three MVNOs as a condition of its licence is likely to be detrimental to an environment where the WOAN can grow and become a healthy and viable wholesale business. Instead, we submit that the licensees and the WOAN should compete in the open market for MVNO business, supporting a more competitive market for wholesale services.

(e) Capacity offtake

We accept there should be a capacity commitment that provides an anchor tenancy for the WOAN to support its ability to raise finance and so achieve the Authority's Objectives for the WOAN. The Authority should provide further details on how this capacity commitment will work.

We believe the capacity that must be procured by licensees should relate only to the WOAN's own capacity where it has its own operational network. This will create the incentive for the WOAN to deploy its own network promptly and should contribute towards achieving viability.

In order to promote a competitive and sustainable industry, we propose the licensees' licence conditions should specify that their commitment is to acquire capacity from the WOAN at fair, reasonable and non-discriminatory prices. These prices should be consistent with wholesale prices that are available in the market for comparable wholesale services.

(f) Change in circumstances

Through their capacity commitments, the licensees will be providing support to the WOAN to provide it with a path to a healthy and viable business. However, licensees should be relieved of their licence conditions that benefit the WOAN, including capacity pre-commitments, if certain



kinds of substantial change occur, namely where the WOAN acquires a controlling interest in an existing mobile network or becomes controlled by, or forms a joint venture or merges with, an existing operator or an existing operator takes control of the WOAN's spectrum.

(g) Support and incentives

We believe the WOAN should benefit from some reasonable accommodation on payment terms for the high demand spectrum and, together with the licensees' capacity pre-commitment, this should give the WOAN a substantial benefit. With these benefits, and a reasonable allocation of spectrum (discussed above), the WOAN would be capable of succeeding on its own merits.

(h) Obligations on the WOAN

As a point of principle, and to achieve the goals of a sustainable and efficient WOAN, we believe the WOAN should have significant discretion over which wholesale services it wishes to provide, where and on what terms. In general, save for specific restrictions that could lead to anti-competitive effects, the Authority should not mandate over-burdensome obligations on the WOAN, which will impede its ability to become a healthy and viable business, succeeding on its own merits.

(i) Access to passive infrastructure

Our view is that the WOAN will not only benefit from a competitive market for access to any passive infrastructure, which will ensure timely access and competitive terms, but will also be able to use the Facilities Leasing Regulations to gain access to facilities, as currently enjoyed by the majority of the MNOs. In light of the competitive environment and the current access regulations, a licence obligation to provide access to passive infrastructure to the WOAN is not required and is inappropriate. It may indeed harm the vibrant infrastructure market that the Authority's Regulations has enabled to grow over many years.

(j) National roaming service

Similar to the case with facilities leasing, the WOAN will benefit from a competitive wholesale market for national roaming and we have seen prominent recent examples of that. To be clear, we support the ability for licensees and the WOAN to negotiate national roaming on commercial terms, but we propose that there could be a significant harmful effect that arises from forcing licensees to provide national roaming to the WOAN, and worse still if this is imposed on the fairly onerous terms proposed by the Authority.

(k) Cost-oriented pricing

The Authority should only consider imposing cost-oriented pricing for facilities access or national roaming on any licensee if yielded following a diligent Chapter 10 Act process of defining a relevant market and testing whether the market is competitive and, if the market is found to be uncompetitive, analysing the relevant licensee's market power and its potential to behave in an anticompetitive manner.



3. Proposed spectrum for the award

3.1 Introduction

In this section 3, we propose an alternative option to the options in the Information Memorandum that provides the opportunity for the WOAN and each successful licensee to remain competitive and be similarly efficient with the deployment of the spectrum that is assigned in this auction. We support the inclusion of 2300MHz and 3500MHz spectrum in the award and their simultaneous assignment with the high demand spectrum.

3.2 Spectrum available to the WOAN and for auction

The Authority's proposed options in the Information Memorandum are shown in the following diagram:

Option	700 MHz			800 MHz		2600 MHz TDD		2600 MHz FDD				
1	B 2x10	C 2x10	D 2x10	? 5	A 2x25	RAIN 1x20	A 1x25	A 2x20	B 2x10	C 2x10	D 2x10	E 2x20
Option	700 MHz			800 MHz		2600 MHz TDD						
2	B 2x10	C 2x10	D 2x10	? 2x10	A 2x20	A 1x40	RAIN 1x20	B 1x50	C 1x50	D 1x30		
3	B 2x10	C 2x10	D 2x10	E 2x10	A 2x20	A 1x40	B 1x40	C 1x40	D 1x40	E 10	RAIN 1x20	
4	A 2x20		? 2x10	B 2x10	C 2x10	D 2x10	A 1x40	B 1x40	RAIN 1x20	C 1x40	D 1x40	? 10
5	A 2x10	C 2x10	D 2x10	E 2x10	A 2x10	B 2x10	A 1x40	B 1x40	C 1x40	D 1x40	E 10	RAIN 1x20

3.2.1 An alternative option – option 6

For various reasons that we discuss further below, we believe the best overall solution to meet the Authority's Objectives would result in the licensees and the WOAN each receiving an assignment of high demand spectrum to enable them to sell their services into the same wholesale market on a competitive basis and allow them to be similarly efficient with the deployment of the spectrum that is assigned in this auction. This would promote several of the Authority's Objectives, in terms of promoting investment and competition.

These considerations lead us to propose another option to the Authority; option 6. Under this option, the amount of spectrum available for the WOAN would be:

- 2x15MHz of sub-1GHz; and
- 1x40MHz of 2.6GHz.

The following diagram illustrates this option (the WOAN is "A"):



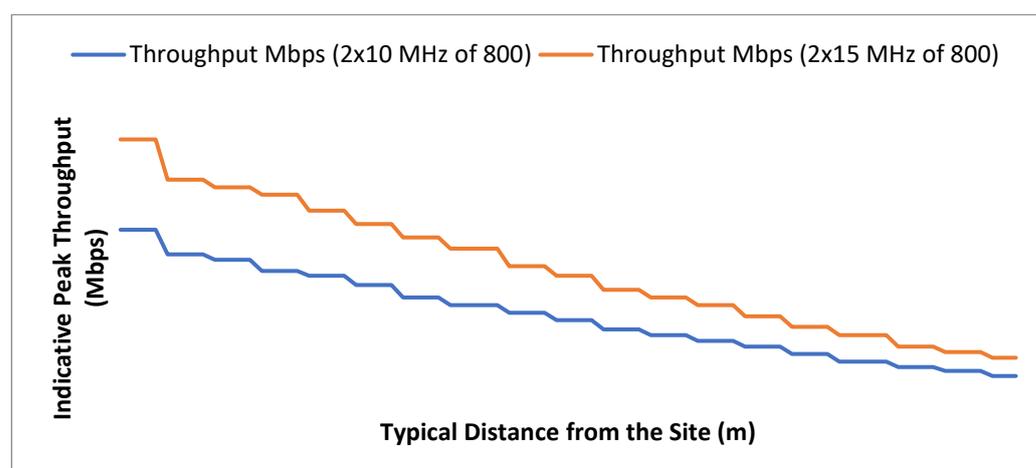
Option	700 MHz		800 MHz		2600 MHz TDD					
6	B0 2x15	C0 2x15	D0 2x15	A 2x15	A 1x40	B1 1x40	RAIN 1x20	C1 10	D1 1x40	E1 1x40

Although less sub-1GHz spectrum is available to the WOAN as compared to the Authority's options, this assignment would be more than sufficient for the WOAN to serve 15-20% of LTE end users, assuming a relatively high future data consumption, both in terms of sub-1GHz spectrum and 2.6GHz spectrum¹. A 2x15MHz assignment of sub-1GHz spectrum would be sufficient for the WOAN to achieve high levels of coverage in rural and underserved areas, which will be beneficial to all licensees in achieving their coverage obligations.

Further, this option has the advantage of achieving better symmetry between the WOAN and the licensees.

We expect that it is a key objective of the Authority to focus on service quality and the prevention of inefficient fragmentation of the respective bands. In that case, a 2x15MHz assignment for the sub-1GHz spectrum is more practical and cost effective in achieving coverage and throughput compared to a 2x10MHz or a 2x5MHz assignment.

This is illustrated in the following diagram², which shows the relationship between peak throughput for 2x15MHz as compared to 2x10MHz, over various distances from the cell site:



An assignment of 2x15 MHz of sub-1GHz spectrum would consistently provide more resources for subscribers compared a 2x10 MHz block over the entire cell.

Internal studies measured that the average cell throughput for a 2x15 MHz carrier was 30 Mbps downlink and 15 Mbps uplink. Similarly, for a 2x10 MHz carrier, the average cell throughput measured was 20 Mbps downlink and 10 Mbps uplink. It is evident, therefore, that a 2x15MHz network will provide substantial benefits in terms of avoiding densification inefficiencies, rather than trying to scale a 2x10MHz network to achieve a throughput of 30Mbps downlink. This will help the industry avoid substantial incremental investment (saving roughly a third of the sites is

¹ Vodacom submissions to the DTSP on the proposed Policy and Policy Directions to the Authority, 8 November 2018

² Representing a high-level simulation of MCS code degradation vs Hata-Okumara propagation distance; the diagram does not necessarily represent what a user can expect in real world scenarios; rather it provides a relative performance view of the cell.



envisaged, as compared to a 2x10MHz assignment with the same 30Mbps throughput target), to the benefit of consumers.

In the 2.6GHz band, our proposal is similar to option 4 proposed by the Authority in this band. The WOAN and three licensees would receive equal 1x40MHz lots, suitable for high quality broadband access, while at the same time ensuring that Rain's assignment is within the usable range of Rain's existing IMT2600 equipment.

Our proposed option 6 would ensure that the spectrum is used efficiently, services are delivered at a lower cost (compared to a scenario where the licensees only get 2x10MHz of sub-1GHz spectrum) and there is reduced risk of any distortion of competition downstream. It would also provide the WOAN with the appropriate level of spectrum to compete effectively and would allow licensees to deliver wider coverage and higher speeds in rural areas than they could achieve otherwise, having only 2x10MHz of sub-1GHz spectrum.

In this option 6, we have also taken into account the concept of contiguous assignment, which we discuss further in section 5.6 below.

We also propose that the WOAN's reservation of 2x15MHz be in the 800MHz band, since the IMT800 ecosystem is well developed and South Africa has a high device penetration of IMT800 capable devices. This ecosystem support will improve the WOAN's viability as MNOs will be able to immediately offload traffic to the WOAN, because of the high number of IMT800 devices currently used in MNO networks.

We propose there should be a limit of up to one block per licensee in the sub-1GHz spectrum band and up to one block per licensee in the 2.6GHz band, in the initial auction round. The sub-1GHz bands would be auctioned separately to (not as part of a package with) the 2600MHz band as discussed above.

Under our proposal, there would be a smaller 1x10MHz block (C1) in the 2.6GHz band. If that smaller block is not assigned in the first round of the auction, then we suggest a second round auction, where any of the licensees that acquired a 1x40MHz block may also acquire that smaller block.

Overall, our proposed option 6 provides a reasonable opportunity for the WOAN and each successful licensee to be competitive and be equally efficient. It will meet the Government's recommendations in the Policy Direction to *"enable [the WOAN] to fulfil its policy mandate and to thrive"*³.

3.2.2 Separate auctioning of lower and higher bands

We understand that the Authority's proposal to combine spectrum into packages is likely driven by a desire:

- to ensure that the assignment of new high demand spectrum in South Africa is broadly symmetric between the main existing players (or any new entrant). By packaging spectrum in this way, the Authority seeks to ensure that no bidder can acquire a disproportionate amount of unassigned high demand spectrum (either low or high

³ Section 3.1, Policy Direction



frequency), thus reducing the risk of distortion in competition downstream⁴; and

- to simplify the award – indeed this is the first spectrum auction in South Africa and operators do not have prior experience of bidding in complex, multi-band auctions. Therefore, it seems like a desirable objective to try and make the auction process for the main body of unassigned high demand spectrum as simple for bidders as possible.

We believe that this aspect could be modified to improve efficiency, without affecting significantly the above objectives, by splitting the packages into lots containing 2.6GHz spectrum only and lots containing sub-1GHz spectrum (with coverage obligations attached to these sub-1GHz lots).

Under our proposals, this would enable licensees to acquire the lots in the 2600MHz band that they prefer, independently from the lots in the sub-1GHz bands, and vice versa.

Licensees should be expected to have varying requirements, both in terms of total spectrum sought and the mix of bands sought. Some may prefer low band spectrum, while others may not consider it a priority.

For example, there may be players that might want to acquire more capacity spectrum, without necessarily extending their networks into rural areas. Indeed, Rain and Liquid have deployed or are about to deploy networks in urban areas (using 2.6GHz and 3.5GHz respectively). However, they may not wish to bid for sub-1GHz spectrum, as this spectrum will also have a coverage obligation. Therefore, under the Authority's current proposal, they may end up with no new spectrum at all. However, if the sub-1GHz spectrum is de-coupled from the high frequency spectrum, these operators would be able to compete and acquire additional 2.6GHz spectrum.

Conversely, considering the specific case of Telkom, it already has significant capacity spectrum in the IMT2100 and IMT2300 range, but does not have coverage spectrum. Auctioning the lower and higher bands separately would allow Telkom to increase its network coverage by acquiring sub-1GHz spectrum and decrease its dependency on other MNOs for coverage through roaming.

Therefore, by splitting the proposed packages into sub-1GHz lots and 2.6GHz lots, the Authority could improve overall efficiency. However, those bidders who are interested in acquiring both bands can still do so by bidding both on sub-1GHz lots and 2.6GHz lots. Both frequencies can be allocated simultaneously within the same SMRA process.

Further, participants wishing to enter the market with a limited spectrum budget may be prevented from securing any spectrum if the prices of packages rise above their budget. If the bands were auctioned separately, bidders with limited budget could focus their capital on the bands that offered the greatest benefit to them.

We also note that it is uncommon to combine different frequencies into packages, as proposed by the Authority, and no regulator in Europe has done so for some time. While different bands may be sold together as part of the same auction process (to increase efficiency and allow substitution between the bands), there is no obligation on operators to acquire low frequency spectrum together with high frequency spectrum.

⁴ This assumes that no single MNO/licensee would be allowed more than one of Lots B, C or D – we recognise though that this is not explicitly stated in the IM.



This leads us to the view that there should not be “packages” of low and high frequency high demand spectrum. Rather, there should be blocks of spectrum in the sub-1GHz band and blocks in the 2600MHz band, which may be acquired separately.

3.2.3 Timing of assignment and deployment

The assignment of the sub-1GHz and the 2.6GHz spectrum should occur at the same time, through the same process, notwithstanding that actual deployment may take place at different times. This will enable operators to make the spectrum choices that best suit their requirements at the same time.

(a) 2.6GHz band

The Authority should proceed with assignment and deployment of the 2.6GHz spectrum to the WOAN and to the operators as soon as possible. The 2.6GHz spectrum is available for deployment now and, once the key parameters are determined by the Authority, should be assigned and able to be deployed by the licensees.

There is a pressing need for deployment of further high capacity spectrum, so the 2.6GHz spectrum can be used for more efficient rollout of mobile broadband networks. This would promote the Authority’s Objectives, by leading to the lowering of the cost to provide communications services and subsequently a reduction in the cost to consumers.

(b) Sub-1GHz bands

In respect of the sub-1GHz spectrum, we propose that it should be assigned now, but there should be an “end-stop” date for availability of this spectrum that the Authority commits to. We propose 2021. This will allow the WOAN, and all potential licensees, to put in place the necessary technical, infrastructure and commercial arrangements to make use of this spectrum by that date.

(c) Assignment to the WOAN

We note that the Policy Direction recommends that spectrum assignment processes to the WOAN and licensees must commence simultaneously⁵. However, while the assignment process can commence simultaneously, we don’t believe that the spectrum auction and licence awards need to be done simultaneously. The WOAN may take a while to be established and the Authority should not delay auctioning and assigning the high demand spectrum that is available for the licensees so that they may begin to make use of it and avoid further postponing the deployment by licensees to the detriment of consumers and the country.

This will not disadvantage the WOAN as it will be entitled to the benefit of the capacity pre-commitments, which will be part of the licence commitments, once it is established. The WOAN will also benefit from any capacity arrangements that it may negotiate with MNOs that do not acquire high demand spectrum in the auction as well as MVNOs.

Nevertheless, we do believe that the WOAN should be established as soon as possible. If the WOAN is established soon, this will enable it to participate in the market, including addressing the need to provide better coverage in conjunction with the other licensees.

⁵ Section 2.1.2, Policy Direction



3.2.4 Order of preference of the options presented

Option 6 is our preferred option for the reasons provided. Our next preferred options from the list presented by the Authority in the Information Memorandum are option 2 and then option 4.

The following diagram illustrates our preference:

Option	700 MHz	800 MHz	2600 MHz TDD	2600 MHz FDD
1	B 2x10 C 2x10 D 2x10	? 5 A 2x25	RAIN 1x20 A 1x25	A 2x20 B 2x10 C 2x10 D 2x10 E 2x20
2	B 2x10 C 2x10 D 2x10	? 2x10 A 2x20	A 1x40 RAIN 1x20 B 1x50 C 1x50 D 1x30	
3	B 2x10 C 2x10 D 2x10	E 2x10 A 2x20	A 1x40 B 1x40 C 1x40 D 1x40 E 10 RAIN 1x20	
4	A 2x20 ? 2x10	B 2x10 C 2x10 D 2x10	A 1x40 B 1x40 RAIN 1x20 C 1x40 D 1x40 E 10 ? 1x20	
5	A 2x10 C 2x10 D 2x10	E 2x10 A 2x10 B 2x10	A 1x40 B 1x40 C 1x40 D 1x40 E 10 RAIN 1x20	
6	B0 2x15 C0 2x15	D0 2x15 A 2x15	A 1x40 B1 1x40 RAIN 1x20 C1 10 D1 1x40 E1 1x40	

RAIN's existing
Radio's usable range






(a) Option 2

In option 2, the total amount of spectrum reserved for the WOAN is 40 MHz DL and the IMT2600 band is auctioned in TDD, 3GPP band 41, with two lots of 1x50 MHz made available for licensees, which will improve the industry's ability to enhance the provisioning of high quality broadband access.

However, under this option, 2x10 MHz in IMT800 is not planned to be auctioned, even though this band has been determined as high demand spectrum. Further, the Rain assignment is shifted outside the usable range of the equipment currently deployed by Rain in 3GPP band 38, which is from 2575 MHz to 2615 MHz.

Option 6 is still preferred to option 2, because it proposes to assign the sub-1GHz spectrum in larger 2x15 MHz lots to the WOAN and to licensees, which will allow for significantly improved service levels.

However, we recommend that, if option 2 is adopted, the Authority consider:

- assigning the 2x10MHz in 800 MHz in two 2x5MHz lots through the auction; and
- migrating Rain's IMT2600 within their usable range, between the two 1x50MHz lots, lots B and C.



(b) Option 4

Option 4 is the only option in which the Rain band is likely to be within the usable range of the equipment currently deployed by Rain in 3GPP band 38, which is from 2575 MHz to 2615 MHz⁶, so no migration is required.

The concern with this option, over and above that sub-1GHz is assigned in 2x10 MHz Lots, is that a 2x10 MHz lot in IMT700 is not planned to be auctioned in this process, even though this band has been determined as high demand spectrum and that the IMT2600 has less spectrum auctioned. All spectrum available should be auctioned so as to create certainty and allow for the efficient use of spectrum.

Provided that the 2x10 MHz in IMT700 is made available and that the Rain spectrum is migrated to after lot B and the 1x10 MHz in IMT2600 is assigned, this option is the next preferred option, after option 6 and option 2.

Option 6 is still preferred to option 4, because option 6, as indicated, proposes to assign the sub-1GHz spectrum in larger 2x15 MHz lots which will allow for much better service levels than a 2x10 MHz assignment. No spectrum is left unassigned with option 6.

However, we recommend that, if option 4 is adopted, the Authority consider:

- assigning the 2x10MHz in IMT700 in two 2x5MHz lots through the auction;
- while Rain's IMT2600 is not indicated in the Information Memorandum under option 4, but lot B is defined as 1x60MHz, Rain should be assigned the upper 1x20MHz of lot B, to ensure that it remains in its usable range; and
- assigning the 1x10MHz in IMT2600 in between lot C and lot D.

Again, if options 2 or 4 were chosen, we consider that the sub-1GHz spectrum should be auctioned separately to (not as part of a package with) the 2.6GHz band.

3.2.5 Comments on other options

The disadvantages associated with the other options are not identical, but are sufficient to render them equally inappropriate and unacceptable.

(a) Option 1

As discussed above, it would be more efficient for the reasons provided to assign the sub-1GHz spectrum in larger 2x15 MHz lots than in 2x10 MHz lots. In the IMT700 band, 2x10 MHz is not sufficient for achieving the Authority's current throughput coverage targets and leaves 2x5 MHz of unassigned spectrum in IMT800.

Technically, the WOAN will not be able to deploy the 2x25 MHz in IMT800 using a single 800 MHz radio, because there is Passive Inter-Modulation (**PIM**) interference between the two

⁶ In the Information Memorandum (table 4), the Authority has not listed the Rain assignment, but Lot B, although being assigned only 40 MHz, has a range from 2540 MHz – 2600 MHz, suggesting it is provisioned for 60 MHz. Therefore, it is assumed that the Rain band is included in Lot B in error. It is assumed that the Rain band is situated after lot B for Rain to fall within its usable range.



carriers. This would need to be deployed with two radios and more expensive Antennas supporting at least four low band ports, which will significantly increase the cost for the WOAN.

(b) Option 3

Under option 3, the Rain band is shifted to the end of the band, outside of the usable range of the equipment currently deployed by Rain in 3GPP band 38 (from 2575 MHz to 2615 MHz).

(c) Option 5

While the Authority proposes assigning the sub-1GHz spectrum equally between the WOAN and licensees in option 5, it is only possible for the WOAN to acquire both IMT700 and IMT800. However, the IMT700 and IMT800 lot planned for the WOAN will result in PIM interference, which will lead to the need to deploy the IMT700 and IMT800 spectrum with two radios and more expensive Antennas supporting at least four low band ports. As with option 1, this will significantly increase the cost for the WOAN.

Similar to option 3, the concern with this option is that the Rain band is shifted in option 5 to the end of the band, which is outside of the usable range of the equipment currently deployed by Rain in 3GPP band 38.

3.2.6 Possibility of adopting a flexible SMRA format

Regardless of the option chosen by the Authority, we consider that all bidders should be allowed to bid simultaneously for the blocks that they require, adopting a flexible SMRA format. The use of 2x15MHz block sizes for sub-1GHz spectrum should not preclude SMRA in our view.

These SMRA formats are transparent and allow the most efficient assignment to be discovered by the bidding process. Bidders may bid simultaneously for whichever block they require (or can afford) at the prevailing price, but they could be awarded only up to one block in the sub-1GHz bands and in the 2.6GHz band in the first round of the auction.

We discuss the SMRA format further in section 5.5 below.

3.2.7 TDD format for the IMT2600 band

The Information Memorandum offers two options for the configuration of the 2.6GHz band:

- the FDD/TDD hybrid (that was the norm when the band was licensed 5-8 years ago in Europe) providing 2x70 + 50 MHz; and
- a pure TDD configuration (“Band 41”) providing 190MHz.

We would prefer the TDD format for the configuration of the 2.6GHz band. More spectrum would be available for auctioning by removing the need for guard-bands between FDD and TDD. Also, TDD is more efficient, in that it allows greater flexibility in the assignment of spectrum among licensees and in the division of total capacity between uplink and downlink. It is also a better candidate for Massive MIMO technology in the future.

We note that the Authority has previously come to a similar conclusion⁷:

⁷ Section 7.4.2.2, ICASA IMT Roadmap



“The use of the LTE Band 41 unpaired TDD configuration gives significant benefits over employing the hybrid LTE Bands 7/38 configuration.”

By way of example, the TDD format has recently been adopted in Kenya and is already in place in the DRC.

3.3 2300MHz and 3500MHz bands

3.3.1 Introduction

The Information Memorandum states that 40MHz of 2.3GHz and 116MHz of 3.5GHz will be assigned simultaneously with the high demand spectrum discussed above and also that those bands are not included in the packages.

The Information Memorandum is not entirely clear on how the Authority proposes to assign these spectrum bands. Our assumption is, and we recommend that, this will be done using a Simultaneous Multi-round Ascending auction (SMRA).

3.3.2 Vodacom position

To provide the greatest benefit to our citizens and to stimulate economic growth, we propose that all available spectrum be made available to the industry as soon as practically possible, as is typically the practice in some of the leading mobile markets across the world. As such, we support the inclusion of spectrum in these bands in the award and that they should be assigned simultaneously with the high demand spectrum and should not be included in any packages.

(a) IMT2300

We support the WOAN receiving an assignment of 1x10MHz of 2.3GHz spectrum and that the remaining 1x30MHz in 2.3GHz be assigned to the licensees in order to:

- ensure that the WOAN has an equitable share of 2.3GHz spectrum relative to each of the licensees participating;
- give the WOAN additional capacity spectrum beyond 2.6GHz to cater for any hot spot capacity requirements that it may have; and
- allow other licensees to acquire access in this band, which would promote the ecosystem development in 2.3GHz and reduce the cost of devices supporting 2.3GHz (which in turn benefits the WOAN).

This proposal is illustrated as follows (the WOAN is “A”):

2300 MHz	Telkom	A	B3	C3	D4
	1x60	1x10	1x10	1x10	1x10

We note that, currently, only Telkom has access to this band, with access to a disproportionately large amount of the spectrum, while the rest of the band remains unused. The equipment vendors already include support for this band in their multiband antennas.



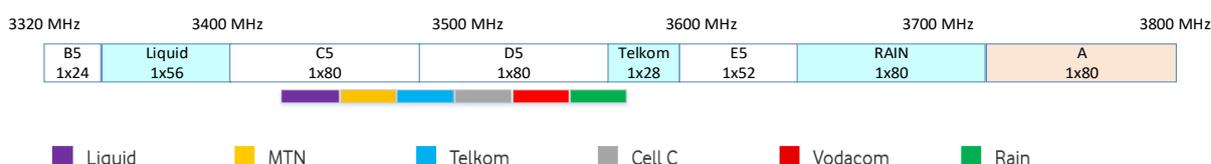
(b) *IMT3500*

In our view, to fully realise the IMT2020 vision, we propose the Authority consider the potential that additional spectrum blocks be auctioned, along with a migration of existing MNOs in the 3.5GHz band, to allow for an optimal assignment.

First preference

Our first preference is for the whole 3300 MHz – 3800 MHz spectrum range to be included in the auction simultaneously with the sub-1GHz, the 2.3GHz and the 2.6GHz bands.

This is illustrated in the following diagram⁸:



By including the 3300MHz – 3400MHz and 3600MHz – 3800MHz spectrum, an additional 200MHz of spectrum can be auctioned⁹. The WOAN and five licensees could then be assigned sizeable and contiguous 1x80MHz lots that allow for significantly more service growth opportunity.

Our proposed approach ensures that consumers would benefit from 5G services as soon as possible (as 3.5GHz spectrum will be deployed by the licensees immediately after the auction), and in the longer term the WOAN and licensees would each have access to broadly similar amounts of 3.4-3.8GHz spectrum for 5G.

However, to achieve this¹⁰:

- Liquid would need to migrate from 3544MHz – 3600MHz to 3344MHz – 3400MHz (in the diagram above, it is assumed that the additional 4MHz is acquired by Liquid);
- Telkom would need to migrate from 3400MHz – 3428MHz to 3560MHz – 3588MHz (in the diagram above, it is assumed that the additional 2MHz is acquired by Telkom); and
- Rain would need to migrate from 3600MHz – 3680MHz to 3640MHz – 3720MHz.

If this approach is followed, then the WOAN could be assigned a 1x80MHz assignment in the top part of the band, 3720MHz – 3800MHz (shown as “A” in the diagram above).

If our first preference is not accepted, then we note that more spectrum in the 3.3-3.4GHz and 3.6-3.8GHz bands will be available in the near future. Given that the WOAN has not yet been set

⁸ The lot placements would need to ensure that no licensee directly overlaps with its own 1800 MHz’s second harmonic (indicated by the coloured bars underneath the spectrum lots).

⁹ Over the 116MHz of 3.5GHz currently envisaged by the Authority

¹⁰ If Liquid and Telkom are not migrated, Telkom is likely to have self-interference with an assignment of 1x80MHz. Also, it would result in fragmented assignments, with not all operators having access to a contiguous 1x80 MHz carrier.



up, it may not be harmful for the WOAN to receive an assignment of 3.7GHz spectrum at a later date.

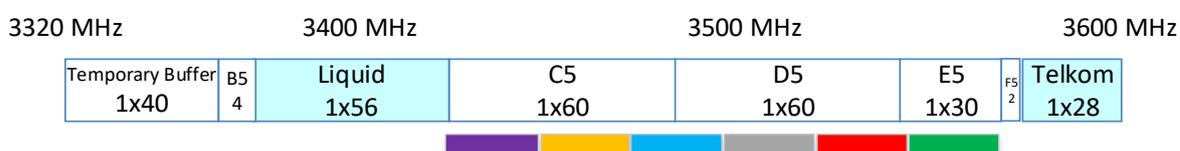
The 3300 MHz – 3400 MHz spectrum is currently allocated to IMT at WRC for South Africa and Region 1 (subject to interference studies), but does not have an allocation in the NRFP allocation to IMT or an RFSAP that makes the band not immediately available. It is recommended that this band be auctioned on the condition that the NRFP and RFSAP be updated by the end of 2020 and should be auctioned at a cheaper reserve price.

The 3600 MHz – 3800 MHz spectrum is currently allocated to IMT on a secondary basis by the ITU for Region 1 and can be utilised on that basis. However, the 3600 MHz – 3800 MHz spectrum would require the NRFP and RFSAP to be updated before the band can be available for use for mobile services in South Africa. It is also recommended that this spectrum be auctioned on the condition that the NRFP and RFSAP be updated by the end of 2020 and should be auctioned at a cheaper reserve price.

The Authority would need to recognise that, given some of the spectrum is not immediately usable (3.6-3.8GHz), licensees are likely to require a cheaper reserve price to incentivise licensees to consider this as a viable option.

Second preference

If our first preference is not possible (because the whole 3300 MHz – 3800 MHz spectrum range is not able to be included in the auction simultaneously with the sub-1GHz, the 2.3GHz and the 2.6GHz bands), then our second preference is illustrated in the following diagram:



By including the 3300MHz – 3400MHz spectrum, an additional 80MHz of spectrum can be auctioned. It would also mean that there could potentially be contiguous 1x60MHz lots assigned to up to four licensees.

However, some migration would be required for our second preference:

- Liquid would need to migrate from 3544MHz – 3600MHz to 3364MHz – 3420MHz (in the diagram above, it is assumed that the additional 4MHz is acquired by Liquid); and
- Telkom would need to migrate from 3400MHz – 3428MHz to 3572MHz – 3600MHz (in the diagram above, it is assumed that the additional 2MHz is acquired by Telkom).

As with our first preference, it is recommended that the 3300 MHz – 3400 MHz spectrum be auctioned on the condition that the NRFP and RFSAP be concluded by the end of 2020, and should be auctioned at a cheaper reserve price (given the delay in the ability to use the spectrum).

The WOAN may be reserved a 1x60MHz assignment in the 3600 MHz – 3800 MHz band (3740MHz – 3800MHz), which could later be expanded to 1x80MHz when other operators in this band have been successfully migrated to 1x80MHz. This will ensure that the WOAN is not



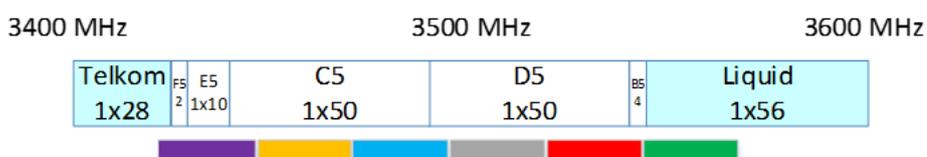
disadvantaged when the band is extended in line with our first preference, as well as ensuring that the WOAN does not have a disproportionate advantage in this band.

We also recommend that a 1x40 MHz temporary buffer be created at the bottom of 3300 MHz, from 3320 MHz – 3360 MHz. This is to ensure that, once the 3600 MHz – 3800 MHz spectrum becomes available, as bands increase from 1x60 MHz to 1x80 MHz, licensees assigned 1x60 MHz lots do not overlap with different second harmonic self-interference blocks, as assigned bands scale out. This is only possible if the additional 1x20 MHz is added outward from the edge between C5 and D5, ensuring that C5 and D5 do not shift over different second Harmonic self-interference bands.

By including 3.3-3.4 GHz under this approach, this band could be made usable for mobile by the end of 2020 (i.e. by the time the spectrum is likely to be auctioned).

Third preference

If neither our first nor our second preferences is possible in the timeline contemplated for an auction in 2020, then we propose certain modifications to the Authority’s proposals for the IMT3500 band, as follows:



The WOAN may be reserved a 1x50MHz assignment in the 3600 MHz – 3800 MHz band, 3750MHz – 3800MHz, which will ensure that the WOAN will in future get a similar assignment as the other licensees in this third preference scenario, except for Liquid or Rain.

3.4 Reserve price

3.4.1 Introduction

The Information Memorandum states that the reserve price for each Lot will be different and will be determined by the Authority (paragraph 5.4). The Authority invites prospective licensees to make representations on the factors and/or principles that the Authority should consider in determining the reserve prices applicable for each Lot.

3.4.2 Vodacom position

The primary objective of a spectrum regulator should be to ensure that globally harmonised spectrum is fully assigned to network operators that are committed to deploying coverage and capacity (rather than to allow spectrum to remain idle), so that consumers can benefit from increased supply and innovation in mobile services.

(a) Setting a reserve enabling a reasonable final auction price

We encourage the Authority to set the reserve prices to ensure the sustainable and efficient deployment of the auctioned spectrum, which will maximise consumer benefit. We recommend that the reserve prices should not attempt to ‘predict’ the market price, but rather let the award process establish the price through a well-designed auction.



In a well-designed auction, where demand exceeds supply, reserve prices will be low enough to allow the auction to progress through multiple stages to allow price discovery among auction participants and to determine the overall most efficient assignment of spectrum among participants.

Best practice is to set reserve prices at a value which ensures that the reserve sufficiently values this scarce national resource, while enabling a reasonable final auction price that leaves sufficient headroom for operators to deploy the substantial infrastructure investment that will be required. Auctions with a low reserve price, where demand exceeds supply, can attract vigorous competition and sell all available spectrum at a final price that may be many times higher than the reserve price.

On the other hand, high reserve prices (above the willingness to pay of the small players (so called marginal bidders)) could increase the risk of spectrum being left unsold, which would result in efficiency losses (as a valuable asset is left underutilised) and corresponding losses in consumer benefits. This is particularly important. The GSMA states in its “Spectrum Pricing: GSMA public policy position paper”:

“A key consequence of very high prices can be unsold spectrum. In-demand digital dividend spectrum - which has propagation characteristics that make it ideal for connecting billions of unconnected people to the Internet – has gone unsold in several developing markets due to excessively high reserve prices. Failure to assign this spectrum stalls the development of broadband services, especially in rural areas, impacting citizens and the economy.”¹¹

The GSMA points out that, just in 2016 alone, high demand spectrum was left unsold in Ghana, Senegal and in India. Earlier, in 2013, 800MHz spectrum was left unallocated in Mozambique, where the reserve price was set at \$30 million per 2x5MHz.

Unassigned high demand spectrum results in significant losses in consumer surplus and a wider negative impact on the country’s economy. Indeed, with the spectrum left unassigned, the operators are not able to deploy the latest technologies or the speed of their deployment is greatly reduced (as the operators need to re-farm their existing spectrum). As a result, consumers continue to use legacy technologies (e.g. 3G rather than 4G and 5G), which are less efficient and more expensive (per unit of data). This, in turn, implies that consumers pay higher prices and consume less data than they would have done if the spectrum had been allocated. Slower transition to the latest technologies also has a wider impact on the economy as a whole, as it reduces productivity and innovation in other sectors beyond telecoms.

Therefore, when setting reserve prices, a conservative approach should be adopted. Reserve prices should not attempt to ‘predict’ the market price, but let the award process establish the price through a well-designed auction.

(b) Methodologies for setting a reserve price

When setting reserve prices, regulators aim, as a minimum, to cover their spectrum management costs. For example, in the UK 4G auction, Ofcom considered “*using reserve prices that would be likely to cover at least spectrum clearance costs, but unlikely to be close to the full*

¹¹ https://www.gsma.com/spectrum/wp-content/uploads/2018/12/spectrum_pricing_positioning_2017.pdf



value of the spectrum". The benefit of this approach is that it helps to mitigate the risk of strategic bidding, without the risk of inefficiency due to the spectrum being left unsold.¹²

In practice, Ofcom used a combination of international benchmarking¹³, business modelling and expert opinion in order to establish the likely value of 4G spectrum in the UK and applied discounts to ensure that the reserve prices are set conservatively.

We note that both of these approaches (i.e. international benchmarking and business modelling) are subject to significant uncertainties and need to be used with caution. Factors impacting spectrum value vary between markets and there is significant scope for error. Ofcom itself recognised this and used conservative assumptions. This is because of the risks associated with overestimating spectrum value - and thus the risk of spectrum being left unsold - are much more damaging than underestimating the value, in which case all the spectrum will be sold.

For example:

- When carrying out international benchmarking, Ofcom focused on prices paid by small players/new entrants, as their willingness to pay is more relevant for setting reserve prices than the willingness to pay of large players.
- In respect of business modelling, Ofcom stated that *"the results are at best indicative ... Given this, the business case modelling plays a relatively minor role in informing the recommendations of the study, and serves more as a consistency check of the benchmarking results"*.

Importantly, Ofcom applied significant discounts to the estimates. For example, it set the reserve price for 2.6GHz spectrum at one fifth of the value produced by its international benchmarking. This was to ensure the reserve price is set conservatively and does not result in the spectrum being over-valued and left unallocated.

Overall, while appropriately adjusted international benchmarks provide information about potential market value of spectrum in a given country, reserve prices should be set significantly below that value to encourage participation, facilitate price discovery and, most importantly, reduce the risk of spectrum being left unsold.

(c) Inherent value of spectrum impacted by onerous obligations

The level of revenue raised by Treasury is determined by both the auction rules and the process (as described above, and their impact on bidders' freedom to express value) and the inherent value of the spectrum licences offered.

It must be emphasised that the inherent value of the spectrum licences is a function of the associated obligations. In the context of the Information Memorandum, the Authority is proposing challenging coverage obligations, including rural first obligations. These obligations are, if imposed at 100% population coverage as contemplated by paragraph 6.1.2 of the Information Memorandum, practically unachievable and hence not rational. If imposed, they would tend to depress spectrum licence values and so the level of the reserve would have to be

¹² https://www.ofcom.org.uk/data/assets/pdf_file/0031/46489/statement.pdf (para 8.5)

¹³ Making adjustment for differences in market characteristics, such as population, GDP per capita, licence duration, etc.



lower than it would otherwise be as a consequence. This must be taken into account when the Authority sets the reserve prices for these bands. In comparing other countries for these purposes, the Authority needs to note that South Africa is different to other more advanced markets with a less challenging deployment environment.

Regulators in general take into account the cost of delivering the relevant coverage obligations when setting reserve prices for spectrum. Examples of auctions where some spectrum blocks had coverage obligations attached to them, while others did not (e.g. 4G spectrum auctions in the UK and in Sweden), show significant discounts for coverage obligation blocks:

- For example, in the UK 4G auction, the reserve price of 800Mhz without a coverage obligation was more than two times higher than the reserve price of 800MHz with a coverage obligation. The coverage obligation in the UK was significantly less stringent than the one proposed currently in South Africa – the UK obligation was 98% population coverage to be delivered within 4 years after the auction¹⁴.
- In the UK upcoming 5G spectrum auction, Ofcom initially proposed to include two “coverage lots” with a negative reserve price, so that bidders could bid for them and they would act as a “credit” for purchasing spectrum.¹⁵ Therefore, Ofcom explicitly took the cost of coverage obligations into account when proposing to allocate spectrum with the coverage obligations.
- In the 4G auction in Sweden, only one of the five 800MHz blocks included a coverage obligation. The reserve price of this block differed from the others in that it subtracted a fixed amount of capital from the final price, which was the same amount that the licence holder committed to invest to cover the remote areas designated by the regulator.¹⁶

While coverage obligations can be taken into account differently in the reserve prices (as separate negative prices or as explicit reductions on identical spectrum without the coverage obligation), the evidence demonstrates that demanding coverage obligations, even when much less stringent than proposed in South Africa, led regulators to set lower reserve prices.

3.5 Radio frequency spectrum caps

3.5.1 Introduction

The Information Memorandum states that spectrum caps will be introduced for the licensing process and will be determined by the Authority (paragraph 5.5). The Authority invites prospective licensees to make representations on the factors and considerations that can inform the Authority’s formulation of radio frequency spectrum caps.

¹⁴ It is worth noting that delivering 98% population coverage in South Africa would be significantly more challenging than delivering 98% population coverage in the UK. Indeed, population density in the UK is 275 people per sq. km, while in South Africa – 48.

¹⁵ This proposal has been later amended after the industry and government agreed to roll out a Shared Rural Network (SNR).

¹⁶ https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2018/02/Enabling_Rural_Coverage_English_February_2018.pdf



3.5.2 Vodacom position

(a) High demand spectrum

Under our proposed model, option 6, the auction design should take care of spectrum caps, at least when it comes to the initial round. There are defined blocks and each MNO can acquire only one block of sub-1GHz spectrum and one block in the 2.6GHz band in every round of the auction, with the potential for any of these MNOs to subsequently acquire 10MHz in the 2.6GHz band in a second round.

That obviates the need for considering spectrum caps in respect of those bands.

Even though we believe that our proposed model is the optimal solution, if the Authority still decides to proceed with the options in its Information Memorandum, then one of lot B, C or D plus the smaller lot E would be equivalent to a spectrum cap of 50% for sub-1GHz spectrum (2x20MHz out of 2x40MHz) and 46% for 2.6GHz spectrum (up to 60MHz out of 130MHz of 2.6GHz spectrum available to MNOs). The above are consistent with international precedents.

(b) 2.3GHz and 3.5GHz bands

In our proposals for the 2.3GHz and 3.5GHz bands, the same applies, with each MNO able to acquire only one block of 2.3GHz spectrum and one block of 3.5GHz spectrum, in every round.

The packaging or caps for 3.5GHz spectrum depends on the amount of spectrum available. If the range is extended to include 3.3-3.4GHz and 3.6-3.8GHz spectrum, which is our first preference, the cap could be set at 80MHz. This, again, would ensure that the WOAN and the licensees are on a level playing field.

If on the other hand, the range cannot be extended, the cap should be reduced to 60MHz. However, as more 5G spectrum becomes available (in the 3.6-3.8GHz range), this cap could be relaxed or modified to take into account the new spectrum. Ultimately, when all the spectrum in the 3.3-3.8GHz range is cleared, it should be possible for both the WOAN and 3-4 licensees to have 80MHz spectrum each.

(c) General comments

The Authority should ensure that any spectrum caps offer sufficient flexibility to allow diverse participants to express individual preferences, ensuring there can be vigorous competition during the auction and the assignment of the entire spectrum band.

Higher caps (or no caps) could allow hoarding, although this tends to be mitigated where there is healthy competition among bidders (e.g. Germany). Lower (tighter) caps can limit the ability of some operators to make the full network investments required, and can leave spectrum unassigned, or assigned by default to a bidder with no real intention to deploy it.

Our proposals for a single block assignment per round provide the best balance of approaches, as well as addressing the severe spectrum shortages in South Africa, which are not a feature in most other mature markets.

Considering the deficit that South Africa has faced historically in terms of 4G spectrum assignment, it is critical for efficient service delivery that spectrum is neither fragmented nor left lying fallow. The methods of applying spectrum caps used historically tend not to solve this



problem. Rather the method as set out in our proposals, where each operator is only allowed a single block per band, goes much further in resolving this uniquely South African challenge and provides a way forward for the industry.



4. Obligations

4.1 Introduction

The Authority has proposed certain obligations that will form part of the licence conditions of the Radio Frequency Spectrum Licences to be issued, including:

- Uplink and throughput obligations;
- Coverage obligations;
- Open access obligations;
- Wireless Open Access Network obligations;
- Social obligations; and
- Empowerment provisions.

In this section 4, we propose ambitious licence coverage obligations (both in terms of coverage and in terms of throughput) that are achievable in real world environments. We believe these obligations should be the focus for achieving the Authority's coverage objectives. We do not support the rural first licence condition, which would be highly inefficient in providing much needed higher capacity and throughput in urban and sub-urban areas. This will also lead to an unnecessary increase in the cost of providing services in these areas.

We support the WOAN benefitting from a capacity pre-commitment from licensees, as well as some accommodation on the payment for the high demand spectrum. But we contend that passive access and national roaming licence conditions are unnecessary and inappropriate.

4.2 Obligation principles

We believe that the licence conditions attached to the new high demand spectrum are instrumental in supporting the objectives of efficient and effective service delivery across a broad segment of the population. For the obligations to be sustainable and to maximise their benefits, there are several principles that that we believe should be applied by the Authority in determining the proposed licence conditions:

- First, they need to be **reasonably achievable** and **technically feasible**.
- Second, they must **not act to distort** workably competitive markets.
- Third, they must be **fair and equitable** for licensees, enabling them to achieve a reasonable return on their investment.
- Fourth, they need to be **certain in application** and **clear to bidders** when they participate in the spectrum auction.



These principles apply across our submissions on the Authority's obligation chapter in the Information Memorandum.

4.3 Uplink and throughput obligations

4.3.1 Introduction

The Information Memorandum proposes that a licensee must provide data services across the country with an average uplink of 15Mbps and the downlink (we assume average as for uplink) user experience throughput of at least 30Mbps, to 100% of the population of South Africa by 2025 (paragraph 6.1.2).

In this section 4.3, we set out our alternative proposal for consideration by the Authority (section 4.3.2). We then request the Authority clarify that any coverage obligations be capable of being met through various forms of sharing arrangements (section 4.3.4).

4.3.2 Vodacom's proposal

We propose the following as a coverage obligation for licensees that are assigned 2x15MHz of sub-1GHz band high demand spectrum:

That licensees that acquire high demand spectrum in the sub-1GHz band must provide data services with an average of 30 Mbps downlink and an average of 15 Mbps uplink cell throughput as measured at the Antenna, to 96.8% of the population of South Africa, and must provide basic data coverage to 99.78% of the population, in each case by five years from the date at which the sub-1GHz spectrum is available for deployment.

We believe these obligations should be the focus for achieving the Authority's coverage objectives, as they are ambitious (both in terms of coverage and in terms of throughput), as well as being, in our view, reasonably achievable in real world environments.

This alternative proposal would go a long way to satisfying the Government's recommendations in the Policy Direction for "universal access and universal service obligations to ensure high quality network availability in rural and under-serviced areas ..." ¹⁷.

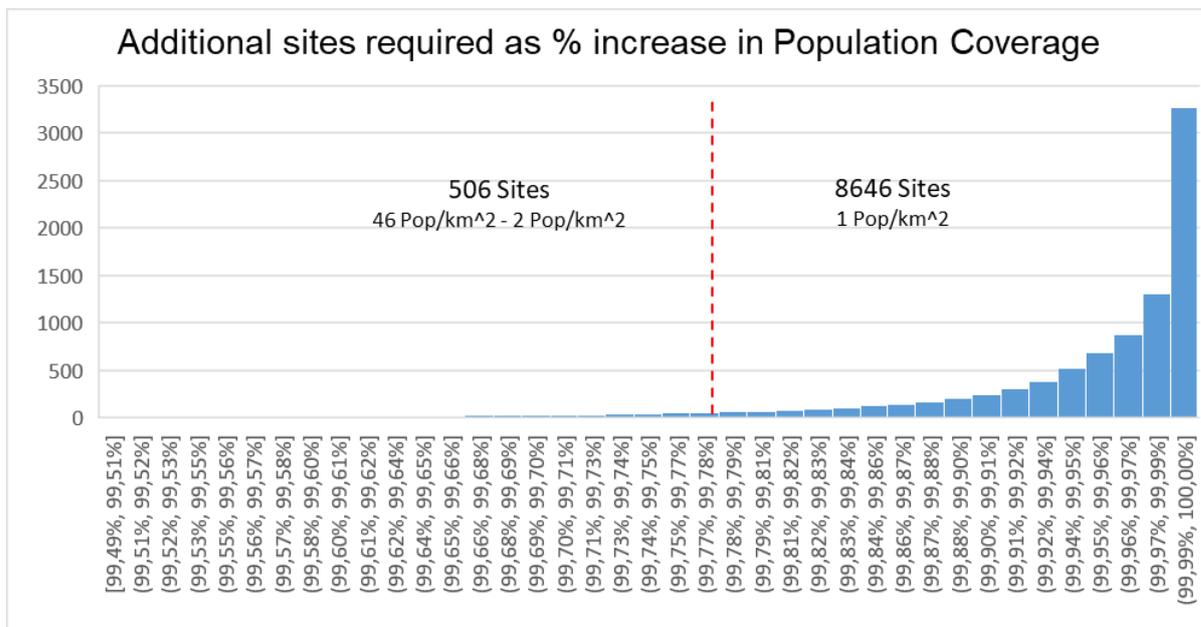
4.3.3 Practical considerations

(a) 100% population coverage is not reasonably practicable using terrestrial networks

Whatever the throughput requirements, for a country of this size and geography, as well as a widely dispersed population, it is not reasonably practicable to achieve 100% population coverage using terrestrial networks, certainly not by 2025 and probably for many years after that.

The fact is that to achieve population coverage beyond 99.78% would require an exponential increase in the number of additional sites for very low population density. Even with extensive network sharing, this is not economically feasible. The following diagram illustrates the number of additional sites that are required as the population coverage increases:

¹⁷ Section 2.1.4(c), Policy Direction



An obligation to provide population coverage of 100% of the population would require an exorbitant investment by the industry – in the order of tens of billions of Rands – which would be substantially more than the value of the spectrum. Any investment beyond the value of the spectrum will require a significant subsidy for licensees to motivate them to participate in the auction and make such an investment.

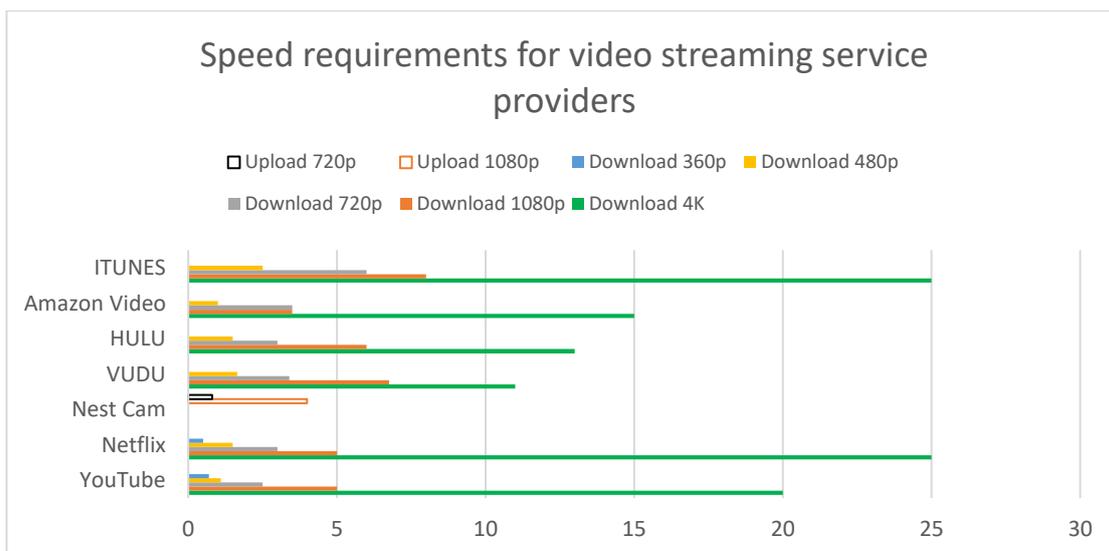
For deep rural areas beyond 99.78% population coverage, covering the remaining population, we recommend that the Authority consider alternative means to extend broadband coverage outside the scope of IMT technologies, including, but not limited to, satellite technologies.

(b) The 30Mbps downlink throughput is not necessary for today’s applications

Apart from issues of efficient deployment discussed above, we note that a downlink user experience throughput of 30Mbps is not required for most applications that are relevant today.

If we consider the throughput requirements for streaming video, which is currently the primary driver for consumer broadband speed requirements, it is not necessary for 30 Mbps download or 15 Mbps upload speeds per subscriber for streaming any video resolution.

The following diagram sets out the speed requirements for certain video streaming service providers:



All video stream resolutions (with the exception of 4K) are capable of streaming at 8 Mbps or less throughput. In addition, a maximum upload speed of 4 Mbps is needed to live stream 1080p video. This is consistent with the recommendation of broadband speed requirements from the FCC¹⁸, shown in the following diagram, where it concludes that 3 Mbps – 8 Mbps is sufficient for a single user’s requirements:

	Light Use (Basic functions: email, browsing, basic video, VoIP, internet radio)	Moderate Use (Basic functions plus one high-demand application: streaming HD video, multiparty video conferencing, online gaming, telecommuting)	High Use (Basic functions plus more than one high-demand application running at the same time)
1 user on 1 device	Basic	Basic	Medium
2 users or devices at a time	Basic	Medium	Medium/Advanced
3 users or devices at a time	Medium	Medium	Advanced
4 users or devices at a time	Medium	Advanced	Advanced

Basic Service = 3 to 8 Mbps*
 Medium Service = 12 to 25 Mbps
 Advanced Service = More than 25 Mbps

While there are more consistent speed requirements for 1080p and lower, 4k speed requirements range from as low as 11 Mbps to 25 Mbps, with an average requirement of 18 Mbps¹⁹.

4.3.4 Coverage obligations met by sharing arrangements

For any licensee coverage obligations, we submit that these obligations should be capable of being met through sharing arrangements commercially agreed between licensees, such as commercial network and/or facility sharing in the relevant areas.

¹⁸ <https://www.fcc.gov/research-reports/guides/household-broadband-guide>

¹⁹ It is important to note that the FCC did not include 4k video streaming as part of their broadband speed requirement, most likely due to low penetration of 4k capable devices and the high cost associated with 4k capable screens. The FCC did provide for a medium speed requirement for a single user 12 Mbps – 25 Mbps which would be capable of running multiple simultaneous HD video stream services or a 4k video streaming service



(a) Role for the WOAN

As noted above, we believe the WOAN has a potentially valuable role in assisting the industry to achieve the Authority's coverage objectives, by acting as a potential infrastructure provider to licensees in rural and underserved areas. These principles are consistent with the Authority's Objective to encourage infrastructure sharing.

This would be supported by commitments by the licensees to acquire capacity in the WOAN, with each licensee and other service providers competing to provide affordable and innovative retail services for customers in these areas.

We promote this as the best option overall, supporting the Authority's Objectives by both achieving nationwide broadband access, as well as providing a significant role for the WOAN, supported by licensee commitments.

An alternative fallback model would involve the licensees entering into, say, RAN sharing arrangements or geographical segmentation, where one licensee deploys in one area, another in another area, with sharing arrangements between them.

(b) Clarification sought from the Authority

The Authority is well placed to understand the significant costs of the proposed coverage obligations and will appreciate this represents a substantial area of uncertainty for bidders. In this regard, we propose that the Authority allow sub-1GHz spectrum licensees the opportunity to leverage voluntary sharing arrangements in order to meet their coverage. This would have the effect of refocusing the industry on the goal of working together to expand the broadband landscape.

Any guidance provided by the Authority should specifically refer to a potential role for the WOAN in deploying the network in rural and underserved areas, but also should consider other alternatives, such as RAN sharing and geographic segmentation as mentioned above.

The main condition to a licensee meeting its licence coverage obligations should be for the licensee to be able to provide mobile retail telecommunications services in the relevant area (with the required throughput, etc).

Licensees could then enter into the necessary arrangements with the WOAN to deploy the network, or they agree commercial sharing arrangements if they can, but if not then the licensees would need to individually deploy that network to meet their licence coverage conditions.

For the licensees, they are incentivised to enter into these commercial sharing arrangements by the coverage obligations as a licence condition. While we don't propose that the WOAN is required to deploy this rural network, the WOAN should be incentivised to participate in commercial sharing arrangements to provide broader coverage for other licensees as a logical business opportunity in order for the licensees to meet their coverage obligations.

We note that, if licensees are not permitted to meet their coverage obligations through such sharing arrangements with the WOAN and/or other licensees, this will diminish the value of the spectrum licence and have a direct impact on the level of an appropriate reserve price for the sub-1GHz spectrum.



(c) Benefits of sharing arrangements towards meeting any coverage obligations

Over and above the facilities and sites that licensees already extensively share, these sharing arrangements would help avoid inefficient duplication of investment in redundant network assets in rural and underserved areas, and would increase the likelihood of these areas being covered more rapidly than would otherwise be the case. These arrangements encourage greater coverage and also promote the efficient use of spectrum, where the network would not otherwise have been deployed in the relevant area.

In most markets in Europe, as policymakers seek demanding increases in coverage in the move from 4G to 5G, they are encouraging, facilitating or at least permitting mobile operators to adopt network sharing and subsidy models that facilitate sustainable investment in increased coverage solutions. For example, in Germany, the three established operators are each building a third of the new towers needed to cover white spots, which are then available to participating operators for installation of active radio equipment.

It is important that, alongside the objective to improve rural investment predominantly using the sub-1GHz bands, licensees should be free to deploy higher capacity frequencies (e.g., 2.3GHz, 2.6GHz, 3.5GHz) in urban and other higher population areas – so that network capacity and throughput can be increased.

4.3.5 Note on Open Signal's report

We note the Authority's reference to Open Signal's report of February 2018 in paragraph 6.1.1 of the Information Memorandum, before the Authority discusses the coverage obligations to be imposed on licensees.

In Open Signal's report, the top ten 4G speed benchmarks range from 44.31 Mbps to 33.09 Mbps, which clearly demonstrates that there is a difference between the speeds reported on Open Signal and average speeds a subscriber can use, using broadband internet services (as shown in the diagram in section 4.3.3).

The reason why speed benchmarks tend to be much higher than what a subscriber actually uses is that speed benchmarking tests attempt to use as much speed in a cell as possible to determine the maximum speed at that point in time, with the load on the network, and then this is averaged to an average speed per MNO. This does not replicate any realistic subscriber usage.

4.4 Broadband coverage obligations – the rural first obligation

4.4.1 Introduction

The Information Memorandum proposes that licensees of Lots B, C and D (and not Lot E where applicable) be required to ensure that identified geographic areas are provided with broadband coverage in accordance with standards prescribed by the Authority and/or set out in their licence terms and conditions. Licensees will be required to rollout the broadband network to 97% of the population in all the identified underserved areas within three years, before rolling out by using sub-1GHz spectrum in the urban areas (paragraph 6.2.3).

4.4.2 Vodacom's position

We are supporters of a licence coverage obligation and have proposed an ambitious and



achievable set of commitments in section 4.3.2 above. This is one of the most effective ways to achieve the Authority's Objectives of nationwide broadband access for all citizens by 2030.

We appreciate the Authority's urgency to prioritise broadband coverage for rural areas. While we support the principle of prioritising rural coverage, we caution the Authority in halting broadband growth in other areas through rural-first type of obligations. We are concerned that rural-first obligations will have the effect of delaying investment into urban and sub-urban areas to the detriment of consumers living in these areas that experience the highest demand. As such, we propose that a rural-first obligation would work counter to the Authority's Objective to reduce data costs and promote investment.

This is the case, even if the rural first obligation only applies to the sub-1GHz spectrum. This will mean lower quality of service for customers, both in terms of indoor signal penetration and traffic management across outdoor urban areas, working against the Authority's objective of high quality broadband. Licensees would have to rely on their existing and overburdened 900MHz and 1800MHz spectrum and on the 2.6GHz spectrum, which has inferior propagation characteristics compared to the 700/800Mhz spectrum.

In these urban areas, there are many multi-storey buildings, with steel in their structure, which require high levels of indoor signal penetration. Also, acquiring further sites in urban areas is becoming increasingly difficult for planning and environmental reasons among others.

A rural first obligation would delay the deployment of the latest technology and investment, and the provisioning of additional capacity and throughput, where the need for it is most prevalent and economic impact the highest. It would also result in inefficient and costly site densification in these areas in order to add more capacity, which would have an impact both on the cost of providing 4G services and on the speed of transition from 3G to more advanced technologies (4G and 5G).

As a result, we suggest that the Authority consider the implications of a rural-first licence condition on the efficient use of radio spectrum and, consequently, the potential inconsistency of these obligations with (and likely to be materially contrary to) the objects of the Act.

We have asked Frontier Economics to consider the economic impact of a rural first obligation arising out of this inefficiency. They conclude that, if the transition from 3G to 4G is reduced just by 1-2 percentage points over a 3-5 year period (the period when licensees are prevented from using sub-1GHz spectrum in urban areas), this would result in consumer welfare losses in the range of ZAR 3-6 bn (in NPV terms).

4.4.3 Application of rural first to sub-1GHz spectrum

If, despite our concerns, the rural first obligation is to remain, then the Authority should make it clear that it applies only to sub-1GHz high demand spectrum²⁰.

In the Policy Direction, the Authority is recommended to consider the unsuitability of certain high band spectrum for rural areas. We believe the Information Memorandum is unclear in this regard. This has two dimensions:

²⁰ This was the case in the German 800MHz auction referred to by the Authority



- any rural first coverage obligations should attach only to, and must be capable of being met by, the sub-1GHz spectrum; and
- the restriction on deploying high demand spectrum in urban areas should not apply to the 2.6GHz spectrum.

Because the higher 2.6GHz high demand spectrum is unsuitable for rural coverage, as acknowledged in the Policy Direction, any rural first coverage obligations should attach only to the sub-1GHz spectrum. It therefore follows that these obligations must be capable of being met efficiently by the sub-1GHz spectrum.

If the rural first coverage obligations should apply only to the sub-1GHz spectrum, then it also follows that a licensee that acquires spectrum in the 2.6GHz band should be capable of using that spectrum in urban areas or any areas outside of the designated underserved areas.

This would increase network capacity for licensees, reducing their unit traffic costs and enabling mobile data service pricing to be made more affordable.

The ability for licensees to use any spectrum that they acquire in the 2.6GHz band in urban areas, or any areas outside of the designated underserved areas, needs to be made clear by the Authority.

4.4.4 Identification of underserved areas

The Authority has asked that prospective licensees make representations with regard to the criteria to be used for identification of underserved areas to be designated for prioritisation in the rollout of services (paragraph 6.2.3).

We note that the Policy Direction prudently recommends that the Authority bear in mind “practicalities” in setting the rural first obligations. These practicalities should be taken into account in the identification of the relevant underserved areas.

The Authority should acknowledge that this process is only for identification of the underserved areas for a rural first obligation, if retained.

It should not be to fulfil the coverage objectives that are the focus of the licence condition referred to in paragraph 6.1.2 of the Information Memorandum. In this specific context, a licensee must be able to, quickly and economically, deploy a network and start to provide services in these areas, so that it may begin using the spectrum where it is needed in urban areas. Therefore, any identified underserved areas for any rural first obligation may be a subset of areas that a more general coverage obligation would seek to cover, where there is not the same intense pressure to solve capacity constraints in other areas.

(a) Availability of competitive backhaul

In a number of parts of the country where backhaul is available, Telkom Openserve is the only supplier of backhaul leased circuits. The cost of these leased circuits is very high and access to these facilities are not readily available. As a result, mobile operators are unable to provide rural services at a price point that is affordable for the average consumer. There are many other areas where there is no backhaul at all. This is a key practicality that must be considered by the Authority in considering a rural-first obligation.



We don't think that the licence conditions are the place to directly deal with this backhaul pricing and access problem. However, we do propose that it be taken into account in identifying the relevant underserved areas for any rural-first obligation, if maintained. We propose that a relevant underserved area is one either where there are at least two suppliers of backhaul leased circuits available to licensees in that area, providing sufficient capacity to meet the throughput requirements in the licence, or there is one provider that provides backhaul access at a rate consistent with competitive prices.

This means that there is at least some backhaul competition, or otherwise reasonable prices, to moderate the price of this key input in providing rural services.

(b) Population density

A further practicality applicable to the rural first obligation is the population density of the relevant area. Even with sub-1GHz spectrum, and even anticipating sharing between licensees, it is likely to be uneconomic to provide rural services in thinly populated areas.

We don't seek to capture only densely populated areas, but we do propose that a relevant underserved area for the purposes of any rural-first coverage obligation, if imposed, is one where there is a population density of at least 2 persons per square kilometre, with not less than 109 persons within the coverage area of each site²¹.

The Authority should also take into account other relevant practicalities, such as availability of supporting infrastructure, such as roads and electricity.

4.4.5 Average downlink throughput of 30Mbps

The Information Memorandum provides that licensees will be required to provide sufficient quality of network coverage to provide data services in the designated areas with an average downlink user throughput of 30Mbps in the period from 07:00 to 20:00 (time in the local region) (paragraph 6.2.4).

We discuss elsewhere in these submissions the practical considerations for meeting these throughput levels, including in respect of the amount of sub-1GHz spectrum assigned to the licensees.

4.4.6 Period to satisfy coverage obligations

The Information Memorandum provides that holders of Lots B, C and D will each have a maximum of three years from the date that the sub-1GHz spectrum becomes available to provide services to all identified underserved areas. If the holder fails to meet this obligation, this will be a serious breach of the licence and the licence may be revoked (paragraphs 6.2.5, 6.2.6).

We consider that a period of five years is more reasonable, if there is to be a rural-first obligation, due to the challenging conditions that will need to be addressed in meeting these obligations.

²¹ Based off the most recent Census



4.4.7 Coverage obligations met by sharing arrangements

As in the case of the coverage obligations in paragraph 6.1.2, the obligations in paragraph 6.2.3 should be capable of being met through various forms of sharing arrangements commercially entered into between HDS licensees and, if it wishes to participate, the WOAN.

We note that in the German 800MHz auction referred to by the Authority, licensees were able to enter into cooperation agreements and lease frequencies on commercial terms to meet the coverage requirements²².

4.5 Open access obligations

4.5.1 Open access to MVNOs

The Information Memorandum requires that a licensee provide open access to a minimum of three MVNOs. Each MVNO must have a minimum of 51% ownership held by persons from Historically Disadvantaged Groups. Further, the licensee will have a maximum of three years from the date that the sub-1GHz spectrum becomes available to commence operations (described in the Information Memorandum as providing services in line with the set obligations). (paragraphs 6.3.1, 6.3.2 and 6.3.3). Failure to meet these obligations will constitute a material breach of the licence and the licence may be withdrawn by the Authority (paragraph 6.3.4).

(a) Open access to a minimum of three MVNOs

We believe the WOAN is the optimal vehicle to assist new MVNOs to enter the market and prosper, given that it is a wholesale-focussed entity that should be attractive to these wholesale customers. We are, however, concerned that a requirement for a licensee to provide open access to a minimum of three MVNOs as a condition of its licence is likely to be detrimental to providing an environment where the WOAN can grow and become a healthy and viable business. The establishment of the WOAN is an important instrument in Government policy, and is a key part of the Authority's Objectives, yet this requirement on licensees is likely to be counterproductive to meeting these objectives.

According to the Policy Direction, the WOAN is an instrument to²³:

"... lower barriers to entry for smaller players, improve the ownership of the ICT sector by historically disadvantaged individuals and to promote service-based competition".

However, requiring licensees to provide access to a minimum of three MVNOs is likely simply to make it more difficult for the WOAN to meet these objectives. MVNOs will be the main category of customers for the WOAN, which the WOAN would be dependent on to sell its capacity (except for the 30% capacity commitment for the first five years) in order to become viable.

²²

https://www.bundesnetzagentur.de/SharedDocs/Downloads/EN/Areas/Telecommunications/Companies/TelecomRegulation/FrequencyManagement/ElectronicCommunicationsServices/FrequencyAward2010/DecisionPresidentChamber101022.pdf?__blob=publicationFile&v=2

²³ Paragraph 3.1, Policy Direction



This goes to the very heart of why a WOAN is said to be required. The idea is that the WOAN is a vehicle for promoting services-based competition. But to come to fruition, the WOAN must have a reasonable opportunity to attract MVNOs onto its network.

The WOAN will be competing with the licensees for this wholesale business. Mandating licensees to acquire MVNO customers creates a distortion, where the licensees must, at risk of losing their licences, attract a total of nine MVNOs on to their networks. No operator will be a winner in this situation, least of all the WOAN. The WOAN should be given the best possibility to reach commercial viability in a normal, not a distorted, competitive market for MVNO customers.

In a normal competitive environment, an MVNO may choose to use the WOAN's wholesale access services within the WOAN's coverage area and a licensee's wholesale access services outside of the WOAN's coverage area. MVNOs don't necessarily require national coverage and, from the WOAN's perspective, it may prefer to concentrate on serving wholesale customers within its own coverage area. As an example, Rain, which provides services within its coverage area only, does not require national coverage for its service offering.

While we welcome this wholesale competition from the WOAN, we are concerned about the proposed imposition of cost-oriented pricing for national roaming services are offered to the WOAN. We discuss this in further detail in section 4.6.3 below, but suffice to say that wholesale competition between the WOAN and licensees risks being distorted by cost-oriented national roaming pricing. This becomes even more of an issue if the licensees are mandated to attract three MVNOs each to retain their licence.

It is likely that there will be insufficient demand from MVNOs for capacity on licensees' networks, particularly if each licensee must try and attract three MVNOs. In these circumstances, if the requirement in relation to MVNOs is to remain, then, provided that the licensee can demonstrate that it has been unable to attract the requisite number of MVNOs using reasonable commercial efforts, the Authority should at least have the ability to excuse that licensee from this obligation.

(b) Discharge of obligation

We propose that, if it is retained, this obligation be capable of being met by a licensee through a Mobile Virtual Network Enabler (MVNE) or a Mobile Virtual Network Aggregator (MVNA) that uses the licensee's mobile network, where MVNOs enter into arrangements with the MVNE or MVNA rather than directly through the licensee itself. That is, if an MVNE or MVNA that used the licensee's network was able to attract three MVNOs, then that would satisfy the licensee's obligations.

(c) Three year time period to commence operations

Paragraph 6.3.3 of the Information Memorandum provides that a licensee will have a maximum of 3 years from the date that the sub-1GHz spectrum becomes available "to commence operations (i.e. to provide services in line with the set obligations)".

We assume the Authority is referring to a period of 3 years for the MVNO to commence operations. We would appreciate the Authority confirming whether this is what it means.



(d) International approaches

Our primary concern is that the MVNO licence condition will hamper the WOAN's prospects, as discussed above.

However, we also note that it is not very common to impose MVNO obligations as a condition attached to spectrum licences. It is more common to impose MVNO access as an *ex ante* obligation in markets where one or more operators have SMP, especially if there is evidence of prospective MVNOs being denied access.

For example, an *ex-ante* obligation to provide MVNO access was imposed in 2006 in Spain (and subsequently removed in 2017)²⁴. However, in Spain, there were only three MNOs and a clear evidence of refusal to provide MVNO access, prior to the imposition of the obligation.

MVNO access was also imposed as a remedy in some 4-to-3 mergers in Europe (e.g. in Austria and in Ireland). The objective of the remedy was to compensate for a loss of a competitor.

The situation in South Africa is clearly different. With the WOAN's entry, the wholesale market in South Africa is expected to become even less concentrated. Moreover, as explained above, the main purpose of the WOAN would be to provide access to MVNOs. Therefore, imposing MVNO access obligation on the spectrum licensees does not appear to be justified.

(e) Empowerment issues

We support the requirement that MVNOs must have a minimum of 51% ownership held by persons from Historically Disadvantaged Groups. However, we would encourage the Authority to apply the Flow-through principle to the 51% ownership requirement, recognising both direct and indirect towards the 51%.

It is not clear from paragraph 6.3.2 whether the Authority intends to grant a period of time for MVNO's to meet the 51% HDG ownership and we suggest this be clarified.

4.5.2 Capacity offtake

The Information Memorandum provides that licensees collectively are required to procure a minimum of 30% national capacity from the WOAN as soon as the WOAN is operational. This commitment will be for a period of at least five years. The percentage to be procured by each licensee may be proportionate to the amount of high demand spectrum assigned to such licensee (paragraph 6.3.5).

We accept there should be a capacity commitment that provides an anchor tenancy for the WOAN to support its ability to raise finance and so achieve the Authority's Objectives for the WOAN. We are comfortable for now with this form of support to the WOAN and believe the Authority should provide further details on how this capacity commitment will work. We provide some suggestions in the following section.

²⁴ https://ec.europa.eu/commission/presscorner/detail/en/IP_06_97



(a) Capacity commitment should relate to the WOAN's own operational network

The WOAN should be able to determine where and when it deploys its network, acting in its best commercial interests. This will give the WOAN the best possible chance of success in the market by enabling it to meet the demand for capacity in the areas where it is needed the most.

The capacity that must be procured by licensees should relate to the WOAN's own capacity where it has its own operational network. This will create the incentive for the WOAN to deploy its own network promptly and should contribute towards achieving viability.

We propose that the Authority refine the definition of this capacity procured by licensees and develop a process to facilitate its efficient take-up. We are willing to provide any assistance that the Authority may require in this regard.

The capacity pre-commitment should not include, for example, capacity that the WOAN acquires from obtaining access from a licensee on mandated terms, such as the Authority's proposed mandated national roaming, as this would create a systemic inefficiency that we expect would be contrary to the Authority's Objective of a sustainable WOAN.

As discussed elsewhere in these submissions, this would create a perverse outcome, where the WOAN acquires wholesale network services from an MNO on a mandated basis, only to sell it back to that MNO as part of its capacity commitment. This would simply provide an artificial opportunity for the WOAN to try and profit from selling network services capacity back to the licensees through their capacity commitment.

We consider that, if licensees acquire capacity on the WOAN's network at fair, reasonable and non-discriminatory prices (see further below in paragraph (d)), then this commitment should not distort the market nor create incentives for inefficient deployment of infrastructure by the WOAN.

As noted in section 4.3.2 above, we believe the optimal role for the WOAN is to deploy the network in rural and underserved areas and entering into commercially negotiated sharing agreements with other licensees that would enable those licensees to meet their coverage obligations. There is the double benefit for licensees of being able to use the capacity that they acquire in these rural and underserved areas, as well as satisfying the coverage obligations under their licences.

(b) Mechanics of how the capacity will be acquired

At least three months prior to the auction, the Authority should set out the mechanics of how national capacity will be acquired by the licensees.

We propose an initial market process, where the WOAN approaches the licensees on a commercial basis to offer capacity and, if the capacity procured collectively equals or exceeds 30%, the above capacity commitment is met. Then, if the capacity procured by the licensees in that initial market process does not equal 30%, the licensees will be severally obliged to procure



the remainder of the 30% capacity from the WOAN (in proportion to the amount of high demand spectrum assigned to such licensee or their relative market shares).

We think it's quite possible that the WOAN will sell 30% of its capacity in the initial market process on commercial terms. In that case, the licence commitment should fall away. The commitment should accordingly be structured conditionally to accommodate this eventuality.

(c) Commitment period

The Information Memorandum provides that the capacity pre-commitment will be "for a period of at least five years". We propose that the licence commitment be for a *maximum* period of five years.

In setting the commitment period, the Authority should ensure that the commitment does not unduly, unfairly or unreasonably benefit the WOAN, so competition in the market is not distorted. The Authority should also ensure that the WOAN will be in a position to stand on its own two feet in the market and adapt to technological changes going forward.

(d) Price for the capacity

As discussed above, we envisage an initial market process, where the WOAN approaches the licensees to offer capacity and this would be on a commercial basis. If this initial market process does not result in 30% of the WOAN's capacity being taken up, then the licensees will be severally compelled to take up the capacity in the relevant proportions.

In this situation, because the licensees are compelled to purchase capacity in the WOAN, there needs to be suitable supervision by the Authority of the prices that the WOAN charges for this capacity, to ensure the WOAN's pricing does not distort the market or introduce inefficiencies that could yield higher prices for South African consumers.

In our view, the Authority should ensure that, if licensees are obliged to acquire capacity from the WOAN as part of this commitment, it should be at fair, reasonable and non-discriminatory prices. These prices should be consistent with wholesale prices that are available in the market for comparable wholesale services.

Our view is that, once the capacity pre-commitments expire, the WOAN would be operating in a competitive market with other providers of wholesale services. Until that point, the Authority will need to oversee and approve the WOAN's pricing to ensure it is not abusing its privileged position of having been granted favourable capacity commitments from the licensees.

(e) Non-price terms

We propose that the WOAN and the licensees be required to negotiate the non-price terms for this capacity. These terms should not distort competition in the market.

4.5.3 Open access obligations

Referring to the Policy Direction, the Information Memorandum provides that licensees must be subject to wireless open access obligations in respect of their existing infrastructure and/or network facilities. The Authority invites prospective licensees to make representations on the legal basis, nature and extent of wireless open access conditions to be imposed, over and above the MVNO obligations referred to above (paragraph 6.3.6).



This requirement appears not to be limited to access to the WOAN and so would apply to all licensees that request such access.

As we explain further in section 4.6.2 below, we are of the view that any access seeker, including the WOAN, will benefit from a competitive market for mobile sites and other facilities which will ensure timely access and competitive terms. Any onerous obligations to provide access to facilities, beyond Chapter 8 of the Act and the Facilities Leasing Regulations, should not therefore be required. Ensuring compliance with the existing regime would satisfy the Government's Policy Direction²⁵ and no additional obligations are required in our view.

(a) Consistency with current Authority processes

In its Mobile Broadband Discussion Document, the Authority's preliminary view was that the Facilities Leasing Regulations may be re-drafted to include a requirement to publish site information online, a time limit for the consideration of requests and rules around when site sharing should be considered technically and economically feasible. The Authority also considers that accounting separation would increase transparency²⁶.

We express no particular view in this document on the Authority's Mobile Broadband Discussion Document. However, we do point out that a licence obligation to provide open access in respect of a licensee's existing infrastructure and/or network facilities is inconsistent with the Authority's view that competition concerns regarding facilities leasing would be resolved through the proposed re-drafting of the Facilities Leasing Regulations and some form of accounting separation. This inconsistency is neither explained nor justified.

According to the Authority's analysis in the Mobile Broadband Discussion Document, market power issues pertain to specific municipalities, rather than across the country as a whole. However, the proposed licence condition in the Information Memorandum appears to be national. Again, this inconsistency is neither explained nor justified.

In the Mobile Broadband Discussion Document, the Authority considers that there are signs that the facilities leasing market is becoming more competitive²⁷, which we believe understates the level of competition in this market, but this leads the Authority to consider that other forms of regulation for facilities leasing are not required at this time.

(b) Other issues

We note that paragraph 6.3.6 traverses the same terrain as paragraph 6.4.8.1 of the Information Memorandum, which we address in greater detail in section 4.6.2 below.

We discuss the legal competence of such a requirement in section 6 below.

4.5.4 Change in circumstances

Through their capacity commitments, the licensees will be providing support to the WOAN to provide a path to a viable and healthy business. However, we believe that licensees should be exempted from their licence conditions that benefit the WOAN, including capacity pre-

²⁵ Section 2.1.4(a), Policy Direction

²⁶ Paragraphs 128 and 129, MBDD

²⁷ Paragraph 117, MBDD



commitments, but also any other conditions that the Authority may impose (mandated national roaming, etc), if there is a substantial change of the following kind:

- the WOAN acquires a controlling interest in an existing mobile network;
- the WOAN becomes controlled by an existing operator or forms a joint venture or merger with an existing operator; or
- an existing operator acquires control of the WOAN's spectrum.

Any of these events would represent a fundamental change in the assumptions that underlie the various licence commitments and licensees should then be exempted from their commitments, as the commitments would no longer be supportable by the reasons that created them.

We also believe that any payment holiday or other accommodation for the WOAN around payment for spectrum should fall away if any of these events occur.

4.5.5 Support and incentives

Although not directly referred to in the Information Memorandum, we consider that the WOAN should not be entitled to the assignment of high demand spectrum at no cost. An incentive of this magnitude, when taken together with the capacity pre-commitments, would likely unduly benefit the WOAN, distorting competition. The WOAN would be able to charge prices below the level that would be consistent with a competitive market, that other operators would not be able to match.

Instead, we propose that the WOAN pay for the high demand spectrum at the same price as the price paid by other licensees for similar spectrum, but allow the WOAN to pay for it over time as a proportion of the WOAN's revenues. As a less preferred alternative, the WOAN could acquire the high demand spectrum at a discounted price, which would be paid for up-front by the WOAN. However, the discounted price would need to be set at a level that did not distort competition.

This accommodation on payment for the high demand spectrum, and the licensee's capacity commitment, should be the only support and incentives that the WOAN is entitled to. With these benefits, the WOAN would be capable of succeeding on its own merits and would not be unduly, unfairly or unreasonably benefitted by spectrum and other incentives.

Indeed, we note that the WOAN will be a wholesale network only, which will not need to enter and project a presence in the retail market. Its customers will be MVNOs, MNOs and licensed operators. It will face fewer challenges than a typical new entrant that needs to incur significant costs in order to enter the retail market (such as marketing and acquisition costs) and therefore will need less support.

Unlike other licensees, who need to use the capacity to serve their existing customer base, the WOAN, as a new entrant network, does not have any significant opportunity cost when offering access to its capacity. It should therefore be well placed, as a wholesale-only network, to make competitive offers to MVNOs and other customers, compared to the offers such customers could expect to receive from incumbent MNOs, in a competitive market.



BEREC recommends that regulators exercise particular caution not to undermine investment incentives:

“... when sharing is a result of regulatory obligations, competent authorities should carefully assess whether it leads to a loss of competitive advantage for the operator that was the only one covering that area, otherwise it would not be rewarding the risk taken by the operator.”²⁸

The Authority has not carried out such an assessment as far as we are aware. In particular, it has failed to assess the impact of the proposed support and incentives on future investment in new technologies.

4.6 Wireless Open Access Network obligations

The Information Memorandum contemplates the setting of wholesale open access conditions on Lot A (the WOAN licence), as well as physical infrastructure and network sharing obligations on the holders of the licences of Lots B, C, D and E (paragraph 6.4.4).

The Information Memorandum also contemplates the wireless open access network operator being given three to five years of licence obligation holiday following the award of the licence (paragraph 6.4.5).

4.6.1 Obligations on the WOAN

(a) Services to be provided by the WOAN

The Information Memorandum states that the Authority’s intention is that the Lot A licensee will provide wholesale access to national roaming, wholesale access to MVNO and wholesale access to mobile data services (paragraph 6.4.6).

As a point of principle, and to achieve the goals of a sustainable and efficient WOAN, we believe the WOAN should have significant discretion over which wholesale services it wishes to provide, where and on what terms. In general, save for specific restrictions that could lead to anti-competitive effects, the Authority should not mandate over-burdensome obligations on the WOAN, which will impede its ability to become viable and succeed on its own merits.

One example of a specific restriction that we propose the Authority place on the WOAN is for the WOAN’s licence to be clear that its remit is to provide wholesale services only and that it explicitly refrain from the provision of retail services.

We are uncertain what “wholesale access to mobile data services” means in this context. An MVNO will almost certainly include mobile data services and national roaming would also include this service. We request that the Authority clarify this in the draft ITA.

(b) Basis on which those services are provided

The Information Memorandum further provides that the Lot A licensee (the WOAN) must provide wholesale open access on the basis of non-discriminatory access, transparency, affordable prices and on a cost-oriented basis with a reasonable rate of return (paragraph 6.4.7).

²⁸ BEREC (2018) Report on Infrastructure Sharing, page 17



We support a requirement that the WOAN provide wholesale access on non-discriminatory and transparent terms and acknowledge this is consistent with the Policy Direction²⁹. However, affordability and cost-oriented price conditions were not contemplated in the Policy Direction and we don't believe they should be included.

The reference to "affordable prices" seems inappropriate in the context of a wholesale network such as the WOAN. Affordability is a term that tends to apply to consumer retail services. As a wholesale-only operator, the WOAN will not be responsible for consumer retail services and the affordability or otherwise of those services will be a matter for the retail provider that sets the prices. The WOAN will be competing with other licensees for wholesale business, which will tend towards efficient wholesale prices being paid by retail providers.

We don't consider that the WOAN's wholesale prices should be set by the Authority at cost-oriented rates, which would constrain the WOAN's ability to reach viability and simply distort the current competitive environment, where operators provide wholesale access on commercial terms. As stated elsewhere, the WOAN should be treated identically to other licensees and should be required to provide cost-oriented prices only if this is the result yielded after following a Chapter 10 process.

If the WOAN's rates are regulated, it could undermine the WOAN's viability. Indeed, in order to be viable, the WOAN would need to have flexibility to reach agreements with wholesale customers and price national roaming and MVNO access in a way that would allow it to be commercially successful in a dynamic and competitive market. This, for example, may involve the need to respond quickly to the changing market conditions. However, if the wholesale rates are set by the Authority, the WOAN would not have this flexibility.

Moreover, given that the WOAN would operate in a competitive environment, there is no need for its wholesale rates to be regulated.

Therefore, instead of offering the WOAN a regulatory holiday for 3-5 years, the Authority should remove the cost-orientation obligation altogether. Given that the WOAN is a wholesale-only business, it will provide national roaming and MVNO access to wholesale customers in any case. Moreover, as the WOAN operates in a competitive environment, there is no need to regulate its wholesale rates.

However, when it comes to the WOAN providing capacity to a licensee to meet that licensee's commitment to acquire capacity in the WOAN (see paragraph 6.3.5 of the Information Memorandum), the WOAN's prices should be fair, reasonable and non-discriminatory, under the supervision of the Authority, to ensure that pricing does not distort the market or introduce inefficiencies that could yield higher prices for South African consumers. We also refer to this point in section 4.5.2 above.

(c) Provision of wholesale services outside of the WOAN's coverage area

Any obligation on the WOAN to provide wholesale access, whether or not on cost-oriented terms, should apply only to its own operational network.

If the WOAN wishes to, it should be able to provide wholesale access also over (use) another licensee's network where the WOAN has a commercial roaming relationship or where there is

²⁹ Section 3.2, Policy Direction



some other sharing arrangement. But this should not be a regulatory obligation on the WOAN. This would avoid the risk of creating significant distortions where the WOAN is required to resell wholesale access acquired from one licensee and then on-sell it to another licensee.

As stated in section 4.6.3 below, if the WOAN is able to benefit from national roaming on a licensee's network on mandated terms, on no account should the WOAN be entitled to resell the acquired capacity to another MNO.

4.6.2 Obligations on MNO licensees - access to passive infrastructure

The Information Memorandum contemplates that the licensees of Lots B, C, D and E will be required to provide access to any passive infrastructure that they own and/or operate to the Lot A licensee (the WOAN). This will be on a cost-oriented basis and on reasonable terms. This includes access to base stations, space on towers, co-location facilities and other essentials as appropriate (paragraph 6.4.8.1).

Despite the heading of paragraph 6.4.8.1 referring to active infrastructure, it is clear that this licence condition applies only to passive infrastructure. We would appreciate the Authority's clarification of this.

Our view is that access to any passive infrastructure is already imposed through the Facility Leasing Regulations and there is therefore no requirement to impose access through licence obligations. The Authority indicated that they propose amending the Regulations and provide site information and rules for access.

We note that, when it addresses facilities leasing, the Policy Direction does not envisage cost-oriented access³⁰. Access on a cost-oriented basis risks unduly, unfairly or unreasonably benefitting the WOAN, and significantly distorting competition.

(a) Inconsistency with current Authority processes

In section 4.5.3 above, we discuss the inconsistency that we perceive between a licence obligation to provide open access in respect of a licensee's existing infrastructure and/or network facilities and the Authority's view in the Mobile Broadband Discussion Document that competition concerns regarding facilities leasing would be resolved through the proposed re-drafting of the Facilities Leasing Regulations and some form of accounting separation.

We return to this issue in respect of paragraph 6.4.8.1. This provision in the Information Memorandum provides an undue and unjustified benefit to the WOAN, rather than other access seekers for the same facilities more generally, and are a much broader and therefore onerous obligation than what is contemplated in paragraph 6.3.6, in that it requires cost-oriented access in favour of the WOAN.

Yet, according to the Authority's analysis in the Mobile Broadband Discussion Document, any market power issues pertain to specific municipalities, and the Authority's view is that there are signs that the facilities leasing market is becoming more competitive.

³⁰ Section 3.5(b)(iii), Policy Direction



(b) The existing regulatory framework provides a regime for feasible access on non-discriminatory terms

Under the existing facilities leasing regime (Chapter 8 and the Facilities Leasing Regulations), whether or not some refinement to this regime emerges from the Authority's work on mobile broadband, the WOAN will enjoy facilities access (if technically and economically feasible) on non-discriminatory terms, which appears to be the most efficient and sustainable outcome for the industry, stimulating both competition and investment.

It is a requirement that all facilities leasing agreements are filed at the Authority for its oversight and approval. As a result, the WOAN would occupy the same position as any other requesting licensee, which is how the regime should operate in our view. The privileges enjoyed by the WOAN should be confined to the capacity pre-commitment and any accommodation on paying for the spectrum.

(c) A licence obligation to provide access to passive infrastructure is not required

We have a different view to the Authority on the competitiveness of the facilities leasing market. We consider that the WOAN will benefit from a competitive market for access to passive infrastructure, which will ensure timely access and competitive terms. We and other MNOs provide leasing of their electronic communications facilities to other operators over thousands of sites all around the country. There are standard industry terms for this service and it is a commonplace, everyday arrangement.

As the Authority notes in the Mobile Broadband Discussion Document³¹, the current environment has seen the emergence and growth of alternative infrastructure providers, including independent towercos and fibre providers, and this is creating additional competition in the market for facilities leasing. The business model of these alternative infrastructure providers is to attract multiple tenants to their facilities.

In light of this competitive environment, we believe that a licence obligation over and above that already imposed through existing facilities leasing regulations by providing access to passive infrastructure to the WOAN is not required or appropriate.

(d) Basis on which access to passive infrastructure is to be provided

We discuss cost-oriented pricing in paragraph (e) below, but we also note that access to any passive infrastructure is to be on reasonable terms under paragraph 6.4.8.1. This raises the question whether this has the same meaning as in sections 43(1) and (4) of the Act. These sections currently require that facilities leasing requests be reasonable, in terms of being technically and economically feasible.

We consider it is necessary, if the facilities access licence condition is to remain, that the concept of reasonableness be qualified in the same way as sections 43(1) and (4) of the Act, where all access requests must be technically and economically feasible.

(e) Cost-oriented pricing is an extreme remedy that requires a Chapter 10 process

The Information Memorandum (paragraph 6.4.8.1) also contemplates cost-oriented pricing in favour of the WOAN. Cost-oriented pricing remains an extreme remedy, which has only been

³¹ Paragraph 108, MBDD



applied in exceptional cases, after appropriate review of the relevant market failure, in the most significant monopoly situations.

In the extreme case where such a remedy is imposed following a market review process, it has not been to benefit only a single entity i.e. the WOAN. By imposing cost-oriented pricing on all licensees will definitely distort the market and unintended outcomes.

We contend that the Authority consider that imposing such an extreme remedy should result only from a diligent Chapter 10 process of defining a relevant market and testing whether the market is competitive and, if the market is found to be uncompetitive, analysing the relevant licensee's market power and its potential to behave in an anticompetitive manner. In addition, we urge the Authority to consider that imposing cost-oriented pricing (more so if this only benefits a single operator, the WOAN) entirely arbitrarily without any investigation into the dynamics of the market is unprecedented, inconsistent with international best practice and will create a chilling effect on the investment incentives of those operators and adversely impact on competition in the market. It is also not legally competent.

The Authority itself does not contemplate cost-oriented access when it comes to facilities leasing in its Mobile Broadband Discussion Document. It is not necessary because more proportionate remedies are available, in the Authority's view.

We also note that cost-oriented access pricing imposed on licensees risks distorting the competitive facilities leasing market. This may particularly adversely affect the businesses of alternative infrastructure providers, such as independent towercos and fibre providers, that can have a viable business in today's competitive environment. If cost-oriented access pricing was mandated, then there is a risk that, if the Authority sets rates incorrectly (i.e. too low or too high), it will weaken competition in the market. These independent providers include HDG and SMME towercos, undermining broader Government policy to transform the industry and allow more SMMEs to compete and share in the market.

While the WOAN may enjoy the benefit of capacity pre-commitments from the operators in its establishment phase, when it comes to facilities leasing it should be subject to the same fair and just process as any other operator.

4.6.3 *Obligations on MNO licensees - provision of seamless national roaming service*

The Information Memorandum contemplates that, where the holders of the Lots B, C, D and E licences operate an existing national network, the licensee will be required to consent to an amendment of its existing licence to allow the winner of Lot A to benefit from national roaming on its network on a cost-orientated and non-discriminatory basis. This obligation, which will be a licence condition, includes seamless handover of traffic between the roamer's network and the roaming provider's network and the right of the roamer to benefit from mandated national roaming for up to 5 years from the award of the Lot A licence. After that, the Lot A licensee will be expected to have nationwide coverage from its own network (paragraph 6.4.8.2).

We note that provision of national roaming services is not envisaged in the Policy Direction. National roaming is a network service, which is a step beyond facilities access as contemplated in the Policy Direction.



(a) Inconsistency with current Authority processes

In its Mobile Broadband Discussion Document, the Authority's preliminary view was that the changing market climate would make it hasty to implement strong remedies on national roaming pricing, as there appears to the Authority to be some level of contest among national roaming providers and prices are already on a downward trajectory³².

Yet, in paragraph 6.4.8.2 of the Information Memorandum, the Authority proposes just such strong remedies: mandated national roaming throughout the country on cost-oriented terms for five years. We cannot reconcile these different approaches. No explanation or justification is offered for the contradiction.

(b) A licence obligation to provide national roaming is not required

As with facilities leasing, we consider that the WOAN will benefit from a competitive wholesale market for national roaming, which will ensure timely access and competitive terms. We have seen prominent recent examples of that, as acknowledged by the Authority in its Mobile Broadband Discussion Document.

To be clear, we support the ability for licensees and the WOAN to negotiate national roaming on commercial terms if they wish to, but we propose that there could be significant harmful effects that arise from forcing licensees to provide national roaming to the WOAN, and worse still if this is imposed on the fairly onerous terms proposed by the Authority. Instead, we propose that the Authority reconsider the imposition of mandated national roaming, taking into account the after-effects of investment drag that would result.

A commercially negotiated solution would be tailored to the WOAN's own requirements and to the capabilities of the licensee host network. This is a superior solution than imposing a uniform, mandated national roaming service on all licensees.

Given that the WOAN ought not to have coverage obligations, we question the underlying assumption in the Information Memorandum that the WOAN would necessarily choose to acquire a national roaming service. It may wish to, but the WOAN is not like a retail service provider, where marketing and distribution scale considerations mean providing a nationwide service is often important to them in acquiring retail customers. The WOAN is a wholesale-only entity and, as discussed elsewhere, MVNOs and other wholesale customers may wish to acquire access only within the WOAN's coverage area and acquire access from other MNOs in other parts of the country where they have coverage³³.

We note that regulating national roaming on LTE networks, particularly for such a long period as five years, risks creating a disincentive for the WOAN to deploy its own LTE network, as acknowledged by the Authority in the Mobile Broadband Discussion Document³⁴. Again, it's up to the WOAN where it wishes to build its network, but this disincentive for the WOAN to deploy its own LTE network must be a relevant factor in the Authority's consideration of whether to

³² Paragraph 187, MBDD

³³ It would be quite easy for MVNOs to use the services of multiple MNOs and the WOAN, and to choose on who's network they want to use, when and where with predefined/dynamic rules controlled by their SIM-toolkit app.

³⁴ Paragraph 134, MBDD



mandate national roaming (specifically at regulated terms to all licensees) or at least for the duration of any such obligation.

Notwithstanding our strong reservations for the need to provide national roaming to the WOAN by other licensees, if the WOAN is able to benefit from national roaming on a licensee's network on mandated terms, on no account should the WOAN be entitled to resell the acquired capacity to another MNO. This would effectively allow one MNO to acquire national roaming services from another, indirectly through the WOAN, where otherwise that MNO would need to enter into a commercial roaming agreement with the host MNO. The WOAN would simply be clipping the ticket, acting as an inefficient intermediary and adding no effective value.

We note there is a risk that, if the Authority requires that licensees should provide cost-oriented national roaming to the WOAN, the WOAN could, in turn, be able to offer better rates to MVNOs than the likes of Cell C can (as it negotiates national roaming rates commercially³⁵). As a result, Cell C is likely to lose its MVNO customers, which could undermine the financial position of Cell C.

In summary, we consider that, if there is mandated national roaming over a licensee's network:

- the WOAN should be prevented from providing capacity to other MNOs outside of the WOAN's coverage area³⁶; and
- the WOAN may provide MVNO services outside of the WOAN's coverage area, but on commercial terms and not on a mandated basis.

(c) Heavily mandated national roaming is inconsistent with international best practice

We note that, in some jurisdictions, national roaming has been required as an incident of the assignment of spectrum licences, but this has been on commercial terms, rather than on regulated terms, more so if only to the benefit of one entity.

For example, in Germany, there is a requirement for licensees to negotiate national roaming with new entrants on a non-discriminatory basis, but this is seen as a commercial negotiation. If the parties do not agree, then the regulator can step in, but only exceptionally and in a limited manner.

This was explained by BNetzA in relation to the award of 5G spectrum as follows³⁷:

“On the one hand, the principle of non-discriminatory negotiations enables the Bundesnetzagentur, in the role of arbitrator, to work towards objective negotiations. On the other, the requirement does not carry any regulatory compulsion – it is not mandatory to

³⁵ Note that commercially negotiated rates may be higher than regulated cost oriented rates even in a competitive market. Indeed, when MNOs negotiate wholesale deals with MVNOs, they take into account the opportunity cost of using the capacity themselves (i.e. serving retail customers rather than wholesale customers). This is not typically taken into account when rates are regulated and cost-orientation is required.

³⁶ Which may include through sharing arrangements for these purposes

³⁷

https://www.bundesnetzagentur.de/SharedDocs/Downloads/EN/Areas/Telecommunications/Companies/TelecomRegulation/FrequencyManagement/ElectronicCommunicationsServices/FrequencyAward2018/20181214_Decision_III_IV.pdf;jsessionid=5D7C1D1AE493C2DDB420FE7ED2647C80?_blob=publicationFile&v=3



*conclude a contract – so that **its capacity to intervene with the assignment holder that has received a request for roaming or infrastructure sharing remains small***³⁸.”

*“The Bundesnetzagentur will therefore only play a role if negotiations fail. **It should only be necessary for the authority to intervene in exceptional cases and in a subsidiary manner, not as part of the ongoing monitoring of anti-competitive practices.***³⁹” (emphasis added)

While the Authority refers in the Mobile Broadband Discussion Document to examples of regulated national roaming⁴⁰, it includes countries where there is no regulated access in the form proposed in paragraph 6.4.8.2 of the Information Memorandum.

Some of these countries, such as the US and Germany (as noted above), apply a “negotiate-arbitrate” model, where the regulator can make a determination if the parties are unable to negotiate the terms commercially. This is specifically not the same as the much more extreme cost-oriented national roaming access for the sole benefit of the WOAN, as envisaged by the Authority in the Information Memorandum. Other countries apply a margin squeeze test (e.g., Norway) and others don’t regulate prices at all (e.g., New Zealand⁴¹).

In Australia, another country referred to by the Authority in the Mobile Broadband Discussion Document, the regulator decided not to regulate national roaming, stating that:

*“...declaration [regulation] could **actually harm the interests of consumers** by undermining the incentives of mobile operators to make investments to compete with each other in regional areas...”⁴². (emphasis added)*

(d) Cost-oriented pricing is an extreme remedy that requires a Chapter 10 process

As with access to passive infrastructure referred to above, imposing cost-oriented pricing should occur only as the result of a Chapter 10 process of defining a relevant market and testing whether the market is competitive and, if the market is found to be uncompetitive, analysing the relevant licensee’s market power and its potential to behave in an anticompetitive manner.

Also, similar to the case with facilities leasing, while mandated national roaming may end up being required as a result of a Chapter 10 process, then the WOAN should have the same rights as other requesting licensees in acquiring national roaming access.

(e) Operational and commercial issues

Considering that holders of licences for lots B, C, D and E are required to provide national roaming to the WOAN, there will be serious operational and commercial issues for each of those licensees.

While hosting the WOAN on one network is practicable, hosting the WOAN across multiple networks will be far more operationally and commercially complex. For example, there may be no certainty for a licensee whether the WOAN will wish to use its national roaming services, if

³⁸ Ibid, paragraph 610

³⁹ Ibid, paragraph 585

⁴⁰ See footnote 52, MBDD

⁴¹ <https://comcom.govt.nz/regulated-industries/telecommunications/regulated-services/mobile-services/review-of-national-roaming>

⁴² <https://www.accc.gov.au/media-release/accc-not-to-declare-mobile-roaming-but-identifies-measures-to-improve-regional-mobile-coverage>



there are no commitments made by the WOAN. The licensee will need to be prepared to offer national roaming to the WOAN, but with no certainty where and when the WOAN will use those services. This drives cost, and uncertainty, for the licensee, for no apparent benefit. It is operationally and commercially impractical.

From a network deployment and optimisation point of view, the WOAN would need to continually define rules for when and how wholesale subscribers would handover between host networks, and national roaming layers, as this is not as seamless as MOCN roaming. This may lead to customer experience issues if the WOAN does not manage this properly.

In addition, understanding that the WOAN has many spectrum bands available to it, and many more through roaming, defining and managing a layering strategy across all bands and roaming bands would be a significant ongoing challenge for the WOAN and licensees.

In considering whether to mandate national roaming, we recommend that the Authority consider the capabilities of individual licensees to efficiently provide this service to new wholesale customers, such as the WOAN. Some licensees are likely to be limited in providing national roaming services in the same way that they do today, e.g., due to the lack of availability of PLMN identifiers. As each licensee will have different capabilities, it is preferable for the WOAN to negotiate commercially to achieve a national roaming service if that is what it requires, rather than have a uniform solution imposed through mandated national roaming.

Further, the requirement for seamless handover (enabling a call or a data session to continue uninterrupted as a customer moves from one network to another) is operationally complex for the host network and difficult from a technical perspective and costly. Seamless handover between multiple networks would even be more complicated and technically challenging than the handover between two networks.

The requirement in the Information Memorandum for seamless handover should not apply at all for movements between multiple host networks. If the WOAN wishes to have arrangements with multiple hosts, then that is its choice, but it should not drive further and unnecessary operational complexity for those licensees, including the requirement to provide seamless handover.

4.7 Social obligations

The Information Memorandum provides that licensees other than the WOAN will be subject to social obligations (universal service and access obligations) as determined by the Authority. The Authority invites prospective licensees to make recommendations on the type, scope, nature, criteria etc of social obligations that can be imposed in respect of this licensing process (paragraph 6.5).

As an industry leader, we believe that giving back to the community is integral to our aim of uplifting our society. This has been the foundation of our success and will continue to be so. In terms of specific social obligations that focus our collective energies on a particular space, we believe that the Act already contains a sensible framework for the implementation of universal service and access policy and that this should be used as an alternative to a social licence condition, to prevent unnecessary duplication and inefficiency in delivery.



The value of our contribution today is substantial, and includes amongst others:

- Free access to university and school curriculum;
- Healthcare Services (e.g. Mums and Babies programme with more than 1 Million participants);
- SMME Training;
- 92 Teacher Training Centres; and
- Assistance for Job Seekers.

The meaning of “social obligation” in paragraph 6.5 in the Information Memorandum is currently uncertain and ambiguous. While the reference to social obligation is followed by the words in parentheses “(universal service and access obligations)”, it is unclear whether this is the totality of what the Authority means by social obligations.

This uncertainty will have a chilling impact of the proceeds of the auction, because bidders would be forced to make provision for the risk of onerous social obligations. In addition, if the envisaged social obligations is estimated to material and onerous impact, then it should be taken into account when determining the reserve price.

We propose that, through whichever mechanism social obligations are imposed, such obligations must be reasonably achievable and technically feasible, as well as not overly financially burdensome for all operators, to ensure the national goals of sustainable upliftment.

The Act already includes a sensible framework for the implementation of universal service and access policy. The Minister may make policies on these matters (section 3(1)) after consultation with the Authority and the Authority may prescribe standard terms and conditions for universal access and universal service obligations for individual and class licences (section 8(2)(g))⁴³. We recommend that this process be followed if any further social objectives are sought, rather than specific social obligations developed in the licensing of spectrum.

In any event, we note the Authority is proposing coverage obligations on licensees in paragraph 6.3.5 of the Information Memorandum, so query what else other than coverage may be caught within the scope of a social obligation.

4.8 Empowerment provisions

The Information Memorandum also provides that a licensee must, within 36 months of being issued with a radio frequency spectrum licence, reach a level 3 contributor (B-BBEE status) in terms of the Codes of Good Practice, applicable to the ICT Sector, published in terms of section 9(1) of the BBEE Act and maintain such status for the period of the licence (paragraph 6.6). This is stated to be intended to promote broad-based black empowerment, in addition to what is already prescribed in terms of regulation 7 of the RFSR (paragraph 6.6.1).

⁴³ It is unclear whether the Authority is proposing to vary from this process, in its reference to “social obligations” in paragraph 6.5.



We generally agree with the Authority's position. We note that we have previously submitted to the Department that the amendment of Regulation 7(3)(d) in 2016 introduced a typographical error, which still needs to be corrected. We propose that this issue be resolved, so that the Regulation requires either 30% equity ownership or level 4 and above contributor status.

We also propose that the Authority consider potential changes to the ICT Sector Codes on BBBEE, which could negatively affect the recognition of transformational initiatives in accordance to the effective Codes prior to amendments. A case in point is the complete overhaul of the 2012 ICT Sector Code in 2016, which resulted in much of the transformational efforts not being recognised and resulting in many industry players' BBBEE levels being downgraded by 4 level positions.

We therefore submit that the Authority considers expanding the provision to include a transitional period of 12 months, in the event that amendments to the Codes have a negative resultant effect.

We also note that we support the Authority's objective in paragraph 3.1.1 (promoting the empowerment of historically disadvantaged groups) and therefore strongly recommend that the Authority includes the definition for historically disadvantaged groups as contained in Section 3(2) of the Competition Act, No.89 of 1998 (as amended), which definition aligns fully to the BBBEE Act's definition of Black people.

4.9 Governance of the WOAN

Although not directly addressed in the Information Memorandum, we wish to set out our views on matters related to the governance of the WOAN.

We understand that, given the structure of the WOAN and the proposed capacity commitments from licensees in favour of the WOAN, the Authority may find it difficult to develop an effective and sustainable governance framework for the WOAN. To assist the Authority in developing a WOAN governance framework, we propose, among other things, the following:

- In order for the WOAN to achieve greater transformation, empowerment, independence and competition, we consider that no MNO should have a shareholding interest in the WOAN, given the preferential treatment and incentives afforded to the WOAN as contemplated in the Information Memorandum. This will allow the WOAN to act independently without the need to consider the interests of an individual MNO as one of its shareholders in meeting the demands of the total potential wholesale market.
- However, if the Authority does permit MNOs to have a shareholding interest in the WOAN, then we propose that no licensee (that acquires high demand spectrum) be permitted to have a shareholding. This will also provide a degree of independence for the WOAN from its major customers (who are likely to be the licensees that acquire capacity as part of their commitments).
- In any case, we propose that no MNO should have a controlling interest in the WOAN (which include the control and sharing in the benefits from using the spectrum assigned to the WOAN in any way) in the WOAN.



We are willing to engage with the Authority in developing an effective and sustainable framework for the governance of the WOAN.

We request that the Authority provide for these requirements in the process for setting the governance requirements for the WOAN.



5. The award process of the spectrum to the industry

5.1 Introduction

In the Information Memorandum, the Authority proposes a process for the award of the spectrum to the industry (section 7), consisting of three stages: qualification, auction and licensing. This is further elaborated in Annex A of the Information Memorandum.

The Authority is also considering auction formats used internationally when licensing spectrum where demand exceeds supply and, among others, it is considering using the Simultaneous Multi Round Auction (**SMRA**) auction with generic lots.

In this section 5, we submit that the Authority, in the design of the award process, should seek to maximise economic benefits for consumers and minimise the risk of distortions to competition. We also endorse the Authority's proposal for an SMRA format for the award of new mobile spectrum.

5.2 Qualification stage

We submit that the Authority will need to determine the licence conditions that should apply to spectrum licences for high demand spectrum, as well as provide clarity around the sharing arrangements that may meet coverage obligations. As a potential bidder for unassigned high demand spectrum, it is necessary for us to know exactly what conditions will apply to such an assignment. This is required to allow us to assess the value of the spectrum available in advance of the auction stage, taking into account the commitments that we would be assuming as part of the conditions attached to the licence. The more onerous or uncertain the commitments, the less valuable the spectrum.

Insofar as the requirement for a minimum of 30% equity ownership held by HDGs or a minimum B-BBEE status level 4 contributor, we support this provision but we propose that the Authority amends it by including the words "*or an ICT Sector Code BBBEE status..*" to give effect to section 9(3) of the BBBEE Act, so as to ensure that the BBBEE status is obtained under the ICT Sector Code and not the DTI Generic Code.

Further, it is not clear whether the recently amended Radio Spectrum Regulations give effect to the minimum equity ownership provisions in paragraph 7.5.2.3.

5.3 Auction stage

As previously indicated, Vodacom supports an SMRA auction format, with named lots that bidders are free to move between as the auction progresses. As is typically best practice, we urge the Authority to limit the number of restrictive conditions on the auction process, save for deterring speculative and anti-competitive behaviour, allowing for the most efficient auction outcome for both the Authority and auction participants.

The assignment of, on the one hand, the sub-1GHz and the 2.6GHz spectrum and, on the other hand, the 2.3GHz and 3.5GHz spectrum, should occur at the same time, notwithstanding that actual deployment may take place at different times. The Authority should proceed with assignment and deployment of the 2.6GHz spectrum to the WOAN and to the operators as soon



as possible. In respect of the sub-1GHz spectrum, we propose that there should be an “end-stop” date for availability of this spectrum and we propose 2021.

We don't think it is necessary or appropriate for the spectrum auction and licence awards to commence simultaneously for the WOAN and licensees. The WOAN may take a while to be established and the Authority should not delay auctioning the high demand spectrum that is available for the licensees so that they may begin to make use of it. This will not disadvantage the WOAN as it will be entitled to the benefit of the capacity pre-commitments, which will be part of the licence commitments, once it is established.

In general, Vodacom is in favour of making as much information available as possible to all qualified auction participants, such as to facilitate a transparent process.

5.4 Licensing stage

We propose that the licensing of new spectrum awards be concluded as soon as practically possible after the auction has been concluded, allowing only a reasonable time (no more than a few weeks) for the conclusion of payment arrangements.

5.5 SMRA format

As noted above, we endorse the Authority's recommendation to use a simultaneous auction format (e.g. SMRA) for the award of new mobile spectrum.

While SMRA auctions are a common approach globally for the competitive award of mobile spectrum, securing a successful outcome requires extreme care in setting appropriate detailed conditions. In our experience, regulators more often than not fail to achieve their objectives fully because the progressions of the auction and its final outcome are subject to a set of unintended consequences resulting from detailed auction settings that have not been fully modelled or anticipated. We therefore encourage the Authority to take extreme care in setting, testing and evaluating the impact of detailed rules under a range of realistic scenarios, through simulation testing.

Examples of such details in SMRA formats include: the assignment of eligibility points to lots, the setting of activity rules, and the provision of withdrawals and waivers, all of which should serve to permit bidders flexibility to adapt their preferences as the auction progresses, while facilitating convergence towards a final settlement.

The provision of bid information to participants is another important factor in facilitating the fair inclusion of all bidders. We consider the German approach of full disclosure of bid information to be best practice.

5.6 Contiguity

The proposals made by Vodacom in respect of the block design of the various spectrum bands under consideration of this Information Memorandum (700MHz /800MHz /2600MHz /2300MHz /3500MHz) has taken consideration of the concept of contiguous assignment. In this regard, we have examined multiple permutations that would allow for similar block assignments, while also allowing incumbents some opportunity to obtain as much spectrum as is assigned to new spectrum licensees. We believe that this type of approach will lead to an outcome that is more



supportive of the industry as a whole, and balances as best as is technically possible today, the interests of the majority of the market players.



6. Process and legal issues

6.1 Introduction

In this section 6, we provide our submissions in relation to the process and legal issues that arise in relation to the award of spectrum and other matters contemplated by the Information Memorandum.

6.2 Key legal issues to bear in mind

6.2.1 *Policy Direction*

The first legal issue for the Authority to bear in mind is its treatment of the Policy Direction. The Authority is correct to acknowledge that, generally, it must “consider” (but not defer to) Policy Directions. However, the Authority should always exercise its independent discretion in specifying how the WOAN and the licensees are to be licenced.

6.2.2 *Bypassing Chapter 10*

Above, we have indicated instances where the Authority proposes, through licence conditions, to impose remedies on licensees that are the kinds of remedies envisaged by the Chapter 10 process as possible only after a market review and the identification of ineffective competition, with a particular remedy aimed at, and being proportional to, any significant market power identified with respect to the relevant licensee on which such a remedy is to be imposed.

There is good reason for this statutory framework and especially the requirement of a full market review before any such remedy is imposed on a licensee. In the Information Memorandum, the Authority proposes several significant respects in which this process would be bypassed by way of licence conditions attaching to spectrum licences. Important examples are the proposed imposition of national roaming at cost-oriented rates and facilities access at cost-oriented rates.

Purporting to impose such remedies by way of licence conditions without a Chapter 10 process contravenes the Act, and is also not rational, given that it would impose drastic remedies arbitrarily without the grounding in a market review that the legislature recognised was required to make any such inroads rational, and to avoid severe distortions in competition. It is particularly problematic that such remedies would not be confined to any use that would be made of any spectrum to be assigned under the proposed ITA process, but would affect vested and existing licence rights and extend to the networks, services and operations of the affected licensees as a whole. This would not be legally competent.

6.2.3 *Undermining the Objects of the Act*

The Authority should be mindful to avoid proposed conditions of award (whether to the WOAN or to the licensees) that would undermine the objects of the Act. In particular, instances are identified above where proposals would be directly contrary to the efficient use of spectrum or the promotion of competition. Conduct undermining these important objects would not be lawful unless justified as necessary to support other objects that might be in tension, where it is not reasonably possible to support such countervailing objects without undermining the



important objects we identify. Where we have identified such instances, there is no demonstration offered, nor does any appear, of how such undermining of these important objects is necessitated to serve countervailing objects, or that these countervailing objects cannot be served without undermining the important objects we identify.

6.2.4 *Avoiding irrationality or arbitrariness*

In our submissions above, we identify instances that the Authority should be careful to avoid arbitrariness or irrationality, that may affect the lawfulness of any proposal. These instances occur where we point to the following kinds of concerns:

- When the proposal undermines or contradicts the underlying purpose or rationale it seeks to serve;
- Where material relevant factors would be ignored if the proposal were to be implemented;
- Where the proposal is so impracticable as to be practically unachievable;
- Where the proposal entails contradictions between the proposal and apparently reasoned conclusions arrived at by the Authority on other occasions, without any justification or explanation for the inconsistency or contradiction; and
- Where the proposal would either be unprecedented in best international practice, or render South Africa an extreme outlier, or would treat South African licensees wholly unreasonably when compared to the treatment of licensees in comparative circumstances, especially when socio-economic factors and spectrum availability are taken into account, and there is no explanation for such extreme deviation from best practice or rational comparative assessment.

6.2.5 *Broad-Based Black Economic Empowerment*

Two observations are important in this regard:

- Once again, the latest amendment to Regulation 7(3)(d) has introduced a clear typographical error that is so obviously contrary to the intention of the Authority as to compel a reading that tracks such intention to avoid absurdity. The current wording of Regulation 7(3)(d) requires disqualification of any applicant for a licence if such applicant has less than 30% equity ownership by HDP or is below a level 4 contributor. This means that, if either of these tests is failed, the applicant must be disqualified. This in turn means that an applicant must have both 30% equity ownership and be a level 4 or better contributor to qualify. This clearly was not the intention. We submit that the Regulation should and will be read as capturing the intention, which is that, to be eligible, an applicant must have 30% equity ownership or be a level 4 contributor or better. It is very important that the Authority confirm this intention and understanding.
- As we have pointed out in the past, our view is that the Broad Based Black Economic Empowerment Act requires the standards and scorecards set out in the ICT Code to be



applied by the Authority in its licensing process (this includes, for example, applying the concept of “effective ownership”). The proposed requirement of 51% HDP ownership of MVNOs violates this principle, as does the reference to equity ownership in Regulation 7(3)(d). Stricter requirements must be approved by the Minister.