INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA

NO. 1408 **21 DECEMBER 2018**

INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA

"REASONS DOCUMENT TO THE AMENDMENT OF THE CALL TERMINATION REGULATIONS, 2014"

The Independent Communications Authority of South Africa published the Amendment to the Call Termination Regulations, 2014 under General Notice 1016 in Government Gazette 41943 on 28 September 2018, in terms of section 67(8) of the Electronic Communications Act, 2005 (Act No. 36 of 2005), as amended. The Authority hereby publishes the Reasons Document on the Amendment of the Call Termination Regulations, 2014.

Rubben Mohlaloga

Chairperson

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1. EXECUTIVE SUMMARY

1.1. The Independent Communications Authority of South Africa ("ICASA or the Authority") is enjoined in terms of section 2 of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000) ("ICASA Act"), amongst others, to regulate electronic communications in the public interest.

1.2. The Authority undertook a review of the 2014 Call Termination Regulations[1] in line with regulation 8 of the 2014 Call Termination Regulations, read with section 4(7)(b) and 67(8) of the Electronic Communications Act, 2005 (Act No. 36 of 2005) ("ECA").

1.3. The purpose of the call termination review was to assess competition in the provision of services in a market and to consider the appropriate form of *ex ante* regulation, if any, that should be imposed in this market to protect consumers from harm arising from market power.

1.4. This reasons document sets out the Authority's reasons for the decision to amend the 2014 Call Termination Regulations.

Key decisions:

1.5. The Call Termination Amendment Regulations, 2018[2] ("the final Regulations") amend the 2014 Call Termination Regulations by revising the wholesale voice call termination rates as follows:

[1] Published under Government Notice No 844 of 2014 (Government Gazette No. 38042), as amended by Government Notice No. 729 of 2017 (Government Gazette No. 41132) and Government Notice No 811 of 2017 (Government Gazette No. 41167).
[2] Published under Government Notice No 1016 of 2018 (Government Gazette No. 41943)

1.5.1. for operators with more than a 20% share of total minutes terminated in the wholesale voice market, a glide path period–

1.5.1.1. where a charge for terminating a call at a fixed location would be **0.09c** from October 2018 to September 2019; **0.07c** for the period October 2019 to September 2020; and **0.06c** from October 2020 onwards.

1.5.1.2. where a charge for terminating a call at a mobile location would be **0.12c** from October 2018 to September 2019; **0.10c** for the period October 2019 to September 2020; and **0.09c** from October 2020 onwards.

1.6. For operators with 20% or less share of total minutes terminated in the wholesale voice market, a glide path period–

1.6.1. where a charge for terminating a call at a fixed location would be **0.10c** from October 2018 to September 2019; **0.08c** for the period October 2019 to September 2020; **0.06c** from October 2020 onwards.

1.6.2. where a charge for terminating a call at a mobile location would be **0.18c** from October 2018 to September 2019; **0.16c** for the period October 2019 to September 2020; and **0.13c** from October 2020 onwards.

1.7. Changes in termination rates to a fixed location were made after consideration of oral and written submissions by stakeholders. The rates as per the draft Call Termination Regulations[3] resulted in an increasing asymmetric divergence between mobile termination rate ("MTR") and fixed termination rate ("FTR"). This divergence of termination rates between markets was argued to be prejudicial to small fixed operators. The prejudice would arise in that the rates exacerbate the financial strain that small fixed operators are placed under, given the market dynamics and flow of traffic between the two voice markets (larger volumes of calls placed from fixed to mobile locations than vice versa).

[3] Published under Government Notice No 489 of 2018 (Government Gazette No. 41845)

1.8. To inform the determination of termination rates, the Authority looked beyond the scope of just the cost modelling results (i.e. cost of termination services) to consider a range of other contributing factors. These include, but are not limited to:

1.8.1. the skewed competitive landscape;

1.8.2. the convergent pressures on the mobile and fixed markets due to technological developments;

1.8.3. regulatory consistency with past approaches;

1.8.4. comparison with international precedent;

1.8.5. objectives of the ECA;

1.8.6. position of the Authority as expressed in the Findings document;

1.8.7. inputs by stakeholders; and

1.8.8. the overall South African economic context and social realities (cost to communicate).

1.9. The proposed FTRs recommend that asymmetry between MTRs and FTRs remain constant for the duration of the 3-year glide path at 3 cents per minute. This is in line with the asymmetry between MTRs and FTRs in the 2014 Call Termination Regulations.

1.10. Operators that benefitted from economies of scale and scope with a share of total minutes terminated in the wholesale voice call termination markets with more than 20% of total minutes terminated:

1.10.1. to a mobile location as at 31 December 2016; or

1.10.2. to a fixed location as at 31 December 2016;

must comply with the publication of a Reference Interconnection Offer document and cost-based pricing by charging prices as specified in Schedule 7 of the Amendment to the Call Termination Regulations, 2014.

2. INTRODUCTION

2.1 Following the review of the 2010 Call Termination Regulations, the Authority published the 2014 Call Termination Regulations on 30 September 2014. The 2014 Call Termination Regulations determined that the Mobile termination markets and the Fixed termination markets, as defined in regulation 3 of the 2014 Call Termination Regulations, exhibited ineffective competition and further that the following market failures within fixed and mobile termination continue to exist:

(a) A lack of provision of access;
(b) The potential for discrimination between licensees offering similar services;
(c) A lack of transparency; and
(d) Inefficient pricing.

2.2 To remedy the abovementioned market failures, the Authority imposed an obligation upon all licensees to charge fair and reasonable prices for wholesale voice call termination in terms of regulation 7(2) of the 2014 Call Termination Regulations. Additional obligations in the form of the publication of a reference interconnection offer and price control (cost-based pricing) were imposed upon Vodacom (Pty) Ltd, and MTN (Pty) Ltd in the Mobile termination markets, and Telkom SA SOC Limitedd in respect of the Fixed termination markets, in line with regulation 7(3) of the 2014 Call Termination Regulations.

3. THE REVIEW OF THE 2014 REGULATIONS AND AN OUTLINE OF THE PROCESS FOLLOWED

3.1 As indicated above, the Authority undertook a review of the 2014 Call Termination Regulations in line with regulation 8 of the 2014 Call Termination Regulations, read with section 4(7)(b) and 67(8)(a) of the ECA.

3.2 Section 4(7) of the ECA states:

"The provisions of subsection (4) do not apply with regard to-

(a) any regulation made by the Authority which, after the provisions of that subsection have been complied with, has been amended after receipt of comments or representations received in terms of a notice issued under that subsection; or

(b) any regulation which the public interest requires should be made without delay."

3.3 Section 67(8)(a) of the ECA states that:

"Where the Authority undertakes a review of the pro-competitive conditions imposed upon one or more licensees under this subsection, the Authority must -

(i) review the market determinations made on the basis of earlier analysis; and

(ii) decide whether to modify the pro-competitive conditions set by reference to a market determination..."

3.4 The review of the 2014 Call Termination Regulations pro-competitive process commenced on 30 January 2017, with the publication of a media release and a questionnaire on the Authority's website and the Government Gazette[4].

3.5 The process was finalised in September 2017 with the publication of the Findings Document[5] on the review of the 2014 pro-competitive remedies ("Findings Document"), and the 12-month extension of the call termination rate glide path from 1 October 2017 to 30 September 2018.

4. CALL TERMINATION COST MODELLING PROCESS

4.1 The process commenced with the cost modelling and consultation process outlined below. The cost modelling exercise, in combination with stakeholder consultation, assisted the Authority to determine the new termination rates which would apply from 1 October 2018.

a. The Authority initiated a cost modelling process on 1 October 2017, whereby it further held an industry workshop on 13 November 2017 through a series of one-on-one meetings with stakeholders. In total, there were three rounds of one-on-one meetings with stakeholders during the consultation process, taking place over a period of approximately seven months from 13 November 2017 to 22 June 2018.

b. Based on the results of the cost modelling process, the Authority amended the 2014 Call Termination Regulations, taking into consideration the outcome of both the Top-Down and Bottom-Up cost models. This resulted in the draft Call Termination Regulations, 2018.

[4] Published on 8 February 2017 in the Government Gazette (Notice No. 103 of 40603).
[5] Published on 22 September 2017 in the Government Gazette (Notice No 729 of 41132).

c. On 22 June 2018, the Authority published a Briefing Note on Asymmetry in Mobile and Fixed Wholesale Voice Call Termination [("Briefing Note") on the Authorities website.

d. In the Briefing Note, the Authority states that it is of the view that:

   i. No new evidence has been submitted by the operators to persuade the Authority that the market for the provision of mobile and fixed wholesale voice call termination services has substantially changed;
   ii. Despite the progress made by small (late) entrants in recent years, competition in these wholesale voice call termination markets remains ineffective;
   iii. Each Individual Electronic Communications Network Service and Electronic Communications Service licensee that offers wholesale voice call termination services continues to have Significant Market Power, as defined in section 67(5) of the ECA, in respect of access to their own networks;
   iv. The four market failures as per regulation 7(1) of the 2014 Call Termination Regulations as amended may still exist in the absence of regulation; and
   v. The pro-competitive conditions imposed on licensees in 2014 are still relevant.

e. The draft Call Termination Regulations, 2018, were published in the Government Gazette (Notice No. 489 of 41845) on 16 August 2018, for public comments, for a period of twenty-one (21) calendar days. The submission deadline for stakeholders to make comments was the 7th of September 2018.

f. The Authority resolved to allow interested stakeholders to make oral presentations on their submissions. A notice was published in the

Government Gazette (Notice No. 892 of 41859) to inform all interested stakeholders of the Authority's intention to hold public hearings on the 10th of September 2018.

g. The following stakeholders made oral presentations on the draft Call Termination Regulations, 2018:

i. Mobile Telephone Networks Pty Ltd;
ii. Telkom SA SOC Ltd;
iii. Vodacom Pty Ltd;
iv. Jethro Consulting Solution Pty Ltd;
v. Cell C Ltd; and
vi. Switch Telecom Pty Ltd.

4.2 Taking into account the submissions received and the oral presentations made by the stakeholders, the Authority amended the draft Call Termination Regulations which resulted in the final Regulations[6] which were published on the 28th of September 2018 in the Government Gazette.

5. CONCERNS RAISED AROUND THE PUBLIC CONSULTATION PROCESS FOLLOWED BY THE AUTHORITY

5.1 Stakeholders complained that the Authority had not provided them with sufficient and adequate time to analyse the draft regulations, and the impact thereof, in order to make meaningful submissions. They claimed that the short public comment period is prejudicial to interested parties in that only twenty-one (21) days were provided for submissions to be

[6] Amendment of the Call Termination Regulations,2014 (Notice No.1016 of Government Gazette 41943).

made. They further stated that the proceedings were completed with undue haste.

5.2 The Authority's response is as follows:

5.2.1 The Authority initiated this process in January 2017 with the aforementioned cost modelling phase starting on 1 October 2017. There had been numerous one-on-one meetings with stakeholders, in addition to multiple opportunities for stakeholders to make written submissions on the cost modelling exercise, between October 2017 and July 2018. During this consultation period, stakeholders requested extensions on a number of occasions, some of which the Authority acceded to. The Authority considered it important and necessary to have all relevant stakeholders involved in the process. The Authority, therefore, deems that the consultation period consisted of the 10-month consultation period and the 21-day period after the draft Call Termination Regulations, 2018 were published was sufficient for stakeholders to raise their concerns.

6. ISSUES RAISED AND REASONS FOR DECISION

The table below summarises the issues raised by stakeholders in their submissions to the public hearing and the Authority's responses thereto. It is separated into two sections; "Final Regulations" and "Cost Models". The "Cost Models" section is largely restricted to issues regarding the bottom-up cost models. The top-down cost models are not discussed in detail because stakeholders' questions were predominantly dealt with in previous stages of the consultation process and were, therefore, not included in their public hearing submissions.

Issue no.	Issue/comment	ICASA Reasons
FINAL REGULATIONS		
1.	Stakeholders are of the view that the definitions of the terms "BON" and "WON" should remain unchanged, as the market dynamics still differentiate between local, regional and national calls. Further, different call rates still apply respectively.	The terms BON and WON were deleted, as references to them are no longer made in the Regulations. The Authority, therefore, has not adopted this recommendation in the final Regulations.
2.	Some stakeholders raised concern that the deletion of regulation 3 (Market definition) from the Amendment of the Call Termination Regulations, 2014 will be legally defective when	The Authority agrees with the comments raised and did not delete regulation 3 of the Regulations.

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	one considers the provisions of section 67 of the ECA. The market to be addressed will no longer be defined.	
3.	Some stakeholders indicated that regulation 4 should remain in the final regulations as it delineates the Methodology used in the Amendment Regulations.	The Authority is of the view that regulation 4 is still relevant to the current regulations and it provides clarification to stakeholders. The final Regulations therefore includes regulation 4.
4.	Some stakeholders believe that regulation 5, which stipulates the effectiveness of competition in the market used, should be retained in the Amendment Regulations. This is because it justifies the asymmetric termination rates imposed by the Authority.	The Authority agrees with the submission and, as such, did not amend regulation 5 in the final Call Termination Regulations, 2014.

Issue no.	Issue/comment	ICASA Reasons
5.	Stakeholders claim that the Authority acted in a pre-emptory manner in assuming fixed and mobile asymmetry. They have further claimed that the results of the process, in particular the cost modelling exercise, are unlawful because the Authority is acting on pre-determinations instead of validated information.	The principle of asymmetry was considered as a pro-competitive condition only after the Authority had: • defined the relevant markets as evidenced in the Authority's Findings document[7]; and • determined the presence of effective competition (done in 2017) and the Significant Market Power ("SMP") of licensees in the Authority's Findings document, in line with the requirements of section 67(4) of the ECA.
6.	Changes to all 3 tables in the Regulations prescribing the rates to be charged were made as follows in response to submissions by stakeholders: **Substitution of regulation 3 in Annexure A of the Regulations:** • Change in termination rates to a fixed location in column 2 of Table A2:	• The word 'maximum' in regulation 3 of Annexure A is included so as to allow licensees the discretion to charge lower rates.

[7] Finding's Document on the review of the 2014 Pro-Competitive Remedies published on 22 September 2017 in the Government Gazette (Notice No 729 of 41132)

Issue no.	Issue/comment	ICASA Reasons
	Table A2: *Maximum* rate for termination to a fixed location | | Maximum Termination rate | | 1 Oct 2018 to 30 Sep 2019 | R0.10 | | 1 Oct 2019 to 30 Sep 2020 | R0.08 | | 1 Oct 2020 | R0.06 | **Substitution of regulation 3 in Annexure A of the Regulations:** • Change in termination rates to a mobile location in column 2 of Table A1 **Table A1: *Maximum* rate for termination to a Mobile location** | | Maximum Termination rate | | 1 Oct 2018 to 30 Sep 2019 | R0.18 | | 1 Oct 2019 to 30 Sep 2020 | R0.16 | | 1 Oct 2020 | R0.13 |	• Changes in termination rates to a fixed location were made after consideration of oral and written submissions by stakeholders. A number of stakeholders, including small fixed operators, argued that the FTRs as per the draft Call Termination Amendment Regulations, 2018 would have a major negative impact on their operations and further entrench the dominance of the large operators. • The rates as per the draft Call Termination Regulations resulted in an increasing asymmetric divergence between MTR and FTR. This divergence of termination rates between markets was argued to be prejudicial to small fixed operators. The prejudice would arise in that the rates exacerbate the financial strain such operators are placed under, given the market dynamics and flow of traffic between the two voice markets (larger volumes of calls placed from fixed to mobile locations than vice versa). Currently, fixed operators make payments to mobile operators in excess of what they receive. The rates as

<table>
<tr><th>Issue no.</th><th>Issue/comment</th><th>ICASA Reasons</th></tr>
<tr><td></td><td>Substitution of regulation 7 in the Regulations
Change in termination rates to a mobile and fixed location in Table 1.
<table><tr><th></th><th>Termination rate to a mobile location</th><th>Termination rate to a fixed location</th></tr><tr><td>1 Oct 2018 to 30 Sep 2019</td><td>R0.12</td><td>R0.09</td></tr><tr><td>1 Oct 2019 to 30 Sep 2020</td><td>R0.10</td><td>R0.07</td></tr><tr><td>1 Oct 2020</td><td>R0.09</td><td>R0.06</td></tr></table></td><td>further distort competition in favour of mobile operators and to the detriment of fixed operators.
• In order to inform the proposed termination rates, the Authority looked beyond the scope of just the cost modelling results (i.e. cost of termination services) to consider a range of other contributing factors. These include, but are not limited to:
1) the skewed competitive landscape;
2) the convergent pressures on the mobile and fixed markets due to technological developments;
3) regulatory consistency with past approaches;
4) comparison with international precedent;
5) objectives of the ECA;
6) position of the Authority as expressed in the Findings document;
7) inputs by stakeholders; and
8) the overall South African economic context and social realities (cost to communicate).</td></tr>
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Issue no.	Issue/comment	ICASA Reasons
		The proposed FTRs recommend that asymmetry between MTRs and FTRs remain constant for the duration of the 3-year glide path at 3 cents per minute. This is in line with the asymmetry between MTRs and FTRs in the 2014 regulations. These rates further consider the realities of the current competitive landscape in the South African market.
COST MODELS		
7.	Several operators complained about "last minute" changes made to the voice and data forecasts between the draft final and final cost models. The primary concern is regarding changes made to the hypothetical small operator's voice traffic forecast. In particular, some operators do not accept the Authority's proposition that a small operator's market share of the voice traffic market might remain flat (or even decline) or our revisions to the national roaming assumptions.	Throughout the consultation process, various points have been raised regarding the voice and data forecasts. These points have been individually appraised and resulted in alterations to the traffic forecasts at each stage of the consultation. For example, after the draft cost model was circulated, concerns were raised regarding the aggressive nature of the large operator data forecast – comments which were considered in detail by ICASA and resulted in significant adjustments before the circulation of the draft final model. The primary criticism at that stage centered around the reliability of third-party forecasts in consideration of the South African market realities. On this matter, as on many other modelling inputs, ICASA's

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	It has been stated by one operator that this forecast is incompatible with the hypothetical efficient operator postulate. Furthermore, another operator has submitted a detailed analysis of the traffic and market share assumptions, indicating that the voice market share no longer appears to correlate with the subscriber market share and this, among other things, constitutes a material change which is not justified.	consultants have reviewed all operators' comments. ICASA is therefore of the opinion that sufficient consultation has been carried out. This results in final forecasts more representative of operators' actual voice and data forecasts, adjusted as necessary where these forecasts are not consistent with each other. Furthermore, adjustments have been made to operator data so as to effectively map onto the proposed geotypes. Specifically, regarding the changes made between the draft final and final model – such changes were made based upon additional comments and inputs received after the previous round of operator engagement. For example: - One operator submitted a revision to its initial data submission. - Another operator raised concern that its previous submissions had not been fully taken into account, specifically regarding an updated traffic forecast provided with reference to the ICASA geotypes.

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		It is important to note that the final submitted traffic forecasts of each operator have been considered, without prejudice to the outcome of ICASA's review of asymmetry. The changes made to the final traffic forecasts result in a set of internally consistent inputs, including market shares (by service), technology splits (by service) and geotype splits, in addition to total traffic volumes. These inputs may be predominantly traced to operator supplied data, including monthly traffic volumes per subscriber and actual traffic volumes (cross-checked with operator annual reports where possible). The changes made to the data forecast for both the large and the small operator are relatively minor (~5% and ~1% respectively in 2020) and are, therefore, not discussed in detail here. The voice forecast for the large operator has been adjusted by ~3% in 2020, resulting from further analysis of the minutes per subscriber per month reported by the existing large operators. The voice forecast for the small mobile network operator ("MNO") has been adjusted in a similar fashion, however, this resulted in a decrease of

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		~50% to the small operators' total minutes in 2020 (although it is worth noting that this forecast did previously increase in the last round of consultation). This change has been made based on the input corrections described in the paragraph above. As noted above, changes have been made to the traffic forecasts at each stage of the consultation; acting both to increase and decrease asymmetry. Furthermore, the magnitude of the changes made in the final model are not unprecedented; for example, the magnitude of the decrease in data traffic for the large operator after the draft model that was circulated was material. On the point of the voice forecast's correlation to subscriber market share, the Authority can confirm that the total number of subscribers of each operator do in fact drive the voice traffic forecast (in combination with minutes per subscriber per month). It is important to note that the reduction in small operator minutes is an output of ICASA's analysis of demand data,

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		not an assumption in itself. It is a consequence of taking into account comments on the draft final model. Combining the operator data and our adjustments does lead to the proposition that a small operator's market share of the voice traffic market might remain flat (or even decline), which some respondents have described as counterintuitive. ICASA agrees that it would be desirable for small operators' market share of voice minutes to grow, and that such growth could lead to a more efficient competitive market. But ICASA does not see the need, necessarily, to factor such growth into these Bottom Up cost models. ICASA does not have data upon which to base such a predicted higher 2020 market share. ICASA's current model represents the best attempt to compare, contrast and critically appraise the operators' own long-range plans using their submissions as a starting point. It is true that our small operator, as currently modelled, seems to focus more on growth in data than on voice. However, ICASA does not see that this is, on the face of it, necessarily wrong nor even 'counter-intuitive'.

Issue no.	Issue/comment	ICASA Reasons
		In summary, ICASA is confident that the final traffic forecasts are the product of a careful data analysis, informed by the operators' several contributions during the preceding consultation stages.
8.	An operator made a comment regarding the data market shares in the dense urban and urban geotypes, specifically noting that the market share for the small MNO is projected to decrease from 27.1% in 2016 to 21.5% in 2020 in the dense urban geotype and from 25.5% in 2016 to 21.6% in 2020 in the urban geotype. The operator is of the opinion that the forecast market share of the small MNO should be assumed to increase within all geotypes and that this is a necessary condition for a hypothetical efficient operator such as that being modelled.	As discussed previously, the final traffic forecasts are based upon analysis of data provided by all operators. Nevertheless, ICASA notes that this comment concentrates specifically on the dense urban and urban geotypes, excluding the suburban and rural geotypes from consideration. If one considers the data market as a whole, the market share of the small operator is projected to increase from 15% in 2016 to 23% in 2020. ICASA notes further that one of the small operators considers that this rate of forecast market share gain is too high.

Issue no.	Issue/comment	ICASA Reasons
9.	One operator has submitted a detailed analysis of the distribution of traffic between the proposed geotypes and how this compares to reality on its network. The primary point made here is that the traffic is "skewed" toward the rural geotype, particularly for the small MNO. Furthermore, it has noted that this results in suburban and rural 3G macrocells being more heavily utilised in terms of data traffic than their urban/suburban counterparts. It has stated that ICASA has continually avoided responding on these points throughout the consultation process.	ICASA and its consultants asked all operators to submit traffic data using their own geotype definitions in the initial data request format. Following these submissions, data analysis has been performed to map the operators' traffic onto the single set of geotypes proposed during the first round of one-to-one meetings, whilst also performing the necessary 'sanity checks', including comparison of usage per subscriber per month for services. The total traffic of each operator was then used (along with subscriber market shares and subscriber usage figures etc.) to determine the total traffic in each geotype for the hypothetical market. Finally, operator data was used once more to determine the appropriate market shares and technology splits for both the large operator and small operator in each geotype. The process used to determine the final traffic forecast and accompanying inputs may be summarised as follows: - Firstly, where applicable each operator's traffic has been adjusted to match the ICASA geotypes. This is done by

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		considering operators' actual sites and reclassifying them within the ICASA geotypes before multiplying the sites by the proportion of total traffic per site in each of the operator's own geotypes to determine the split of total traffic between them. - Secondly, the traffic per subscriber per month is determined for each service, for each operator. These values are then compared and analysed to determine a representative value for both the large MNO and the small MNO. - Thirdly, the total number of subscribers per operator is used to determine the size of the overall market. Once more, the data is also analysed to determine a representative subscriber market share for each of the small and the large MNO, split by technology. - The monthly subscriber usage is then multiplied through by the number of subscribers for each of the services to determine the total traffic, as well as the technology split for each service. - Finally, each of the inputs described above is fed into the BU mobile model.

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		This analysis outputs a self-consistent set of model inputs, including: total traffic for each service, as well as market shares and technology splits by geotype for each service. Furthermore, it is important to note that the updated data submission provided by this operator (containing traffic data mapped to the proposed geotypes) has now been considered and used to inform the aforementioned data analysis. Clearly, the final traffic forecasts represent a 'hybrid' of all the operators' data, adjusted by ICASA following critical appraisal, and cannot therefore be mapped directly back to any single operator's submission. Whilst we acknowledge this operator's concern, the final traffic forecasts are the result of the aforementioned analysis of all submissions. Furthermore, the final distribution of traffic is a result of the trends observed in operator data submissions; whilst it may seem intuitive for urban macrocells to exhibit greater utilization than their rural counterparts, this is not necessarily reflected in the data (both actual and forecast) provided to ICASA.

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		In summary, the updated data submission provided by this operator using the ICASA geotypes has been evaluated and applied in determining the final traffic inputs. Therefore, no further action is required.
10.	An operator stated that whilst our changes to the 3G coverage site uplift (cell breathing uplift) represent an improvement on the "erroneous" assumptions in the draft final BU model, the operator is still of the view that this does not reflect the reality of South African deployments. This statement is based on calibration to actual site numbers for large and small operators. Based on the coverage maps provided to ICASA and benchmarks of other cost models, the operator suggested the 3G coverage site uplift is entirely removed.	We have demonstrated previously the approximate calibration of total site numbers for both large and small operators[8]. One of the most substantive points made in this operator's submission relates to the number of sites (presumably coverage sites) in the rural geotype for the hypothetical large MNO. As such, it must be considered in the context of the point below, whereby another operator has implied that the number of rural sites is understated for the large operator (or overstated for the small operator) as a result of the differing cell radii in the rural geotype. We have considered both points in detail, in the context of actual site numbers, and concluded that the current assumptions are adequate in both cases. The technical reasons provided for the inclusion of this uplift have been given in previous responses (Briefing Note on

[8] Final BU Mobile Model – 20_07_2018.pdf – Slides 28-29

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		issues raised by operators in their submissions of 18-25 June 2018 and Briefing Note on issues raised by operators in their submissions of 9-13 July 2018). In summary, all the operators' input has been considered on this point, as well as all other points related to coverage. ICASA's position remains unchanged and, therefore, no further changes have been made. As noted above, for further information regarding the technical reasons for the inclusion of this uplift refer to the Briefing Note on issues raised by operators in their submissions of 18-25 June 2018 and Briefing Note on issues raised by operators in their submissions of 9-13 July 2018.
11.	Cell Radius/Radii. One operator claims the logic and evidence for setting the rural cell radius is still not clear.	ICASA disagrees. The logic is clear and was set out in the draft and draft final deliverables. The purpose of setting separate cell radii for the large and the small MNOs in the rural geotype is to account for the differing coverage assumptions of the two operators in this geotype. The large MNO is assumed to cover 82% of the

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		rural geotype in 2020 whilst the small MNO is assumed to cover only 18%. It is assumed that the small operator's coverage in the rural areas will be concentrated on the most densely populated areas within this geotype. Within such areas, factors including clutter will impact upon the cell radii which are achievable for a given spectrum band. These effects are commonly accepted and are similar to those which require the cell radii to be different between geotypes, as noted by the operator. However, the difference is only implemented in the rural geotype as this is the only geotype where the level of coverage is materially different between the small and the large MNOs. ICASA accepts the argument that subdividing the rural geo-type would have been one possible modelling approach. However, it is not the only approach, and the approach we have chosen is acceptable, and has been transparently implemented.

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12.	An operator argued that ICASA took MNO submissions into account without critical appraisal ("sanity checks").	ICASA does not accept this argument. In fact, the operator in question knows that, in our draft model, we did not take its own data forecast on trust, but instead modified it in view of publicly available third-party data sources. The operator commented on our modifications; we listened to these comments and took them into account, making significant changes in the draft final model.
13.	An operator observed that ICASA has not responded on its point that Telkom's data traffic has historically been much higher than the data traffic in the small MNO model.	ICASA does not accept this observation. In response to the draft model, both large operators argued for strong downward reductions to our data growth forecast for the large operators. One small operator made a similar request regarding the data growth forecasts for the small operator. We reduced the large by much more than the small. Our decision on this point was informed, in part, by the data point referred to in the operator's observation.
14.	An operator argued that small MNOs should be assumed to gain market share in every geotype, a necessary condition for a hypothetical efficient operator, which is what has been modelled.	ICASA does not agree that forecasts from operators are not relevant. As we mentioned in the Questions of Clarity Document ("QCD") sent to operators on 16 August 2018, we have taken all operators' submissions into account. On

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	Forecasts from Cell C and Telkom are not relevant as it is not Cell C or Telkom that are being modelled and traffic levels of the hypothetical efficient small MNO are very different from either operator.	the specific question of the voice and data traffic forecasts, our phased consultation approach has allowed us to gauge confidence in the operators' forecasts. It is true that our voice forecast is strongly informed by operators' own long-range plans. We do not see why it is necessary to assume that the small operators' voice market share should necessarily "increase in all geotypes". In the past, Cell C's market share has gone up, and then gone down again. We think it is an out-dated notion to assume that the voice market must always grow, and that smaller operators must always increase their share of it. Firstly, the voice market may be on the verge of significant disruption (from over-the-top services using voice over IP). Secondly, smaller mobile operators face significant barriers to gaining market share, arising out of competitive conditions in the retail market. For these reasons we requested traffic forecasts from the operators, and took them into account.

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15.	An operator stated that not all of its comments were addressed in the QCD in any form at all. These were "National roaming inputs" and "(Still) Incorrect spectrum allocations". A further point, "Outdated spectrum fee inputs", was only partly responded to.	These comments were taken into account in the final models, as set out in the three points which now follow, which flesh out the summary provided in the QCD.
16.	"National roaming inputs": the operator stated that the response given on its point regarding National Roaming (that the new data represented internally consistent parameters which demonstrate reasonable alignment with actual traffic data) was insufficiently transparent. The operator had noted that, between the draft and draft final model, we had reduced the proportion of total terminated minutes handled by national roaming by approximately 2%, largely as a result of adjustments to the split of traffic by geotype. They indicated that this diverged from their observation of the actual proportion of	The percentage in question (i.e. the proportion of terminated minutes handled by national roaming) must necessarily be part of an internally-consistent set of assumptions about the 'small' operator. As has been done previously, it is important to note that the small operator models do not represent either Cell C or Telkom, but a single hypothetical operator which has service demand and coverage representative of a small operator in South Africa. In fact, the two small MNO models differ only according to their spectrum allocation because this is considered the only lasting, exogenous difference between Cell C and Telkom in the context of this call termination review. The result of this is that some data points must,

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	terminated minutes handled by national roaming on their network.	necessarily, depart from the data observed by existing operators. ICASA considers that its original response was appropriate, however, the national roaming inputs were updated once more as part of the final review of traffic forecasts.
17.	"(Still) Incorrect spectrum allocations": the operator claimed that the response given on its point regarding spectrum allocations was insufficiently transparent. The operator had stated: assumed spectrum allocations for the small operator without sub-1GHz were incorrect; this operator possesses a total of 12MHz of spectrum in the 1800MHz band, as is the case in the draft version of the model; the model should be updated to reflect this increased spectrum allocation.	The spectrum allocation for the small operator without sub-1GHz spectrum was updated in the final model, based upon the information submitted by operators. This operator is now assumed to have a total of 12MHz of spectrum in the 1800MHz band, 7MHz of which is allocated to 2G technology and 5MHz of which is allocated to LTE. ICASA considers that was made clear in its response and in its final model.
18.	"Outdated spectrum fee inputs": the operator noted that some of its comments had not been	There was no need for any change.

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	addressed, on the same issue as above (of spectrum benchmarking). The main concern raised was regarding inflation adjustment. The operator in question observed that the inflation inputs appeared to be out-of-date. For example, in the 2100MHz benchmarks, the Slovenia and Iceland auctions which both happened at least one year ago had no inflation adjustment applied (cells R66 and R67 in ICASA's benchmark file had the value 1). Furthermore, the operator notes similar cases in the other benchmarks. For example, 1800MHz auctions for Slovenia, Denmark and Sweden that occurred in 2016. As such, the operator requested that we thoroughly review all inflation adjustment inputs.	The BU model takes as inputs unit costs for the year 2016. Therefore, the purpose of the benchmark exercise is to estimate the hypothetical price of spectrum in South Africa in the year 2016. As such, the 2016 auctions in Slovenia, Denmark and Sweden use a neutral (0%) inflation rate.
19.	"Outdated spectrum fee inputs" (continued): the operator also noted that several of its comments had not been addressed on spectrum benchmarking. We think this was about selection of benchmark countries. The operator had said	Only European benchmarks are used in this dataset as they could be considered more representative to the specific conditions in South Africa. The auctions in Thailand, Indonesia and India were excluded on this basis.

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	that the 2300MHz "benchmark" value was based on only one datapoint (UK). ICASA's raw data includes 2300MHz auctions in India, Latvia, Indonesia and Thailand that are not included. However, there have been also other auctions within the last five years (e.g. Australia, Canada and Nigeria) that could be considered. The operator said ICASA should seek to base the value on a wider selection of datapoints.	The 2017 auction in Australia was mainly a regional auction. Only two 7MHz lots were auctioned in the metropolitan areas. Furthermore, these two lots were sold at reserve price to the operator with adjacent spectrum, possibly indicating that no other bidder had any value in acquiring 7MHz of standalone spectrum in this band. Every other lot was auctioned in areas with less than 120,000 population. To illustrate the possible distortion of the auction results, Lot 15 in Cameron Corner was sold at ~58x higher price per MHz/pop than the metropolitan lots (Sydney and Melbourne). The auction in Latvia in 2012 was excluded as it did not pertain to mobile usage.
20.	"Outdated spectrum fee inputs" (continued): the operator also stated ICASA did not respond to its comment on the draft final model, that ICASA appears to be including a country for some benchmarks and excluding it for others.	ICASA did respond to the issue of spectrum benchmarking, as Issue 31 in the QCD. Regarding the benchmark in question (Ukraine), certain outliers are removed from the benchmarks. In the case of the 2100MHz spectrum auction in Ukraine, the adjusted

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		price per MHz pop is roughly ten times higher than the average of the other countries, indicating that the circumstances were very different from the other instances. The 2100MHz auction in Ukraine generated prices that were ~2.5x higher than the 1800MHz auction in the same country. However, generally the 1800MHz band is considered superior to the 2100MHz band. This is also supported by the results of our benchmarks, which indicate that on average 1800MHz auction prices are significantly higher than 2100MHz.
21.	One operator suggested that, in its response, the Authority did not address or even acknowledge the specific issue of wealth adjustment using GDP. Furthermore, they suggest that the applied method results in materially understated spectrum values in the final model.	ICASA did acknowledge and address this, as Issues 11 and 12 in the QCD. Our methodology converts all benchmark to USD at the year of award and uses the USD inflation rate to estimate 2016 USD equivalent prices. Using a stable economy, such as the USA, as an intermediary point, attempts to minimise exactly the distortions described above (which are mainly

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	They also state the following: "It is the Authority's duty to ensure that, as much as possible, the cost models are free from error. If stakeholders raise concerns as to what they consider to be material issues, these concerns should be addressed as part of a fair and transparent consultation process. Not addressing this point suggests that material errors remain in the final model used to determine the regulations."	because of the high fluctuations of South Africa's GDP per capita).
22.	An operator stated that those of its comments which were addressed in the Clarity Document were not addressed with a comprehensive response - the commentary is so brief as to not enable it to determine why its submissions were not accepted.	The issues cited by the operator on this point were: • One of the spectrum benchmarks • Imbalances in forecasts • Not clear that ICASA has used the forecasts supplied. The first of these points has already been dealt with earlier in this document. On the second two points, ICASA considers that it did take all operators' submissions into account in arriving at the

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		traffic forecasts. We also addressed this question at length earlier in this document.
23.	One operator stated that we are using a National Roaming (NR) cost per minute which is too high, and supplied some additional confidential data on NR rates. Another noted that the revised assumptions on NR now reflect the actual national roaming arrangements observed.	ICASA considers that an appropriate effort has been devoted already during this process to collecting and appraising National Roaming data from operators, so it would not be appropriate to include the new confidential data supplied in this round of submissions.
24.	An operator stated that ICASA's previous response on Issue 10 failed to explain Why two small operators have been modelled with their actual spectrum holdings, but not their actual traffic volumes. How does modelling a small MNO with sub-1GHz spectrum, but lower traffic than Cell C's, further the Authority's policy goals? Which aspects of an operator are hypothetical and what is the benefit of replacing actual with hypothetical operator sizes?	ICASA had understood that this question had been addressed during one-to-one sessions. It is correct to say that the two small MNO models differ only according to their spectrum allocation, as this is considered the only lasting, exogenous difference between the two small operators in the current context. The small and large MNO models were originally set up to differ according to size because, if there was to be an asymmetric tariff regime, part of the justification for such

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		a regime would have to do with competitive conditions in the retail market. Such conditions would include: high and sustained market shares on the part of one or more large operators.
25.	One operator observed that calibration to Cell C's and Telkom's site numbers is not possible using the final BU cost models. This is because the small MNO is very different from either Cell C or Telkom in terms of traffic volumes, coverage, etc. They state that this is a substantial disadvantage of the small MNO definition, where differences in spectrum between small MNOs have been considered but not differences in e.g. traffic volumes between the small MNOs. The operator stated that ICASA has not responded to this specific question so far.	ICASA had understood that this question had been addressed during one-to-one sessions. There is no necessity to model each existing operator under the hypothetical efficient operator postulate, or to calibrate against existing site numbers. If anything, it could be argued that there are too many small operator variants (i.e. two variants) and not too few. Two hypothetical small MNOs are modelled in order to capture the impact of Cell C and Telkom's differing spectrum allocations on the efficient costs of call termination; the only exogenous difference between the two operators identified by ICASA. They are not intended to capture differences in, for example, traffic volumes because these are the result of business decisions which are unrelated to the efficient costs of call termination. Therefore, whilst it is

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		correct to say that the modelled networks of the hypothetical small MNOs do not closely reflect the networks of either Telkom or Cell C, ICASA do not deem this to be a flaw in the small MNO definitions. It is worth noting that at least one of the large operators has repeatedly asked ICASA not to model a small operator at all. If we had agreed to that request and modelled a single type of mobile operator (neither 'small' nor 'large') this would not have resolved the problem highlighted here, of the need to calibrate against some representative number of sites. Furthermore, one of the other operators has noted in its submission that, if fed with key information for 2017 (as well as making input changes), ICASA's model could be made to align with Cell C's number of sites in 2017.
26.	Continuing on the point regarding the choice of hypothetical operators modelled, it has been pointed out that the draft Call Termination Regulations, 2018maintains asymmetry	ICASA debated and considered carefully the question of whether to have a 'small fixed' operator model. We even circulated a draft of such a model for comment and consultation. It was not perfect in terms of data from

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	between large and small mobile operators up to 2020, but eliminates the asymmetry for fixed.	operators regarding the likely dimensions of such an operator (geographic scope, technology costs, and suchlike). In the end, ICASA did not use it. However, it could have formed part of a 'compare-and-contrast' exercise, along with benchmarks and ratios from other similar situations, to set an asymmetric FTR for small operators. For the current pricing round, we have decided to leave it to one side, and proceed with a single large operator model.
27.	Operators continue to disagree as to whether the small operator cost markup of 25% model should apply to a greater, or lesser, proportion of the small operator's network elements. One operator stated that a vague reference to "subsequent discussions" is clearly not sufficient to address material concerns relating to the inclusion of this model input. This manifests	Both sides have provided several pages of evidence on this point. It is impossible to know with certainty whether the smaller operators will face a lasting disadvantage when purchasing electronics or acquiring sites due to their relative scale. However, it appears to be the case that the smaller operators have recently faced such disadvantages and they are, therefore, considered. It is worth noting that this mark-up is applied to a small proportion of total costs. Its impact on the MTR is not very material. ICASA disagrees with the suggestion that it has not done justice to all the data points supplied by the operators. It is worth

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	revisionism, which is highly concerning and inconsistent with the principles of a transparent and robust consultation process. Another stated that ICASA did not address individually all of the data points that it supplied on this issue of relative equipment price uplift.	noting that none of these "data points" were derived from technology supplier prices, nor experience of actual supply chain purchases. Instead, they were circumstantial and/or indirect demonstrations of the absence of size advantages while negotiating such prices. Arguments on both sides were weighed up, and neither side's data points were accepted in full.
28.	Despite ICASA pointing out in the QCD that National Roaming should not be used outside the National Roaming area, an operator continued to insist that its views on this point had not been considered.	ICASA did consider the operator's point and rejected it on the basis that National Roaming is not provided outside the National Roaming area.
29.	One operator contends that an "error remains" in our routing calculation. This relates to Issue 15 of our Questions of Clarity Document (QCD), where the operator in question would prefer us to allocate certain costs using voice termination	ICASA responded on this point in the previous stage of the process. This is not best described as an "error", but rather a difference in opinion regarding the modelling of cost recovery. One of the other operators, by contrast, noted agreement with our method. We are, in effect, calculating an average incremental cost (with markups for common costs), so the outputs should be calculated by allocating

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	minutes only, rather than both voice and data traffic.	costs across all network services (voice, SMS, MMS, data etc.).
30.	One operator claims that we did not provide an explanation of our busy hour dimensioning parameters.	ICASA did respond on this point, at Issue 8. We pointed out that the busy hour parameters were determined using confidential data from all operators, in addition to international benchmarks. The busy hour parameters provided to ICASA by this operator referred to either 3 or 8 busy days per month and, as such, were high in comparison to other operators' submissions and international benchmarks, within which standard practice is to assume all weekdays are 'busy days'. If the busy hour percentages were increased to allow for a greater proportion of traffic in the busy hour (e.g. for 3 busy days per month) it would be necessary to adjust other related parameters, such as the maximum utilisation.
31.	One operator stated ICASA had failed to apply certain key cost modelling assumptions in a	The operator is wrong to suggest that ICASA considers wireless to be the wrong type of access network to serve

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	systematic and rational way. This operator's comments on this point relate solely to ICASA's decision not to include wireless technology in the fixed model. The operator implies that ICASA considers wireless to be the wrong type of access network to serve customers in South Africa.	customers in South Africa. By making this suggestion the operator demonstrates that it has not read, or not understood, our arguments on this point. ICASA is not prescribing any particular network technology. Instead, we are pointing out that the inclusion of wireless technology in the fixed model would be unprecedented internationally. Furthermore, it would not be justified because there is no way to know that its inclusion would increase or decrease the FTR (after taking into account the portion of the base station costs which would be recovered by a line rental charge, in the same way as a high proportion of the cost of OLTs and MSANs are thus recovered).
32.	Business overheads. Two operators noted that the Authority sets the mark-up percentage for recovery of common business cost at 9% for large MNOs and 16% for small MNOs based on 2016 accounts. There is a 7-percentage points efficiency gap which ICASA effectively considers	ICASA can see the reason why such a gap should disappear over time between the two varieties of 'small' operator, whose only exogenous difference is spectrum. However, the difference between the small and large operator is to do with size, a difference that is not forecast to disappear by 2020. For this reason, it would not be necessary to expect a difference in efficiency to disappear either.

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	to be exogenous, and should disappear over time.	
33.	One operator suggested the common-cost mark-up was too low, and should be greater than 23%.	ICASA took this set of data points from the top-down models for the reasons already explained in the QCD under Issue 14.
34.	One operator observed that ICASA's comparison with FNO mark-ups provides little, if any, assurance with regard to the reasonability of the appropriate mark-up for MNOs.	ICASA disagrees with the observation. This overhead percentage models the 'share' of corporate overheads (often characterized as the 'CEO's wastebasket', including elements of finance, HR, IT, etc.) allocated to wholesale call termination. As part of a transparent and thorough process we wanted to do as many compare-and-contrast exercises as the data permitted. Our comparison with Telkom FNO is conservative in our view. Telkom is likely to have a proportionally higher corporate overhead cost than

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		the MNOs, because of its wide product range, as well as its legacy of having passed through numerous stages of organizational and product situations.
35.	One operator disagreed that the small operator should have a transmission network of the same length as large MNOs unless there is proof for this being the case (for example, if the top-down models showed a similar cost for large and small MNOs, on this score).	The cost on this account for one of the small operators appears to be between that of the two larger operators in the Top Down cost models. In any case, it is important to note that the distance we have set equal for small and large operators is a relatively minor portion of the total transmission network: the core (excluding aggregation, and excluding backhaul). ICASA confirms there is proof of this: the fact that the small operators are present in all the main cities connected by this portion of a typical national (inter-city) transmission network.

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36.	One operator disagreed with the use of 'equivalent-megabytes' as the universal unit of traffic in the TD models. They suggested that 'equivalent-minutes' would be a more appropriate unit and converted the TD template circulated by ICASA to use 'equivalent-minutes' in the draft version of their TD model.	The Authority has responded to this point previously, highlighting that it is possible to achieve the same result using both 'equivalent-minutes' and 'equivalent-megabytes' to allocate cost in the TD models. As such, the Authority decided that no changes to the TD template were necessary and that the process would continue using 'equivalent-megabytes'. Since the use of 'equivalent-minutes' was rejected, the operator in question was asked to convert their TD model to work in 'equivalent-megabytes'. This was done for the sake of consistency with other operators. The final TD model for this operator, and all other operators, used 'equivalent-megabytes' as the universal unit of traffic.