



DETERMINATION OF VOICE AND SMS INTERCONNECTION RATE

ISSUED BY

NIGERIAN COMMUNICATIONS COMMISSION

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INTRODUCTION

1. Interconnection is critical to the proper functioning of a competitive communications market. This is recognised in the Nigerian Communications Act 2003 (The Act), which requires network facilities providers and network service providers to provide other licensees with interconnection on request at any technically feasible location.
2. The current regime of interconnection rate regulation was implemented through the Commission's Interconnection Rate Determination issued on 21 June 2006. Since then, the Nigerian communications market has seen further market entry by new operators, the introduction of a Unified Access Service Licence (UASL) regime, and tremendous growth in both subscriber numbers as well as call (and data) volumes.
3. In the light of these developments, the Commission decided to review the rates set in its 2006 Determination in view of current information including technological changes as well as market evolution.
4. A benchmark of Nigerian operators' SMS retail tariffs reveals huge differences between On-Net and Off-Net tariffs. The tariff plans of some Nigerian operators give Off-Net tariffs that are three times as high as the On-Net tariffs. Such differences are usually used by operators to promote closed user groups, i.e. to force subscribers to follow friends or family to the network operator they use, since On-Net tariffs are much cheaper. This lock-in effect is intensified in countries with low income levels since the affordability of services is an important issue for the majority of the population.
5. International benchmarks show furthermore that the main users of SMS services are young subscribers between ages 12 and 24 years. This user group is characterised by much lower income than the average levels, and therefore more attracted to the benefits related to the lock-in effect.
6. The Commission intends to foster accessible and affordable data services across Nigeria and SMS interconnectivity is, therefore, an important factor in this process.
7. The Commission engaged PricewaterhouseCoopers (PwC) and Detecon Consulting to undertake in-depth cost studies of the voice and SMS interconnection rates, respectively.

LEGAL BASIS FOR THIS DETERMINATION

BACKGROUND

8. The Commission's functions and duties are set out in the Nigerian Communications Act 2003 (the "Act"). Section 4 of the Act lists the Commission's functions, which include the facilitation of investments in and entry into the Nigerian market for the provision and supply of communications services, equipment and facilities (section 4(a)), the protection and promotion of the interests of consumers against unfair practices including but not limited to matters relating to tariffs and charges and the availability and quality of communications services, equipment and facilities (section 4(b)), and the promotion of fair competition in the communications industry and protection of communications services and facilities providers from the misuse of market power or anti-competitive and unfair practices by other service or facilities providers (section 4(d)).
9. The Commission also has general responsibility for the economic and technical regulation of the communications industry (section 4(w)).

10. Section 4(2) of the Act requires the Commission to carry out its functions, meet its duties, and exercise its powers efficiently, effectively and in a non-discriminatory and transparent manner and in a way that is best calculated to ensure that throughout Nigeria, subject to the regulatory controls set out in the Act, all forms of communications services, facilities and equipment are provided on such terms and subject to such conditions specified by the Commission from time to time.
11. Network services providers and network facilities providers are required by section 96 of the Act to provide other licensed operators with interconnection to their communications systems on request at any technically feasible location. Agreements for interconnection must, according to section 97(1)(a), comply with the Act, the regulations and any guidelines published intermittently. Although the terms and conditions of interconnection agreements are primarily to be those agreed on by the parties, section 97(2) of the Act empowers the Commission to intervene on its own initiative or at the request of one or both negotiating parties where the Commission considers that an agreement or individual provisions of the agreement are inconsistent with the provisions of the Act or subsidiary legislation, where agreement cannot be reached, where there is a delay in reaching agreement, or if the Commission considers that it is in the public interest to do so.
12. Section 97(2) of the Act, therefore, provides significant discretion for the Commission to intervene in interconnection negotiations and in concluded agreements. Further, section 98(3) of the Act provides that the Commission can, following consideration of the terms and conditions and charges set out in an agreement; require that the parties revise the agreement if it is not consistent with the Act, the regulations, or interconnection guidelines.
13. The National Telecommunications Policy also empowers the Commission to publish clear and appropriate studies and standards for any cost analysis required to support the development of equitable interconnection charges. Rate methodologies can also be included in any regulations made by the Commission under section 99 of the Act.
14. The Interconnection Regulations 2007 oblige the Commission to encourage and secure adequate interconnection and interoperability of services; and to carry out its functions in a way that promotes efficiency, sustainable competition and gives the maximum benefit to users (paragraph 2). The Interconnection Regulations 2007 further envisage interconnection charges determined by the Commission (paragraph 6).

BASIS FOR SETTING BINDING RULES

15. Voice and data interconnection underpins the provision of a wide range of services to consumers and is essential in order to ensure the development of “modern, universal, efficient, reliable, affordable and easily accessible communications services” in Nigeria. This is one of the objectives of the Act itself and is reflected in the Commission’s functions, which are described in paragraph 8 of this section of the determination.
16. In line with economic efficiency principles and international best practice, interconnection rates should be based on the economic costs of providing the services in question. Cost based interconnection rates were determined in Nigeria in 2006 and have now been updated in view of technological and market developments.
17. A benchmark of Nigerian operators’ SMS retail tariffs discloses huge differences between On-Net and Off-Net tariffs. Some Nigerian operators’ tariff plans give Off-Net tariffs which are three times as high as the On-Net tariffs. Such differences are usually used by operators to form closed user groups, i.e. to force subscribers to follow friends or family to the network operator they use, since On-Net tariffs are much cheaper. This effect is usually intensified in countries with low income levels such as Nigeria since the affordability of services is an issue for the majority of the population.
18. International benchmarks show furthermore that the main user group of the SMS service is usually young subscribers aged between 12 and 24. This user group is usually characterised

by an even lower income than the average. So, this user group is even more affected by the benefits of the lock-in effect described above.

19. The Commission intends to foster accessible and affordable data services across Nigeria and SMS interconnectivity is an important factor in this process.
20. For the reasons summarised above, the Commission believes that it is in public interest to intervene at its own instance to determine voice and SMS interconnection rates to be applied by all fixed and mobile operators, both in concluded agreements and when negotiating interconnection. In reliance on section 97(2)(c) of the Act, the Commission makes this Determination.

PROCESS ADOPTED

21. In January 2009, the Commission appointed PricewaterhouseCoopers to undertake a cost study for voice interconnection and Detecon Consulting to undertake a cost study for data interconnection.
22. PricewaterhouseCoopers (www.pwc.com) provides industry-focused assurance, tax and advisory services for public and private clients. More than 140,000 people in 144 countries connect their thinking, experience and solutions to build public trust and enhance value for clients and their stakeholders.
23. PricewaterhouseCoopers offers a range of services designed to help governments, regulators and telecoms develop and maintain a comprehensive regulatory strategy, including scenario planning, policy definition, strategic communications, and a well-organised regulatory function with the processes and procedures needed to achieve objectives.
24. Formed more than 15 years ago, a core team of over 50 specialist telecoms consultants combine deep telecoms expertise with marketing, organisational, engineering, financial and economic skills.
25. Detecon Consulting (www.detecon.com) is one of the World's leading consulting companies for integrated management and technology consulting. Detecon was founded in 1977 with the aim of offering consulting services to the telecommunications industry around the globe.
26. In view of the growing importance of ICT in areas far beyond the narrow confines of actual telecommunications, Detecon have taken this expertise as a starting point to offer consulting services to clients from virtually all industries. Detecon's services focus on consulting and implementation solutions which are derived from the use of information and communications technology.
27. Detecon's know-how is based on a comprehensive understanding of markets, technologies, and business processes which has been tried and tested and which bundles the knowledge of successfully completed management and ICT projects in over 100 countries.
28. In line with its commitment to a policy of openness, transparency, fairness, and participatory regulation, the Commission informed stakeholders in March 2009 of its engagement of PwC and Detecon Consulting to advise on the review of interconnection rates for mobile and fixed telephony services and on the cost analysis of data and multi-media interconnection rates. Representatives of NCC, PwC, and Detecon Consulting subsequently met representatives of several fixed and mobile operators to discuss questionnaires to be adopted for the exercise.
29. Furthermore, a general stakeholder meeting took place on 26th March, 2009. At this meeting with the stakeholders the Commission explained the rationale for the appointment of PwC and Detecon Consulting, the work that would be undertaken by PwC and Detecon Consulting, and the level of cooperation required from operators. In the course of these meetings, PwC and Detecon Consulting met with operators representing different license groups to explain the consultancy, discuss issues of voice and data interconnection, and to obtain the required

information and documentation. Appendix B provides a summary of questions and critical issues addressed during the meetings on data interconnection.

30. Following these meetings, PwC provided the Commission with recommendations related to the regulation of voice interconnection and Detecon Consulting provided the Commission with recommendations related to the regulation of data interconnection.

31. For the data interconnection cost modelling, the recommendations can be summarised as follows:

Topic	Recommendation
Cost modelling approach	Bottom-up element-based costing models; Modelled networks are based on a scorched node approach; Modelled networks take the actual and planned coverage and the specific factors of Nigeria into account; Calculation of cost of efficient service provision
Cost modelling concept	LRIC plus mark-up for joint and common costs; OPEX are calculated bottom-up (direct OPEX) or with mark-ups (indirect OPEX), Allocation of common costs by using an equi-proportionate mark-up; Retail costs are excluded from interconnection rates
Cost basis	Forward-looking costs; The model reflects the year 2008 and three future years.
Depreciation	Tilted annuity is used as depreciation methodology
Cost of capital	Based on given WACC from the 2009 Cost of Capital Study carried out by NCC.
Quality of Service	Model reflects the targeted quality of service

32. Using these recommendations the voice cost model and the data cost model is in line. The harmonised approach prevents unequal treatment of voice and data services.

33. Using the table above, Detecon Consulting then built a model for GSM/UMTS networks and a model for CDMA networks. The underlying methodology of both models is based on the dimensioning of the network based on traffic demand and network design parameters. The Nigerian operating environment was also taken into account.

34. After the stakeholder meeting, where both consultancies briefed the fixed and mobile operators on the scope of their assignment, a harmonised questionnaire was sent to the following operators:

- MTN Nigeria Communications Limited (MTN)
- Glo Mobile Limited (Glo)
- Celtel Nigeria Limited (Zain)
- Emerging Market Telecommunication Service Limited (EMTS- Operating as Etisalat)
- Multilinks Telecommunications Limited (Multilinks)
- Starcomms Nigeria limited (Starcomms)
- Intercellular Nigeria Limited (Intercellular)
- MTS First Wireless Limited (MTS)

35. These written requests were followed up with telephone and email discussions to elaborate and explain the nature of the data.
36. In response to the Commission's requests, Data was received from the following operators: MTN, Glo, Zain, EMTS, Multilinks, Starcomms, Intercellular and MTS.
37. In April and May 2009, the consultants reviewed and analysed the data received from the operators. These reviews revealed certain inconsistencies with international standards and incongruence of data between similar operators.
38. Detecon Consulting contacted some operators in May 2009 to reconcile these inconsistencies and obtain additional information. Based on this updated information, additional benchmark values for equipment prices, and external analyst forecasts the set of input variables for both models (GSM/UMTS and CDMA) was defined and both cost models were populated with them.
39. On November 30, 2009, the Commission held a consultative meeting with operators and other stakeholders. The consultants' recommendations were discussed and the majority of the operators found these recommendations acceptable. In addition, operators were provided with the electronic version of the voice interconnection model and the data interconnection model and the respective manuals. In this model version commercially sensitive information had been replaced with proxy data.
40. Operators were expected to study the model and provide comments to the Commission by 14 December, 2009.

CONSIDERATION OF SUBMISSIONS MADE BY OPERATORS

41. The purpose of this section is to provide an overview of the comments received as well as the responses of the Commission to these comments. Comments not directly relevant to voice or data interconnection, such as comments relating to retail tariff, price cap etc have not been included in this determination.
42. The comments received have been summarised and grouped by subject area. The names of the operators making the individual comments have not been included.

I. Comments on the Regulation of Voice Termination

Comments on Asymmetry / Glide path for mobile termination

43. Most operators expressed support for the arrangements proposed by the Commission and their underlying rationale. However, some operators expressed concerns which are summarised below.
44. The extent to which the Commission's proposed application of asymmetrical rates and glide-paths tends to disproportionately benefit certain segments of the industry over others.
45. Questions over the empirical case for the existence of material scale economies in the provision of interconnection services.
46. The appropriate duration of the glide-path: different operators argued for a shorter and longer duration.
47. Others argued that no glide path was necessary as all operators were aware of market conditions in Nigeria when they entered the market and that no differential mobile termination rates were available to previous entrants.
48. Most operators being protected would be CDMA operators who were already active in the market before they received UASL licences. Hence no protection required.
49. A concern that the glide-path and asymmetry could become an embedded feature and that the Commission may continue to offer glide paths to future new entrants.

Response:

50. The Commission wishes to underline that the asymmetry proposal is not driven by differences in efficiency between operators. Unit costs in telecommunications tend to be larger for new entrants due to lower volumes (scale effects). The existence of high fixed costs in itself is sufficient evidence.
51. The Commission would emphasise that it does not propose to base termination rates on individual operators' actual costs (in this case there would indeed be a danger to reward inefficiency). The glide path for new entrants, however, does not penalise efficient networks. Each operator can benefit from efficiency improvements as any cost reductions below the level of interconnection rates are retained by the operator.
52. The Commission would also reiterate that the asymmetry is a temporary measure based on transparent criteria designed to take account of the introduction of unified licensing and the relative scales of fixed and mobile segments.
53. New entrants will require time to build up a subscriber base and gain scale. Given the limited duration of the glide path defined by the Commission new entrants will still need to operate efficiently in order to create a sustainable business.
54. The introduction of a glide path in 2009 is not indication that asymmetry will be implemented after rates have converged in 2012 when the market will be more mature. The Commission intends that from 2013 onwards there will be symmetrical rates but it will continue to monitor the market in order to determine the most appropriate approach for the Nigerian sector.
55. In relation to other mechanisms available to operators such as collocation, infrastructure sharing, etc. are designed to encourage efficient use of infrastructure and non-discriminatory provision of access to infrastructure. These measures do not address the issues that form

the rationale for the introduction of a glide path (differences in scale and hence unit cost between new entrants and established players).

56. With regard to the case of previous entrants the Commission would note that the number of operators in the mobile market in Nigeria, and hence the intensity of competition, has changed significantly since the last determination and the new measures are designed to better reflect the current circumstances in Nigeria. All the operators whether CDMA or GSM being offered the glide path are all new mobile licensees irrespective of whether they were offering fixed services earlier than 01/01/06.

Comments in favour of a more extended or more pronounced glide path

57. Some operators expressed the need for a higher termination charges for new entrants:
- The proposed asymmetric rates... will not provide the sort of incentive required to be given to the “new entrants” to continue to invest in extensive network expansion required...
 - The Commission should give serious consideration to increasing the initial variance between the asymmetric rate for voice by at least N4.00 with commensurate increment to the variance along the glide path to enable new entrants in the mobile market [...to] further expand and compete effectively with the incumbent mobile operators.
 - We would therefore [...] urge a slower step to convergence of termination rates under the proposed Asymmetric charging regime
 - The Glide Path should be descended in five equal steps and not taken two at a time in the first year as this shortens the Glide Path. The glide path should start a year later than proposed, otherwise cost reductions will be, in effect, assumed to have occurred before the services was even launched.
 - Mobile termination rates for established operators should be much lower (we believe their unit costs are in the region of around N 3.3. Our own costs, however, still remain above the current N11.40, thus we have recommended a modified glide path that takes us to symmetry in the beginning of 2013.

Response

58. The Commission has specified a glide path leading to symmetric mobile termination rates by 2013. The Commission believes that this time, and the rate differential implied by the glide path specified, should give new entrants sufficient opportunity to establish themselves and to compete with other operators based on symmetric termination rates as of 2013. The Commission recognises that some operators may have lower costs (although N 3.3 appears far too low in the light of the detailed cost modelling exercise conducted by the Commission). The Commission also recognises that new entrants initially have very high unit costs (while volumes are very low). However, this is the nature of almost every business plan: companies invest in earlier years with a view to reaping benefits later. The Commission believes that no full compensation on the basis of low volume based (high) unit costs should be expected by new entrants.

Comments on which operators qualify as a ‘new entrant’

59. The Commission’s consultants, Messrs PWC and Detecon have recommended asymmetric interconnect determination rates for voice and data that enables “new entrants” pay lower interconnect rates to the other players. “New entrants” has been described by PWC in its presentation made to industry stakeholders on 30th November 2009 as “operators providing a termination service provided under a licence allocated after 1st January 2006 AND less than 4 years old”. Our understanding of those who qualify as new entrants” i.e. those who fully

commenced mobile service from 2006 upon being issued a licence that is less than 4 years old including a UASL is that all CDMA players including Multi-Links Telkom and Etisalat are for this purpose “new entrants”. We would greatly appreciate the Commission’s express confirmation that the above understanding is indeed reflective of its position on same.

Response

60. Termination rates are defined with respect to two characteristics: (i) the services provided and (ii) the licensee providing the service. As set out in the presentation to stakeholders and also in this Determination, the glide path termination rates for mobile termination services apply where the following two conditions are met:

- The termination service is provided under a licence that was allocated after 01/01/06 AND is less than 4 years old

AND

- The provider (nor a company bought by the provider) of this termination service did not provide this service in Nigeria before 01/01/06 (under a different licence).

61. A mobile termination service can be provided under a mobile licence or under a UASL. Some operators now have a UASL but provided mobile termination services under a mobile licence before 01/01/06 (under a mobile licence). Such operators would not qualify as ‘new entrants’. For the avoidance of doubt, under the preceding criteria, the under-listed operators would receive higher termination rates (as specified under the glide path) for mobile termination services:

- i) Prest Cable & Satellite TV Systems Limited
- ii) Starcomms Limited
- iii) Danjay Telecomms Ltd
- iv) Multi–Links Telecommunications Limited
- v) Gicell Wireless Limited
- vi) Intercellular Nigeria Plc
- vii) Siotel Nigeria Limited
- viii) Gamjitel Limited
- ix) Emerging Markets Telecommunication Services Ltd (Operating as Etisalat)
- x) Alheri Engineering Company Limited
- xi) Visafone Communications Limited
- xii) Reliance Telecommunications Limited (Operating as Zoom Mobile)
- xiii) Smile Communications Nigeria Limited
- xiv) Any other company that may be licensed between now and 31st December 2012.

Comments on the glide path for fixed termination

62. Some operators agree with the introduction of an asymmetric regime particularly for the new entrants. However, one operator does not consider that this should be applicable to the CDMA operators because they rolled out their networks prior to the GSM operators (2 years prior to some of the operators in Group 1). This operator considers that Group 1 operators would be punished for the inability of the CDMA operators to roll-out networks beyond the main cities (partly enabled by the lack of roll-out obligations). The same operator proposes that CDMA operators should be included in Group 1 rather than Group 2 operators.

63. One operator disagrees with the proposal that the glide path for fixed termination rate should apply to all operators. It believes that a glide path for fixed termination rates should only apply to new entrants based on the same reasons provided for the imposition of a glide path for mobile termination to new operators.

Response

64. The Commission would emphasise that no glide path or asymmetry has been implemented based on technologies used. Interconnection rates are defined in relation to the service provided, not in relation to the technology used. The rationale for a glide path for fixed termination for all operators is to encourage the development of fixed services in Nigeria - regardless of the providers and/or the technology used.

Comments on Clearing Houses

65. No separate rate was set aside for the Clearinghouses. The multiple rates that have been propositioned will cause anticompetitive practices in the market without the involvement of a neutral third party to confirm connectivity availability and network performance plus billing and settlement of the varied rates.
66. There is still no clear differentiation between Clearinghouses and regular operators despite our clearly different roles in the market and business mandates. We suggest that it should be changed when implementing policies. We also request that NCC ensure that the policies they implement take into consideration our unique position as aggregators and industry enablers. The current regime is the same as the one implemented 4 years ago except that the rate is lower. This has caused the problems in the industry that we are currently experiencing.
67. Even though the Clearinghouses do not feel that we were properly represented in this presentation, the reduction in price we feel is one that will have a limited positive impact on the industry. We feel that a clearer delineation of rates through clearinghouses would have had a much more positive impact throughout the industry.

Response

68. The Commission recognises the role clearing houses play in the communications sector including the acceleration of interconnection negotiations for new entrants, and the role of providing additional (third party) billing records with a view to avoiding billing disputes. The Commission's earlier direction on this issue stands.

Comment on near end vs. far end termination (fixed)

69. PwC has proposed to remove the differentiation between the near end and far end pricing which we feel will cause a problem in the market as there is now no opportunity to recover transmission costs and less of an incentive for larger operators with the network to carry that traffic for others.

Response

70. The Commission recognises the argument in principle. This was the reason for the introduction of the near end / far end rate differential in 2006. However, meanwhile, additional backbone infrastructure has been built out and the costs of transmission have decreased. As a result the new cost based differential would be small. The Commission therefore believes that it would be advantageous to simplify the regime and use a single termination rate for fixed termination.

Comments regarding a Bill & Keep/Sender keeps all arrangement

71. One operator suggested that an alternative to the asymmetric rate regime would be the implementation of the “Bill & Keep” (BAK) regime. A move away from cost based MTR to BAK will help to eliminate these tariff induced barriers to entry. It also suggested that in terms of complexity, BAK is easier for any regulator to implement and enforce. BAK will also encourage the reduction and eventual disappearance of the “on-net”, “off net” dichotomy.

Response

72. Despite its obvious simplicity, the BAK regime does not satisfy the rationale (and economic efficiency requirement) of cost based service provision. If operators are not compensated for terminating calls this may result in degrading service quality.

Comments relating to international incoming calls rates

73. One operator expressed concern that the continued application of domestic termination rates to international incoming calls creates room for arbitrage, encourages the practice of dumping of cheap international traffic on Nigerian networks depriving such networks of substantial interconnect revenue, and degrades the quality of service on these networks.

Response

74. The Commission would clarify as follows: if termination rates for international incoming calls differed from domestic call termination charges, then this difference would give rise to re-filing incentives and arbitrage opportunities. The Commission recognises that problems arise in situations where accounting rates agreed by Nigerian operators with their counterparts abroad do not cover the Nigerian termination rate. In this case, incentives to drop calls arise and the Commission agrees that this could lead to degraded QoS. However, the correct means to address this is QoS regulation which, in turn, will give operators incentives not to agree accounting rates that do not cover domestic termination charges. The Commission would also point out that the proposed reductions in termination rates will alleviate this problem.

Comments on the impact assessment conducted by the Commission

75. One operator contended that the intervention in the interconnect regime in 2006 was not responsible for the growth in the subscriber numbers, the real reduction in the value of retail tariffs and the exponential market development.

Response

76. The Commission explained that a number of different factors contributed to the favourable evolution of the Nigerian market, such as UASL, new entrants, price reductions due to other factors. It is evident that the interconnection regime cannot be the sole direct driver of a competitive telecoms sector. However, a fair and functioning interconnection framework is required to allow competition to thrive. Therefore, although the different effects cannot be isolated with any degree of certainty the Commission maintains that the evolution of the Nigerian market reflects positively on the interconnection regime 2006.

Comments on the cost standard to be used

77. Whilst these [model] features conform to common practice, we would point out that the most recent Recommendation¹ issued by the European Commission following an extensive review of cost modelling practice requires that a modified approach they term “pure incremental” costs be adopted. In addition to seeking to ensure a consistent approach across the EU, the Commission’s view was that the current practice, as outlined above, would significantly over-estimate the applicable costs for the purpose of setting termination rates, particularly in mobile networks. The Commission’s Recommendation differs in three [...] characteristics listed [...] below:

- Bottom-up LRAIC with a narrow increment (termination only)
- No mark-ups for fixed and common costs
- Economic Depreciation.

Response

78. The Commission is aware of the Pure Incremental Cost Determination by the European Commission. However, this is an entirely new approach that, to our knowledge, has not been implemented anywhere, not even in Europe. The Commission believes that it would be premature to implement this approach in Nigeria at this stage.

Comments regarding the technologies to be used in the cost model

79. One operator argues that there is a pressing need to provide unambiguous clarification on the distinction drawn between technologies i.e. GSM/CDMA (e.g. for the purposes of this intervention, is CDMA to be considered a fixed technology or not?).

80. One operator notes that the recommendations exhibit strong technology partiality, pointing out that where there is a determination that both GSM and CDMA operators provide similar mobile services which are strong substitutes, the contention for different termination rates for each type of network is rather tenuous (there cannot be different efficient rates depending on technology choices for the same service market)

81. We would expect the NCC model to incorporate a mix of the two technologies [2G/3G] that is in line with a reasonable roll-out timetable given the timing of licence awards to the relevant operators. Allowance should, of course, be made for the position of operators who do not have 3G licences in setting appropriate rates for such operators.

Response

82. The Commission draws attention to the definition of fixed and mobile termination services, respectively, as published in its Interconnection Rate Determination 2006. Both definitions are technology neutral and define fixed and mobile services in relation to the number block used:

“Termination by the receiving operator of a call intended for a number within a range ascribed to fixed services in the national numbering plan and allocated to the receiving operator which call has been delivered to that operator by an interconnected operator (which operator may be the originating operator or another operator, including an operator providing transit of the call through its telecommunications network) at a point of

¹ “Commission Recommendation of 7 May 2009 on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU”, (2009/396/EC). National regulatory Authorities in the EU are required to “take the utmost note” of such Recommendations.

interconnection and routed by the terminating operator through its telecommunications network.”

“Termination by the receiving operator of a call intended for a number within a range ascribed to mobile services in the national numbering plan and allocated to the receiving operator which call has been delivered to that operator by an interconnected operator (which may be the originating operator or another operator, including an operator providing transit of the call through its telecommunications network) at a point of interconnection and routed by the terminating operator through its telecommunications network.”

83. We have consulted with operators extensively on the matter of 3G technology and currently the percentage of traffic carried over 3G networks is less than 3%-5%. Moreover, 3G networks are in the early stage of development in Nigeria with most operators starting to commercially explore new services and products. On this basis we have taken the approach of not including any 3G parameters in the model. However we have considered total traffic as a basis for network dimensioning which includes a very small percentage of 3G traffic.

Comments relating to the core network configuration

84. There is explicitly no packet-based MPLS core transmission and so we do not see why the MGW would be needed, particularly not for voice calls, as there is no need to translate the time division multiplexed data into packets.

Response

85. Although the model is able to dimension MPLS over SDH / fibre for the generic GSM operator the model deploys core transmission based on SDH rings. The media gateway was included as parts of MSCs in order to account for the MSC in pool architectures as some operators have a MGW that performs the integrated functions of service distribution and circuit management.

Comments relating to the dimensioning of the network for SMS, MMS, GPRS and other data Services

86. One operator commented that both SMS and Data traffic were taken into account in the dimensioning of the network but that MMS was ignored as volumes are immaterial for most operators.

Response

87. Both SMS and Data traffic were taken into account in the dimensioning of the network; however MMS was not as it was insignificant for most operators.

Comments on Routing Factors

88. One operator commented that the routing factors for MSCs appear to be rather high, with figures of over two for several services, including on-net and calls to and from fixed/CDMA operators. A figure of two indicates that a call would, on average, transit two MSCs. In cases where the called party (for on-net calls), or the point of interconnection (for off-net calls) is connected to a different MSC than the calling party, one would expect an efficiently constructed core network based on interconnected SDH rings to deliver the call from the originating MSC to the terminating (or Pol-connected) one without needing an intervening

transit stage. In a proportion of cases – perhaps quite a significant proportion, given that many calls are made to people in the same geographical vicinity – only one MSC would be required, thus bringing down the average routing factor.

Response:

89. The routing factors for MSCs are based on data provided by operators describing the actual achieved routing of calls in their networks.

Comments on network design parameters

90. One operator questioned the use of percentage spare capacity margins for certain equipment types such as MSCs and HLRs, suggesting instead that an integer quantity of spare equipment should be used.

Response

91. The use of spare capacity margins denominated in percentage terms rather than actual quantities of equipment was used for modelling flexibility and to reflect the sub-modularity of spare provisioning decisions. For example, spare capacity is generally planned according to the lead time and cost associated with augmenting capacity so that different sub-components of an MSC, for example, may have different spare capacity requirements and this is better dealt with using percentage margins.

Comments on unit investment and opex

92. Various operators have noted that certain equipment costs used for the generic operator are different (higher and lower) than incurred by the operator in question.

Response

93. Equipment prices used in the model have been based on data provided by operators as well as international benchmark information. Prices included in the generic operator should not be expected to reflect any particular operator's price information but should be seen as reflective of the costs faced by a reasonably efficient generic operator reflecting its scale and reach.

Comments relating to an obligation for roll out in rural areas

94. One operator noted that the Digital Mobile License, unlike a UASL or CDMA license, carries with it roll-out obligations in rural areas. The operator urged for these costs to be taken into account in setting the mobile termination rate.

Response

95. The evolution of coverage reflecting current and future deployment is reflected in the generic operator model.

Comments on Interconnect indebtedness

96. One operator suggests that the high level of defaults on settlement of interconnection obligations makes it difficult, if not impossible, for an operator to conform to the “generic efficient operator” model contemplated in the cost study. Another operator suggests that the figure for bad debt appears to be rather high.

Response:

97 The cost model takes into account levels of bad debt prevalent in Nigeria.

Comments on radio network dimensioning 2G

98. One operator queried the prevalence of 3 sectored BTSs for fulfilling both coverage and capacity demands. The operator was concerned that coverage costs may be overstated since sectorisation is generally only needed for capacity reasons. The operator also questioned the non inclusion of microcells and 6 sector cells in the modelled radio architecture.

Response:

99. Representation from most operators was that most BTS were deployed with 3 sectors, both for coverage and capacity. While we concur that a pure coverage network would normally be deployed using omniselector BTSs, this was not the common practice in Nigeria. Similarly, we noted that operators do not tend to deploy significant numbers of 6 sector BTSs or microcells. We have therefore developed the generic model to reflect Nigerian practice. We recognised that a more optimised network may result in lower costs but we consider it important to reflect actual practice.

Comments on core network dimensioning

100. In the context of MSC dimensioning it appears from the application of capacity constraints that the key constraint is taken by the model to be the number of subscribers covered. This leads, in effect, to an over-capacity in terms of the physical operating capacity of the modelled MSC network. MSCs exist primarily to switch and handle calls. The constraints on the number of subscribers per MSC most likely relate to software licences, which are often issued on this basis. It is likely, therefore, that an efficient operator would negotiate software licence upgrades to deal with the additional subscriber load and that this would be considerably cheaper than unnecessarily installing new hardware.

Response

101. We have modelled 3 key constraints for MSCs: subscribers, BHE and BH call attempts and according to operator's data, for most of them, the limiting constraint, having regard to the structure of vendor pricing, is subscriber numbers.

Comments on transmission dimensioning

102. One operator noted labelling, formulae and rounding checksum errors in the dimensioning of transmission links between and on nodes.

Response

103. We have tested and amended the dimensioning algorithms. There is no material impact on the model results.

Comment

104. One operator noted that the numbers of STM-64 ADMs appear to be fractional in some cases.

Response

105. The equipment numbers are divided where they serve multiple rings. Total equipment numbers are not fractional.

Comments on annualised costs

106. One operator commented that the allowances for indirect capital expenditure and for support and other opex appear rather high at 20% and 14% of the total book value of assets, respectively.

Response

107. These allowances were based on operators' data submissions.

Comment:

108. One operator questioned whether interconnection costs should be included in the weights for the allocation of general regulatory costs (spectrum fees, numbering fees and other regulatory fees) between network and retail.

Response:

109. The key purpose of the allocation was to ensure that a fair and reasonable split between network and retail activities is achieved. While we accept there is a range of possible allocations, the inclusion of interconnection costs appears reasonable since it reflects the costs of network albeit beyond boundaries of a single operator.

Data interconnection cost model description

110. The data interconnection service costing models are based on international best practice cost modelling approaches. The developed costing models are bottom-up element based costing models, i.e. the considered network is modelled bottom-up and the corresponding costs of each network element is allocated to services according to the usage of the network element by the service. This approach guarantees that only those costs are allocated to specific services which are caused by the corresponding services. To reflect the costs of Nigerian network operators, a scorched node approach is used.

111. The calculated service costs are long run incremental costs (LRIC) plus mark-up for joint and common costs. LRIC is the costing standard for regulatory decisions all over the world. Marketing and sales costs are excluded for interconnection services. Services like interconnection services have no marketing and sales costs. This also reflects international best practice regulatory cost modelling standards.

112. The cost basis of the costing models is a forward looking cost which is standard in most countries all over the world. Within the cost models the service costs of the year 2008 and three future years are calculated.

113. The data interconnection costing models are in line with both international standards and the Nigerian legal framework. Furthermore, the data interconnection costing models conform to already existing costing models for voice interconnection in Nigeria. This ensures that for voice and for data interconnection the same costing standards and principles are used and that the results are consistent.

114. Three different kinds of data interconnection models were developed which reflects the operator landscape in Nigeria – one costing model for CDMA network, one costing model for GSM/GPRS network and one costing model for the, at present in Nigeria, emerging UMTS/HSDPA networks.

115. Within the data interconnection cost models the service costs of several services can be calculated. Nevertheless, the focus of the data interconnection costing models is SMS termination services. Since classical voice services and data services use the same network infrastructure, traffic data for both voice and data services are input data for the costing models.

116. Most important data transport services at present are SMS and MMS. Both are representatives of a bigger group of data services – non real-time data transport services. At present, non real-time data services are of highest importance, since those contribute most to the total amount of transported data. Further representatives of non real-time data transport services are internet usage, ringtone and other download services, video on demand or voice mail services. The second group of services is the group of real-time data services, for examples videoconferencing or video streaming.

117. The data interconnection costing models are bottom-up costing models. The service costs are calculated within six steps.

- Data and demand forecast
- Calculation of the required capacities
- Dimensioning of the networks and determination of the required network elements
- Network CAPEX and technical OPEX calculation
- Allocation of the corresponding infrastructure costs to the services
- Allocation of common and joint costs

118. The heart of the data interconnection costing models is the technical cost modelling part which reflects the above steps two, three and four. Within the technical cost modelling part, the network is dimensioned according to the determined demand and the costs of all relevant network elements are calculated.
119. The basis of the data interconnection service costing model is the demand forecast. According to the subscriber development and the development of the data demand (for both non real-time and real time data) as well as the development of the voice traffic a network either for the GSM/GPRS technology, UMTS/HSDPA technology or CDMA2000 1x technology is modelled which reflects the forecasted demand. Inputs of the demand forecast are data of network operators, benchmarks and studies of analysts.
120. According to the demand forecast the required capacity of all segments of the network (radio access network, backhaul, transport network, core network and value added service platforms) is determined as a second step.
121. In a third step, the required network equipment and the amount of the required network elements of all network areas are determined. The corresponding calculation uses dimensioning parameters of Nigerian network operators to reflect the existing network infrastructure.
122. The last step of the technical calculation is the determination of the corresponding CAPEX and OPEX. Hereby, the amount of network elements is multiplied either with the price of the network element or with the technical OPEX of the network element. Prices of network elements and corresponding technical OPEX positions are input parameters and are set according to the information given by Nigerian network operators. If corresponding information is not available benchmark values from countries which are similar to Nigeria can be used.
123. The calculated CAPEX of network elements are transformed in a further calculation step into annual costs, e.g. depreciations and cost of capital are calculated. The annual infrastructure costs are combined with the technical OPEX in order to form the total annual costs of network elements. The cost of each network element is further divided by its total usage to calculate the cost per unit. Furthermore, the network element cost per unit is allocated to the services by means of routing factors.
124. In a last step further cost positions like marketing and sales costs and common costs are allocated to the services. Hereby, marketing and sales costs are not allocated to wholesale services. Common costs are allocated by using equi-proportionate mark-up factors on top of the calculated direct and joint network costs. This allocation method guarantees a fair and non-discriminatory allocation of common costs.
125. Results of the data interconnection costing models are service costs for SMS and MMS termination and origination. Furthermore, the transport costs per megabyte for real-time and non real-time services are calculated.

Data requirements

126. For the data interconnection costing models five categories of data are required:
 - Coverage and subscriber data
 - Voice and data demand
 - Revenues
 - General data
 - Technical and network element price data
127. To ensure that the network infrastructure of Nigerian network operator is best possible modelled, Nigerian network operators were asked to provide these input data as listed in 126.

II. Comments on the Regulation of SMS Termination

Comments on the rationale for regulation of SMS termination

128. One operator expressed its explicit agreement with the rationale provided for the regulation of SMS termination.
129. The usage of SMS does not only depend on the price level. Other influencing factors determine the usage as well.

Response

130. The Commission is well aware of other factors which influence the usage of SMS, such as literacy levels and cultural background. However, international experience shows an increase in SMS usage when prices are decreased. This has been observed in nearly all European and American countries as well as in Asia. Other influencing factors, like the literacy level, remained more or less constant in the observation period. So, the price for SMS can be seen to be the major factor influencing SMS usage.

Comment

131. The usage of European countries as the benchmark for SMS usage is critical since, amongst others, the literacy level in Europe is much higher (approximately 100%) than in Nigeria (approximately 57%).

Response:

132. The socio-economic environments in Nigeria and in Western and Eastern Europe are undoubtedly different. However, even taking the different literacy levels of European countries and Nigeria into account and scaling the SMS usage of the European benchmark countries down according to the different literacy levels, then the resulting SMS usage is still between two and Fourteen times higher. It remains to be mentioned that such downscaling of the SMS usage is not appropriate anyway since one can assume that the literacy level of the mobile user in Nigeria is above average.

Comment

133. Price decreases for SMS do not affect the SMS traffic in Nigeria. One operator's price decreased between 2007 and 2009 has only marginally encouraged the usage of SMS.

Response

134. The Commission doubts that this statement is correct for several reasons. First of all, the massive price drop for this operator's SMS retail tariffs only applied to one tariff plan; the SMS prices for all other tariff plans did not decrease so heavily. Furthermore, the operator in question only presented data concerning the total SMS traffic for all tariff plans; the SMS traffic for the specific tariff plan with the lowest SMS tariffs was not presented individually. Only statistics showing the SMS usage development of this tariff plan would be relevant for an assessment of the influence of SMS prices on SMS usage. Moreover, the operator doesn't take the learning curves for the usage of services like SMS for new customers into account. The SMS usage of new customers is usually lower than that of experienced customers. Taking this into account one can assume that although the SMS traffic of the corresponding operator only increased proportionately to the growth in the customer base, the experienced customers' use of SMS did increase when the SMS retail tariffs were decreased.

Comment

135. One operator mentioned that an international benchmark of SMS termination rates of several African, European and South American countries shows that the proposed rates are not competitive in comparison with other countries.

Response

136. The SMS termination rates are not regulated based on cost levels in any of the provided countries. So, the result of the provided benchmark can not be taken as the basis of a rates decision for SMS termination in Nigeria.

Comment

137. One operator mentioned that there is no need for regulation of the SMS termination market since the retail market in Nigeria is highly competitive.

Response

138. The Commission does not share the opinion of this operator. At present there are no adequate wholesale supply or demand side substitutes for termination of SMS for subscribers. Current technology does not allow the termination of an SMS to a mobile phone other than via the network of the receiving party. This appears unlikely to change in the near future. At the retail level there are no effective alternatives for the SMS sender that could act as a constraint on termination charges or on the charges for bulk SMS. So, the SMS termination market is not highly competitive; its structures are more monopolistic.

Comments on data interconnection costing models

139. One operator stated that Detecon has apparently employed a mix of a cost study and benchmarking data. However, international best practice would dictate that wholesale tariffs (including SMS) should be indicative of the cost of providing such services in comparative and competitive market settings in accordance with international benchmarks.

Response:

140. Detecon Consulting built cost models for data interconnection services. Benchmark data was only used for equipment prices and this only to validate the data provided by the Nigerian operators. The recommended rates for SMS termination are the result of the cost models and are not based on benchmarks.

Comment

141. Another operator suggested that technology-specific cost models should be used and that SMS termination rates should be technology-specific.

Response

142. The Commission does not accept this suggestion for a number of reasons: The interconnection rates should reflect the costs of an efficient operator independent of the underlying technology. The Commission concedes that there may be cost differences between operators due to differences in subscriber density, terrain, etc. These have been taken into account by the proposal of asymmetric SMS termination rates. However, a uniform (technology neutral) termination rate encourages investment, supports efficient operators, and provides correct investment incentives.

Comment

143. Two operators stated that the proposed SMS termination rates are below cost according to the results these operators calculated based on their cost models.

Response

144. The Commission does not know the costing models of these operators or their underlying assumptions. So the Commission cannot assess whether the calculation of these operators is correct. However, generally speaking, SMS termination rates should not reflect the SMS termination costs of one single operator; they should always reflect the SMS termination costs of efficient operators.

Comment

145. One operator stated that the costing methodology for data interconnection does not reflect current recommendations of the EU Commission regarding “Regulatory Treatment of Fixed and Mobile Termination Rates in Europe” (Recommendation 2009/396/EC of the EU Commission).

Response

146. The regulation of the European telecommunication markets started in the last decade of last century following the liberalisation of the telecommunications sector. European operators have a nearly 15 year history of regulation. The history of regulation of the Nigerian telecommunications market is much shorter. The EU Commission’s recommendation 2009/396/EC in which the Commission proposed a change in its costing recommendations took effect in May 2009. This change in costing methodologies was recommended because of the maturity of the mobile markets in Europe. Previously the costing methodologies recommended were in line with those proposed by Detecon Consulting here. An adjustment of the costing methodology for the Nigeria data interconnection market in line with the EU Commission’s new recommendations is not appropriate since the Nigerian telecommunications market is not as mature as the European telecommunication markets. The proposed costing methodology is appropriate for Nigeria.

Comments on asymmetric SMS termination rates

147. The majority of the operators supported the idea of asymmetric SMS termination rates.

148. One operator stated that the variance between the SMS termination rates of established operators and new entrants should be higher.

Response

149. The Commission does not agree with the suggestion. The proposed SMS termination rates are based on the cost levels for efficient established operators and those for efficient new entrants. Greater variance would not reflect these cost levels and is therefore not appropriate.

Comment

150. One operator suggested that asymmetric SMS termination rates based on different technologies should not be justified.

Response

151. The Commission agrees with this position. This is reflected in the definition of the two groups of operators – established operators and new entrants, i.e. operators providing a termination service under a licence allocated after 1st January, 2006. The latter group consists of both CDMA and GSM operators.

Comments on the glide path for SMS termination rates

152. One operator supported the glide path for SMS termination rates, but demanded that the glide path should be applied to all operators.

Response

153. The proposed SMS termination rates are based on cost levels for efficient established operators and efficient new entrants. A glide path for both operator groups would not reflect the underlying costs.

Comment

154. Some operators stated that the glide path for SMS termination rates is not appropriate since the corresponding operators have a competitive disadvantage against the established operators.

Response

155. The Nigerian Communication Act 2003 requires that the Commission supports efficient competition in Nigeria and not the protection of specific groups of operators. Therefore the basis for rates approval should always be an efficient operator. However, to establish effective competition in the Nigerian telecommunication market, new entrants which have recently been awarded a license do have to be protected for a short period of time.

Comments on the definition of the two groups of operators with different SMS termination rates

156. One operator expressed that a clear definition of the two groups with different SMS termination rates is missing.

Response

157. The same operator classification is applicable for SMS termination rates as for voice termination rates.

Comment

158. One operator stated that the two distinctive operator groups for voice and SMS termination should be defined identically.

Response

159. Although PwC and Detecon Consulting have used different terminology for their definitions of the operator classification, the resulting classifications are identical.

Comments on the consequences of the proposed SMS termination rates

160. Two operators expressed a belief that the proposed regulation of SMS termination rates will affect investments in telecommunication infrastructure and the further extension of the coverage in Nigeria.

Response

161. The Commission does not agree with these statements. The SMS termination rates are based on the corresponding costs of the SMS termination service. Part of the SMS termination cost is a reasonable return on investment, more than 25%, which provides a high incentive for further investments. Furthermore, possible losses resulting from decreased SMS termination rates could be compensated for by the related increase in usage of SMS services.

Comment

162. One operator mentioned that as a result of the decrease in SMS termination rates data traffic will increase and QoS decrease.

Response

163. One of the Commission's intentions in regulating the SMS termination rates is to support the higher usage of the SMS service by Nigerian citizens. So, an increase in SMS traffic would be welcome. Furthermore, more SMS traffic will result in higher data revenues for the Nigerian operator. Last but not least, total SMS traffic is so minimal in relation to total voice traffic that even an increase of 100% will not have a major impact on the network operators' quality of service.

Comment

164. The same operator stated that lower SMS termination rates will result in an increase in SPAM SMS.

Response

165. SPAM messages usually occur for services which are free of charge. The most prominent example is the email service. Experience from other countries shows that, as long as the SMS termination charges are not reduced to zero, SPAM SMS are not a major problem - the spamming companies still have to pay for the SMS termination. However, should SPAM SMS increase significantly; the Commission will consider the introduction of further regulations concerning SPAM SMS.

Conclusions

166. The Commission would like to thank all operators who have submitted information relating to the regulation of interconnection rates, the costing models, and the regulation of retail prices.
167. The Commission has carefully considered the information provided by stakeholders and has taken a view on parameters and regulatory measures in the light of this and other information – such as international experience and publicly available information. The process of arriving at a new regulatory regime for the interconnection of operators and for retail pricing in Nigeria has been conducted in a climate of openness and with a view to providing maximum transparency to all parties without compromising the confidentiality of commercially sensitive information.
168. The Commission is confident that the results will make a significant contribution to the development of a thriving telecoms sector in Nigeria and hence benefit both consumers and the industry.

DETERMINATION

1. The Commission hereby determines that:
 - a. The interconnection rate for mobile (voice) termination provided by new entrants in Nigeria irrespective of the originating network shall be:
 - i. N 10.12 (Ten Naira Twelve Kobo) from 31.12.2009;
 - ii. N 9.48 (Nine Naira Forty Eight Kobo) from 31.12.2010;
 - iii. N 8.84 (Eight Naira Eighty Four Kobo) from 31.12.2011; and
 - iv. N8.20 (Eight Naira Twenty Kobo) from the 31.12.2012.
 - b. The interconnection rate for mobile (voice) termination provided by other operators in Nigeria irrespective of the originating network shall be:
 - i. N8.20 (Eight Naira Twenty Kobo) from the 31.12.2009.
 - c. The interconnection rate for fixed (voice) termination in Nigeria irrespective of the originating network shall be:
 - i. N 10.12 (Ten Naira Twelve Kobo) from 31.12.2009;
 - ii. N 9.48 (Nine Naira Forty Eight Kobo) from 31.12.2010;
 - iii. N 8.84 (Eight Naira Eighty Four Kobo) from 31.12.2011; and
 - iv. N8.20 (Eight Naira Twenty Kobo) from the 31.12.2012.
 - d. The interconnection rate for SMS termination provided by new entrants in Nigeria irrespective of the originating network shall be:
 - i. N1.94 (One Naira Ninety Four Kobo) from the 31.12.2009;
 - ii. N1.63 (One Naira Sixty Three Kobo) from the 31.12.2010;
 - iii. N1.32 (One Naira Thirty Two Kobo) from the 31.12.2011; and
 - iv. N.1.02 (One Naira Two Kobo) from the 31.12.2012.
 - e. The interconnection rate for SMS termination provided by other operators in Nigeria irrespective of the originating network shall be:
 - i. N1.02 (One Naira two kobo) from the 31st of December 2009.
2. The interconnection rates determined in 1 above shall be applied by and payable (including by way of internal transfer pricing) to all licensees who have been allocated numbers by the Commission.
3. Operators will be entitled to charge for mobile (voice) termination service at the rates described at 1a. and 1d where the following two conditions are met:
 - The termination service is provided under a licence that was allocated after 01/01/06 AND is less than 4 years old

AND

- The provider (or a company bought by the provider) of this termination service did not provide this service in Nigeria before 01/01/06 (under a different licence).
4. The operators satisfying this test will be defined by the Commission and currently comprise:
 - Prest Cable & Satellite TV Systems Limited,
 - Starcomms Limited
 - Danjay Telecomms Ltd
 - Multi-Links Telecommunications Limited
 - Gicell Wireless Limited
 - Intercellular Nigeria Plc
 - Siotel Nigeria Limited
 - Gamjitel Limited
 - Emerging Markets Telecommunication Services Ltd (Operating as Etisalat)
 - Alheri Engineering Company Limited
 - Visafone Communications Limited
 - Reliance Telecommunications Limited (Operating as Zoom Mobile)
 - Smile Communications Nigeria Limited.
 5. In the event that new operators are licensed and offer mobile (voice and SMS) termination services, they will be assessed by the Commission using the two test criteria described above for eligibility to join the glide-path for mobile voice and SMS termination as set out at 1a and 1d at the rate prevailing at that date.
 6. The Commission further determines that after 31st December 2012, all termination rates shall henceforth be symmetric.
 7. In this Determination, unless the context requires otherwise, the following expressions shall have the meanings set out below:

<p>“Mobile voice call termination”</p>	<p>Termination by the receiving operator of a voice call intended for a number within a range ascribed to mobile services in the national numbering plan and allocated to the receiving operator which call has been delivered to that operator by an interconnected operator (which may be the originating operator or another operator, including an operator providing transit of the call through its telecommunications network) at a point of interconnection and routed by the terminating operator through its telecommunications network.</p>
<p>“Fixed voice call termination”</p>	<p>Termination by the receiving operator of a call intended for a number within a range ascribed to fixed services in the national numbering plan and allocated to the receiving operator which call has been delivered to that operator by an interconnected operator (which operator may be the originating operator or another operator, including an operator providing transit of the call through its telecommunications network) at a point of interconnection and routed by the terminating operator through its telecommunications network.</p>

"SMS Termination"	Termination of an SMS (Short Message Service) by the receiving operator irrespective of its origination (i.e. the SMS has been delivered to that operator by an interconnected operator, which may be the originating operator or another operator, including an operator providing transit of SMS through its telecommunications or data network) at a point of interconnection and routed by the terminating operator through its telecommunications network.
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This Determination shall take effect from 31st December, 2009 and remain valid and binding on Licensees for the services specified in paragraphs 1(a) to (e) of this Section, until further reviewed by the Commission.

Dated this 21st day of December, 2009.



**Engr. Ernest C.A. Ndukwe
Executive Vice-Chairman
Nigerian Communications Commission
Abuja – Nigeria.**

APPENDIX A

During an initial stakeholder workshop held in Lagos on 22 May 2009 PwC presented an overview of their work programme which included an analysis of a range of wider policy issues related to the matter of interconnection. The discussions included the following issues:

1. Assessment of the impact of the subsisting interconnection regime on the development of the telecoms sector in Nigeria.
 - Impact on retail prices
 - Fixed termination (near-end / far-end)
 - Quality of Service (QoS)
 - Overall success

2. To review the interconnection regime for fixed, mobile and Unified Access Services and Leased Lines
 - Impact of UASL
 - Single tariff for mobile/fixed termination?
 - Services evolution
 - Need for regulatory intervention from trunk transmission links?
 - Any other changes?

3. Analysis of the current International access market and development of suitable Regulatory Policy guidelines on international in-bound and out-bound traffic, where needed.
 - Incoming international calls
 - a. Should the termination rate depend on the country of origin?
 - b. Impact of current regime?

 - Outgoing international calls
 - a. Is regulatory intervention needed in international access?
 - b. Issues / problems?

4. To analyse a number of options in relation to the role of transit and/or clearing house operators and to come to a view of the costs and benefits of these options.
 - Are transit services provided?
 - Are switching services provided?
 - What are the benefits of clearing houses?
 - Is regulation in transit and clearing house arrangements required?
 - Current charging mechanism?

APPENDIX B

Further discussed topics

Beside the design of data interconnection models and data requirements some more general topics were discussed in the stakeholder meetings:

- i. Is it appropriate to regulate the SMS termination fees?
- ii. In case, the SMS termination fees are regulated, how should they be regulated?
- iii. Is it appropriate to regulate the MMS termination fees?
- iv. In case, the MMS termination fees are regulated, how should they be regulated?