East African Communications Organisation

Communications for all in East Africa

GUIDELINES ON TELECOMMUNICATIONS COSTING METHODOLOGIES

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1. INTRODUCTION

These guidelines will provide the principles, objectives and methodologies to be used when determining the costs related to infrastructure sharing, interconnection and roaming. The guidelines will also set out the different best practiced accounting standards including Fully Allocated Cost (FAC), Historical Cost, Current Cost and Long Run Incremental Cost (LRIC), LRAIC, LRAIC+ with a view to ensure that the communications infrastructure is efficiently utilized, that is both technically and economically. The cost accounting methods to be used should be objective, causative and transparent.

The aim of cost models is to calculate the unit costs for individual services. Since most of the costs incurred by a network operator support apply to more than one service, costs have to be allocated to services in some manner.

The choice of an appropriate costing approach should be made based on the analysis of a number of key factors. These factors are geared towards ultimate achievement of various regulatory objectives, which include economic efficiency, promotion of competition and stimulation of investments. Economic efficiency can be split into the following main types:

a) *Allocative efficiency*: in case of allocative efficiency, scarce resources should be allocated in an economically efficient manner. In economic theory, this occurs when price approaches marginal costs. Allocative efficiency suggests that one group of customers should not subsidize another group of customers.

b) *Productive efficiency*: to be considered as productively efficient, cost of production should be minimized. For the purposes of regulatory costing, productive efficiency is not a primary concern since all operators have enough commercial incentives to be productively efficient regardless of the regulated pricing.

2. ROLE OF MEMBER STATES IN DETERMINATION OF CHARGES

The NRA’s have the responsibility under their respective communications Acts to:

(1) Take an active role towards establishing cost-based interconnection, national roaming and infrastructure sharing and access charges where necessary;

(2) To determine these tariff charges through harmonised cost and pricing models; and
(3) Promote fair competition in the communications industry and encourage and foster infrastructure sharing, network access, national roaming and interconnection among its licensees.

3. STATUS OF THE GUIDELINE

These Guidelines are to be read together with the Act, Regulations and other relevant laws, and in conjunction with the License Conditions.

4. COSTING ON INFRASTRUCTURE SHARING

4.1 Principles of Infrastructure Sharing

1) To establish a framework within which operators can negotiate infrastructure sharing arrangements, and for that purpose, specifically to:

   a) Ensure that the incidence of unnecessary duplication of infrastructure is minimized or completely avoided;
   b) Protect the environment by reducing the proliferation of infrastructure and facilities installations;
   c) Promote fair competition through equal access being granted to the installations and facilities of operators on mutually agreed terms;
   d) Ensure that the economic advantages derivable from sharing of facilities are harnessed, for the collective benefit of all telecommunications stakeholders;
   e) Minimize capital expenditure on supporting infrastructures, to avail more funds for investment in core network equipment; and
   f) Encourage operators to pursue a cost-oriented policy for the sake of reduced retail tariffs chargeable to consumers.

2) The NRA’s shall encourage and promote passive sharing infrastructures which include, but not limited to, the following:
   a) Rights of way.
   b) Masts.
   c) Poles.
   d) Antenna mast and tower structures.
   e) Ducts.
   f) Trenches.
   g) Space in buildings.
   h) Electric power (public or private source).
   i) Dark fibre

3) The NRA shall also encourage and promote Active sharing infrastructures which include:
   a) Complete network structures.
   b) Switching centers.

c) Radio network controllers.
d) Base station controllers
e) NodesBs and eNodesBs
f) Core networks

4) The National Regulatory Authority may from time to time either on its own initiative or upon the request of any interested person amend the list of infrastructure that can be shared.

5) Where the sharing of an infrastructure such as Rights of Way and Electric power is dependent upon securing the necessary approval of a granting authority, such approval should be obtained before the sharing arrangement can be finalized.

4.2 Infrastructure Sharing Charges and Costing

1) Infrastructure sharing charges shall be cost based.

2) Infrastructure sharing charges shall be transparent, non-discriminatory, justifiable and reasonable in that:

   a) Telecommunication license holders shall not offer more favorable rates to affiliate companies to the prejudice of other infrastructure seekers: or

   b) Telecommunication license holders shall offer Infrastructure at reasonable rates which are not less favorable than those provided by the infrastructure provider to itself.

3) In determining infrastructure sharing charges, the infrastructure provider shall take into account-

   a) All capital costs incurred including upgrades and improvements, excluding historical maintenance costs by the infrastructure provider;

   b) Reasonable rate of return on the infrastructure provider's capital appropriately employed;

   c) All attributable operating expenditures, depreciation and a proportionate contribution towards the infrastructure Provider's (fixed and common costs); and

   d) Non-recurring costs.

4) Costs that vary with usage shall be recovered through usage-based charges.

5) The charges shall be sufficiently detailed to enable the infrastructure seeker to pay the infrastructure provider only for the network elements or infrastructure sharing services that it requires.

6) The charge to the infrastructure seeker for sharing shall not be more than the cost of owning and operating similar infrastructure.

7) Infrastructure sharing charges shall include compensation for loss of business as a result of providing infrastructure sharing services to the infrastructure seeker.

Recommended methodology

8) Costing Methodology charges for infrastructure sharing shall be established between the long run incremental cost of providing the service and the stand alone cost of providing the service.

9) In the case of price-setting for infrastructure sharing, the setting rates for shared elements, infrastructure providers apply a fully distributed cost (FAC) methodology, using current cost accounting and the annuities approach to depreciation.

10) The price for site-sharing should be based on the long-run average incremental cost (LRAIC) of providing access to the sites. Access should be provided on a non-discriminatory basis via a Reference Access Offer (RAO) detailing the commercial and technical terms that apply to regulated site sharing.

5. COSTING FOR INTERCONNECTION

5.1 Interconnection Principles

1) All Licensed telecommunications services providers are to offer and be offered interconnection at any technically feasible point. This is mandatory on all the service providers. Licensed service provider should not under any circumstances refuse or be refused interconnection, where technically feasible.
2) Interconnection should be set up in such a manner that the terms do not discriminate unduly between operators or between any operators' own networks and services and those of other interconnecting parties. This can be done via a Reference Interconnection Offer (RIO).
3) Interconnecting parties shall submit a duly signed interconnection agreement to the NRA for approval.

5.2 Determination of Interconnection Charges

1) The fundamental principle is that all Licensees should be fairly compensated for the cost incurred in the provision of interconnection.

2) All Licensed network operators are required to offer interconnection charges that are cost based, transparent and reasonable.

3) The rates should be sufficiently unbundled to ensure that the interconnecting party does not pay for network components or facilities which it does not require for the service to be provided.

4) Charges should be based on the directly attributable costs of the interconnection service or facility in question.

5) As far as technically feasible the charging structure should be based on unbundled network elements. In general, the charging regime should distinguish between:

   a) Appropriate fixed charges for the provision and operation of the points of interconnection;
   b) Variable traffic sensitive usage charges; and
   c) Charges for supplementary and support activities such as billing, directories, enquires, or emergency services.

6) Operators shall negotiate freely and agree on prices for interconnection to facilitate end-to-end connectivity in order to allow seamless communication between their customers.

7) Licensees shall, seek for approval from the NRA prior to revising interconnection charges including charges for the introduction of any new interconnection services.

8) The traffic volume shall be measured in seconds, units and kilobytes (KB) for voice, SMS and data traffic respectively

9) No service provider shall be charged for any interconnection facility it does not seek or require. Provided that if interconnection facility cannot be provided in the form that is sought or required by the interconnection seeker, the issue may be decided mutually between the seeker and provider of interconnection. In case such mutual agreement is not possible, the matter may be reported to the NRA for a decision

Recommended methodology

10) Costing Methodology charges for interconnection shall be the Long Run Incremental Cost (LRIC) of providing the service.

6. COSTING FOR REGIONAL ROAMING CHARGES AND TARIFFS

1) NRA's shall establish the basis of regional roaming costs in consultation with MNOs.

2) The establishment of cost-based regional roaming tariffs shall take into account the related underlying wholesale cost elements.

3) NRA's shall take into account the following direct cost elements among others in calculating cost based roaming tariffs:
   a) local access, origination, and termination costs;
   b) local transmission costs;
   c) international transmission costs;
   d) roaming specific charges, including contract, billing and signalling charges;
   e) retail specific charges, including invoicing and international processing costs (including Call Detail Records (CDR) and Inter Operator Tariffs (IOT)); and
   f) any other costs deemed to be appropriate.

4) NRA's shall consider the cost elements in subsection (2) for voice, SMS and data services and any other roaming services in line with the general trend towards universal use of roaming services.

5) NRA's shall ensure that the analysis of cost elements takes into account both prepaid and post-paid modes of payment.

6) NRA's shall consider the cost elements in subsection (3) in constructing detailed and harmonised roaming cost models on a regional basis.

7. DEFINITION OF TERMS

Active sharing **-** sharing electronic infrastructure in the access radio network and core network. These include sharing electronic infrastructure elements such as spectrum, switches, antenna, transceivers and microwave equipment.

Fully Allocated Costs (FAC) - costing methodology where (typically) historical costs incurred by an operator are allocated to services in full (i.e. costs are fully allocated or distributed). This includes the allocation of costs to services that do not vary with the production of those services.

Infrastructure - tangibles used in connection with a public network or intangibles facilitating the utilization of a public network.

Infrastructure Provider – any licensed telecommunications operator who owns or is in control of a facility or infrastructure access to which another licensed operator desires for purposes of infrastructure sharing.

Infrastructure Seeker - any licensed telecommunications operator who is desirous to enter or has entered into an agreement with other telecommunications operator(s) who owns or is in control of telecommunications infrastructure and facilities for the purpose of collocation or infrastructure sharing.

Interconnection - the physical and logical linking of the Telecommunication Systems in order to allow the Users of one Telecommunications Systems to communicate with Users of the same or another Telecommunications Systems or to access services provided by another Licensee.

Interconnection Charges - the price charged by a network owner to another operator for the purpose of interconnecting to the network.

Long Run Average Incremental Cost (LRAIC) – is the average incremental cost of a given service plus potentially a mark-up for common costs

Long Run Incremental Cost (LRIC) - the incremental costs that arise in the long run with a specific increment in output. LRIC is calculated by estimating costs using current technology and best available performance standards.

National Regulatory Authority (NRA) - Telecommunications Authority established in terms of the Act for a sovereign state, to Regulate the ICT sector.

Passive sharing - sharing of non-electronic infrastructure that are used in connection with public network. These include; physical sites, buildings, shelters, antenna masts and tower structures, electric power supply and battery backup, grounding, air conditioning, security arrangement, poles, cables, access to dark fiber and unused capacity on backbone infrastructure, technical premises, among others.

Reference Access Offer (RAO) – a document detailing the terms and conditions under which a licensee permits access to its telecommunications network and facilities, in a non-discriminatory manner.

Reference Interconnection Offer (RIO) – a document detailing the terms and conditions under which the licensee providing interconnect undertakes to permit interconnection to its telecommunications network in a non-discriminatory manner.

Stand Alone Costs (SAC)- cost of providing a service by an operator in isolation to the other services of the company. It comprises of all attributed costs and all shared costs related to production of the service. In this kind of arrangement, the shared costs are totally supported by the service that is to be provided in isolation.