Decision No. 36 /2016 issuing the Accounting Separation Guidelines

Pursuant to the Telecommunications Regulatory Act issued by the Royal Decree No. 30/2002; and

The Executive Regulation of the Telecommunications Regulatory Act issued by Decision No.144/2008; and

The Accounting Separation Regulation issued by Decision No. 26/2016; and

The approval of TRA Board of Directors vide its circulated memo No. 2/2016 dated 26.4.2016; and

Based on the exigencies of the public interest;

It is decided:

Article 1: The attached Guidelines shall be applicable with regard to the implementation of the Accounting Separation Regulation referred to.

Article 2: All concerned parties and Licensees shall comply with the attached guidelines which shall come into force from the date of its publication.

Issued on: 26. Rajab.1437 H

Corresponding to: 4.05.2016

Mohammed Bin Hamad Al-Rumhi

Chairman of Board of Directors

سلطنة عُمان
Sultanate of Oman

هيئة تنظيم الاتصالات
Telecommunications Regulatory Authority

Accounting Separation Guidelines

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1. INTRODUCTION

In August 2013, the Telecommunications Regulatory Authority of the Sultanate of Oman (hereafter "TRA") conducted its first market review and designated Omantel and Ooredoo as dominant licensees (singly and/or jointly) in various retail and wholesale markets. The Market Definition and Dominance Decision (MDD Decision) has, alongside the dominance designations, also set out the ex-ante regulatory remedies that the dominant licensees must adhere to in order to prevent market failure and to safeguard fair competition in the relevant markets. These ex-ante remedies have been developed to address the specific competition problems which may occur in those markets as a result of the dominant position of the licensees, as identified by the TRA in the MDD Decision, namely: refusal to supply, undue discrimination, excessive pricing of wholesale products and non-transparency, whilst at the same time being proportionate and the least intrusive. One such remedy is the accounting separation obligation.

The objective of the accounting separation obligation is to ensure that dominant licensees in the Sultanate of Oman treat other licensees in a fair and non-discriminatory manner and that the TRA obtains, in the right format and in the right level of detail, the accounting information needed to carry out its duties. Pursuant to provisions of the Act and the Accounting Separation Regulation (hereafter "the Regulation"), the TRA hereby issues the Accounting Separation Guidelines (hereafter "the Guidelines") for implementing the accounting separation obligation on dominant licensees.

The Guidelines will seek to ensure, among other things, that the services provided by the dominant licensees to their own downstream businesses are provided on similar terms as to other competing licensees. These Guidelines provide a framework for the Separated Regulatory Accounts to be submitted by the dominant licensees periodically to the TRA in order to meet its obligations under the Act.

These Guidelines shall be read in conjunction with the Accounting Separation Regulation issued by the TRA. These Guidelines shall replace the Framework Document on 'Accounting Separation, Regulatory Accounting & Reporting Requirements' issued by the TRA in 2009.

2. OBJECTIVES OF ACCOUNTING SEPARATION

The main objectives of accounting separation are to:

(i) verify adherence of a dominant licensee to the obligations of transparency, non-discrimination, and cost-based pricing;
(ii) facilitate the understanding of a dominant licensee's costs and revenues at the required level of detail;
(iii) identify and prevent potential abuses of dominance or other anti-competitive practices including anti-competitive cross subsidies, margin squeeze, and predatory pricing by a dominant licensee; and
(iv) ensure implementation of any associated objectives of the Act.

3. REGULATORY ACCOUNTING PRINCIPLES

The following Regulatory Accounting Principles (hereafter "the Principles") establish the key doctrines to be applied by the licensees when preparing Separated Regulatory Accounts for Relevant Markets and Individual Services. Where there is a conflict between these Principles, they shall be applied in the order in which they appear below:

(i) Priority and Proportionality

Within the Principles, insofar as there is conflict between the requirements of any or all of these Principles, the Principles are to be applied in the same order of priority in which they appear in this document, while at the same time ensuring that a balance is maintained between the Principles that is proportional and appropriate. The TRA will provide guidance on a case by case basis in response to any specific queries that the licensees may have on the application of the Principles.

(ii) Cost Causality

Revenue (including transfer charges), costs (including transfer charges), assets and liabilities shall be attributed to cost components, Individual Services or Relevant Markets in accordance with the activities which cause the revenues to be earned or costs to be incurred or the assets to be acquired or liabilities to be incurred.

Where it is not possible to attribute revenues, costs, assets and liabilities in accordance with the preceding paragraph, the attribution shall be such as to present fairly the revenues, costs, assets and liabilities accounted for in the Separated Regulatory Accounts for each Relevant Market or Individual Service. In the absence of any justification to the contrary, the TRA would expect this attribution to be equi-proportionate to those costs, revenues, and so on, which can be attributed on the basis of causation.

(iii) Objectivity

The basis chosen for attribution shall be objective. The attribution shall not be done in a way which is intended to benefit the licensee itself or any other licensee, Relevant Market or Individual Service.

(iv) Consistency

The same basis of allocation and apportionment shall be used from year to year, unless there are justifiable reasons for changes. Where there are material changes to the Accounting Principles, attribution methods or Accounting Policies that have a material effect on the information reported in the Separated Regulatory Accounts of the Relevant Markets or Individual Services, then the previous year's Separated Regulatory Accounts shall be restated accordingly.

(v) Materiality

The use of a specific allocation basis may not be necessary if the effect of allocation is not material to the outcome, either individually or collectively with other cost allocations using the same allocation base. However, it may not be possible to measure the effect without adopting an alternative basis and, in cases of doubt, the most appropriate activity-related cost allocation basis shall be used.

(vi) Transparency

The methods and basis used for allocation of revenue, cost, assets and liabilities shall be transparent.

4. QUALITY OF ACCOUNTING SEPARATION DATA

For the Separated Regulatory Accounts to be suitable for the purpose they need to serve, the data contained in all of the documentation must not only be transparent, but shall also be relevant, comparable with previous reporting periods and reliable. It is also essential that a suitable audit trail of information is maintained to ensure the integrity of the data over a period of time. While this is clearly necessary to enable the audit of the Separated

Regulatory Accounts to be carried out, it is also essential because the TRA may need to obtain more detailed financial information for a number of years than that included in the Separated Regulatory Accounts.

(i) Relevance

Information is relevant if it has the ability to influence the economic decisions of users and is provided in time to influence those decisions. Relevant information has predictive value (if it helps users to evaluate or assess present and future events) or confirmatory value (if it helps users to confirm or correct their past evaluations and assessments) or both. In order for the Separated Regulatory Accounts to be relevant, they must, inter alia, be presented in a timely fashion and comply with the Principles mentioned above.

(ii) Comparability over Periods

Information in the licensee's Separated Regulatory Accounts will be useful if it can be compared with similar information for other reporting periods in order to identify trends and differences. This aspect is particularly valuable to the TRA where comparable information is used to assess the impact of competition or to establish cost trends for price control purposes.

Comparability is usually achieved through a combination of consistency and disclosure of Accounting Policies. In a regulatory environment, this would include regulatory accounting treatments and cost attribution methodologies. Full transparency of these policies and other methodologies used to prepare Separated Regulatory Accounts is therefore important. Material changes shall lead to a restatement of previous year's results on a comparable basis. For the avoidance of doubt, comparatives are not required for the first year of producing SRAs.

(iii) Reliability

The TRA and other stakeholders (including the licensees) must be able to rely on the information contained in the Separated Regulatory Accounts. There are a number of criteria that can be applied to test if the information is reliable such as whether:

- it can be depended upon by users to represent faithfully what it purports to represent;
- it is free from deliberate or systematic bias;
- it is free from material error;
- it is complete (subject to materiality tests);
- it is free from material audit qualifications, and
- a degree of caution (i.e. prudence) has been applied in exercising judgment and making necessary estimates.

It is the responsibility of the licensee to ensure that the information underpinning and contained in the Separated Regulatory Accounts is reliable.

(iv) Data Retention

The TRA may require data for a number of years in order to carry out its statutory functions. Therefore, without prejudice to other obligations that licensees may have in terms of keeping the data, all data directly or indirectly related to Separated Regulatory Accounts as well as supporting documentation shall be kept for a period of no less than 5 years.

5. COST ALLOCATION PROCESS

The licensee shall ensure that its cost allocation process shall, at minimum, follow the stages outlined below:

Stage 1: Financial Account Level
Stage 2: Activity Level
Stage 3: Function Level
Stage 4: Relevant Market and Individual Service Level

The licensee may propose different or additional stages for its cost allocation process if it considers these are needed to improve the overall cost allocation process.

The TRA considers that since not all items would be directly allocated, it may not be possible for each allocation stage to trace costs and revenues associated to each account. Consequently, the licensee is required to provide reconciliation between the overall costs at the start and end of the cost allocation process, but not reconciliation at each stage.

The TRA considers it ought to be possible for most revenues to be attributed directly to markets or services in a single step. This may not be possible in some cases, for example where services are sold together as a bundle. In such instance, the revenue should be allocated on the basis of causation.

The above attribution stages are explained further in the following paragraphs:

Stage 1: Financial Account Level

Stage 1 represents the starting input level at which costs and revenues that shall be allocated to services are presented. Costs and revenues shall be presented at their original input value, in a way that makes it possible to reconcile each input value directly to its original source. When transformation or aggregation of inputs is needed, these shall be clearly visible and explained.

A clear separation shall be presented at Stage 1 between accounts corresponding to the licensee's Profit & Loss statement, accounts corresponding to the non-current assets, and accounts corresponding to the working capital.

The structure of accounts presented in Stage 1 shall be built following the same structure employed for the licensee's internal financial accounts.

In the case of accounts corresponding to fixed assets, the structure of the licensee's Fixed Asset Register (FAR) may be used, provided that it is fully consistent with accounting standards adopted in the Sultanate.

The structure of the accounts in Stage 1 shall facilitate and streamline the data importing process (e.g. from the FAR to the Accounting Separation system), and shall require very limited manipulation by the licensee, and only when strictly required by the nature of the accounts.

In addition to importing costs and revenues into the first stage of the cost allocation process, cost and revenue types shall be identified. The following is an indicative list of revenue and cost types that the TRA would expect to be identified:

- operating revenue
- non-operating revenue
- personnel-related costs
- non-personnel operating costs
- royalty
- depreciation costs

Stage 2: Activity Level

The aim of Stage 2 is to group all costs into cost pools representing specific activities or asset groups, or representing costs with certain specific characteristics such as being directly attributable to specific services or falling out of scope of the Accounting Separation system (grouped in the category "Other Costs").

Cost pools at Stage 2 can be grouped under the following categories:

(i) Network-related Activities, containing cost pools that will gather operating costs associated with network specific activities such as network planning and development, operations and maintenance or technical assistance.

(ii) Network-related Assets, containing cost pools that will gather capital related costs associated to network-specific assets, such as telecommunications equipment or network-related land and buildings. Pools at this stage shall provide a clear separation between different network technologies and asset classes.

(iii) Non-network Activities, containing cost pools that will gather operating costs that are not associated with network specific activities, for example retail activities such as marketing, sales or customer care of retail customers.

(iv) Non-network Assets, containing cost pools that will gather capital related costs associated with assets that are not network-related, including building space for commercial use, commercial software and hardware and assets employed for commercial logistics or commercial billing. Pools at this stage shall provide a clear separation among different asset classes.

(v) Support-related Activities, containing cost pools that will gather operating costs associated with support activities shared among network and non-network operations, including administrative activities such as human resources, financial planning and control, and general management.

(vi) Support-related Assets, containing cost pools that will gather capital related costs associated to assets shared among network and non-network operations, such as buildings or information systems employed for shared support activities. Pools at this stage shall provide a clear separation among different asset classes.

(vii) Directly Attributable Costs, containing cost pools that will gather operating costs and capital related costs that can be attributed directly to relevant markets and services on the basis of a direct, purely causal driver.

(viii) Working Capital Costs, containing cost pools that will gather relevant working capital costs such as those associated to payables, receivables and cash or cash equivalents.

(ix) Other Costs: containing cost pools that will gather non-relevant operating costs and capital related costs that fall out of the scope of the Accounting Separation system and that shall not be allocated to any of the relevant markets or services because:

(a) They are related to operations considered of no relevance for the purpose of accounting separation, or
(b) They do not fall under the relevant costs that shall be allocated to services under the relevant standard, or
(c) Other reasons make the specific cost item not relevant for the purpose of accounting separation.

Stage 3: Function Level

At Stage 3, both operating and capital-related costs shall be grouped from a functional perspective. The functional cost pools shall represent the overall costs that the licensee incurs in performing certain functions that constitute the building blocks of the services being provided.

Cost pools at Stage 3 can be grouped under the following categories:

Network Functions, containing all cost pools related to network functional elements.

Pools corresponding to network functional elements shall meet the following criteria:

(i) Network functional elements shall be defined in such a way that the attribution of costs to services can be made on the basis of the volumes of different services and the appropriate routing factors.

(ii) Network functional elements shall be clearly separated according to the underlying technology or communication standard being employed, as well as to the hierarchical position of the network functional elements within the network architecture.

Retail Functions, containing all cost pools related to retail functional elements including, without limitation, marketing, sales, customer care and retail billing.

Pools corresponding to retail functions shall meet the following criteria:

(i) Groups of retail services: Costs corresponding to different broad groups of retail services being commercialized by different internal organizational units shall be clearly separated. In particular, costs related to the commercialization of fixed and mobile services shall be kept separated unless the commercialization of such services is carried out jointly by the licensee. In such cases, commercial costs may be kept together at this stage and a causal driver shall be employed to attribute them to different retail services.

(ii) Market segments: Costs corresponding to different market segments shall be separated. In particular, costs related to residential and corporate customers shall be kept separated, if such segments exist.

Directly Attributable Costs: corresponding to directly attributable costs as defined in stage 2.

Overheads: corresponding to costs for which an appropriate causal attribution method cannot be determined and that shall be attributed on the basis of previously allocated costs. Ideally overhead costs should not represent more than 10% of the overall cost base.

Other Costs: corresponding to non-relevant costs as defined in Stage 2.

Stage 4: Relevant Market and Individual Service Level
Stage 4 aims to map costs and revenues to the relevant markets and services.

Cost/revenue pools at Stage 4 shall meet the following criteria:

(i) Cost pools shall be grouped into categories corresponding to each of the relevant markets. Services that do not fall under any of the relevant markets defined by the TRA shall be grouped under the 'Other Wholesale' and 'Other Retail' categories as appropriate. The 'Other Costs' category shall group costs and revenues that are outside of the scope of the Accounting Separation system, as defined in Stages 2 and 3.

(ii) At a minimum, an individual cost pool shall be defined for each relevant individual service. The pool(s) shall gather costs and revenues associated with that individual service.

(iii) For services offered under different technical or commercial configurations, such as different bandwidths, quality of service parameters, bundle services or any other options that may be applicable, the TRA may require the licensee to further split the services into several cost pools at Stage 4, in order to achieve the required degree of transparency.

(iv) In case of wholesale markets and services, cost/revenue pools shall be further disaggregated to separate costs (and revenues) for internal and external provision of services.

Cost pools at Stage 4 shall incorporate revenues and costs resulting from the application of transfer charges as described in Section 7. Costs and revenues that result from the application of transfer charges shall be clearly recognizable. After this Stage the licensee shall be able to produce the reports of Separated Regulatory Accounts as per the formats prescribed in Annex B.

6. COST ALLOCATION METHODS

This section sets out guidance on the cost allocation methods that shall be followed in order to allocate costs, capital employed and revenues for the purposes of preparing Separated Regulatory Accounts.

6.1 Operating Cost Allocation

Table 1 in Appendix A provides a summary of possible allocation and attribution methods for operating costs under the following headings:

- Depreciation of network elements;

- Provision, installation and maintenance costs;
- Network planning and development costs;
- Network management costs;
- Marketing and sales costs;
- Billing and collection costs;
- Licensee services costs;
- Directory services costs;
- Payments to other licensees; and
- Support costs, such as, without limitation, HR costs, finance and other head office support functions.

These headings are purely illustrative and are not intended to reflect the way in which each licensee is expected to record costs. They are intended to provide high-level guidance only. The licensee will need to develop cost allocation procedures specific to the way in which it captures and records costs, and to refine these over time, as appropriate.

6.2 Allocation of Capital Employed

This section describes the allocation of capital employed and its calculation. Table 2 in Appendix A of these Guidelines provides a summary of possible allocation methods for different items of capital employed. The table is not intended to be an exhaustive list of items that might be classified as capital employed nor of the methods for allocating them to different activities.

There are a number of Reconciliation Items that are excluded from Separated Regulatory Accounts, in particular:

- Investments (fixed asset or financial)
- Excess cash
- Long term liabilities (not operationally related)
- Corporate tax
- Exceptional items
- Pension deficits

6.3 Revenue Allocation

(i) Revenues from Telecommunications Services

Generally the revenues from the provision of telecommunications services can be directly allocated to the products and services to which they relate based on accounting records and billing system information. In those instances where direct allocation based on the above is not possible, revenues shall be attributed on the basis of causation. Revenue is calculated for each of the Relevant Market and Individual Service taking into account Transfer Charge revenues where applicable.

(ii) Revenues from Non-Telecommunications Services

Licensees may also earn income from non-telecommunications services. These revenues shall be allocated to the activities to which they relate in accordance with the principle of causation.

It is important that notwithstanding the actual approach used, the treatment of non-telecommunications revenues and their associated costs is consistent. Failure to do so would lead to the profits of one market being understated and the profits of another overstated.

7. TRANSFER CHARGES

Transfer charges refer to the imputation of costs (and associated revenues) among Relevant Markets and Individual Services owing to self-provision of services. Transfer charges occur whenever the licensee self provides a service belonging to one offering (upstream) market in order to make possible the provision of another service(s) in a different receiving (downstream) market.

The disclosure of transfer charges help to:

- enforce non-discrimination and transparency;
- monitor the profitability of particular Relevant Markets and Individual Services; and
- identify cross-subsidies.

Transfer charges may occur under different combinations of offering and receiving markets. Typically, transfer charges will be applied to services from a Wholesale Market to a Retail Market, for example, from the wholesale call origination or termination markets to a retail telephony market. Transfer charges may also be established between two Wholesale Markets. This may be the case, for example, of transfer charges established between an access market providing the physical access to the end-user and a wholesale leased lines market providing a more value added data connectivity service.

These transactions generate a revenue related to the self-provision accounted for the originating (typically wholesale) market, and a cost of the same absolute amount accounted for the receiving (retail or wholesale) market.

Transfer charges shall be calculated, whenever possible, as the product of a relevant quantity of the service being provided and a reference unit price. Both terms in the calculation (units and price) shall be distinctly recognizable in the calculation.

In the event that transfer charges correspond to the provision of more than a single Individual Service, the transfer charge components corresponding to each of the services shall be calculated and stated separately.

The relevant quantity of the service being provided shall be based on data from official databases, documents or systems (such as CDR, invoices and orders), and shall show consistency, to the extent that the nature of the service makes possible, with the volumes of equivalent services being provided in the receiving market. Sources and methodology employed for the determination of quantities shall be properly explained and recorded in the Accounting Document.

The unit price employed for the determination of transfer charges shall be based on the following sources:

(i) Where the licensee provides certain services both internally and in external wholesale markets, the transfer charge for these services shall be equivalent to the wholesale price for external customers, or the prices stated in the licensee's reference offer.

(ii) Where the licensee provides certain services internally and to its related companies, but for which no independent external customer exists, the transfer charge for these services shall be equivalent to the unit price negotiated with related companies for provision of such services.

(iii) Where the licensee provides certain services only internally, the transfer charge for these services shall be equivalent to the unit cost of the services (after including the cost of capital charge) calculated on the basis of the respective accounting methods and cost bases set out in Section 10 of the Guidelines..

Data sources and the methodology used to determine transfer charges shall be properly explained and documented.

In the event that volume discounts or other forms of conditional discounts are applicable to a service for which transfer charges have to be calculated, the licensee shall not apply to itself a discount higher than the average discount being provided to third parties.

Transfer charges can be established as an overall cost (without quantities and unit prices information) only and exclusively when the service being provided is not subject to any regulatory obligation and objective technical reasons prevent the calculation of transfer charges as the multiplication of quantities and prices.

In any case, transfer charges corresponding to such services shall be individually recognizable, and the services to which they correspond shall be properly explained and documented.

The TRA requires the licensee to document clearly how each of the transfer charges were generated between the various Relevant Markets and Individual Services in the Accounting Documents.

8. RELEVANT COSTS FOR REGULATORY DECISIONS

Regulatory decision-making is based on a combination of financial analysis and non-financial information. Financial analysis involves the preparation of relevant costs, which can be defined as costs arising as a direct consequence of the current decision to provide a specific product or service. While certain costs published under accounting separation may be allocated to business areas as part of the costing/pricing methodology, they may not be relevant in making certain decisions.

This issue relates particularly to the area of interconnection and access charges. Costs such as R&D, reorganization provisions, asset revaluation, etc. may not reflect the long-run trend in the organization and hence may create short-term distortions which affect pricing decisions. Also, the costs incurred by a licensee may be based on decisions that are not in line with the characteristics of a competitive environment, or are incurred for the benefit of certain operating segments of the organization. The TRA is of the view that charges for interconnection and access services shall generally be set to cover the fully justified costs, including a share of relevant overheads and a return on capital employed. In this regard, all non-relevant costs shall be excluded when determining charges for services and these will be judged on a case-by-case basis.

The fair treatment of non-relevant costs for regulatory decision purposes is important for accounting separation. Therefore, non-relevant costs for regulatory decision purposes shall be disclosed as reconciling items. This is the best approach as it is transparent, avoids further re-allocation of costs, and will enable easy reconciliation to the statutory accounts.

Standard accounting practice differentiates between exceptional items and extraordinary items.

Exceptional items are material items which derive from events or transactions that fall within the ordinary activities of the reporting entity and which individually or, if of a similar type, in aggregate, need to be disclosed by virtue of their size or incidence if the financial statements are to give a true and fair view.

Extraordinary items are material items possessing a high degree of abnormality which arise from events or transactions that fall outside the ordinary activities of the reporting entity and which are not expected to recur. They do not include exceptional items nor do they include prior period items merely because they relate to a prior period.

All exceptional and extraordinary costs will need to be disclosed separately in the presentation of separated accounts with a note detailing the circumstances and impact of the item(s). The TRA will review these and decide on a case by case basis whether they will be allowed for regulatory decision making purposes.

9. COST OF CAPITAL

The cost of capital shall reflect the opportunity cost of funds invested in network components and other related assets. It conventionally reflects the following:

- The (weighted) average cost of debt for the different forms of debt held by each licensee;
- The cost of equity as measured by the returns that shareholders require in order to invest in the network given the associated risks; and
- The market values of debt and equity.

This information can then be used to determine the weighted average cost of capital (WACC) as explained in this Section. The licensee shall submit to the TRA the WACC value on an annual basis. The model used for the calculation of WACC shall also be submitted to TRA for its review, along with the Separated Regulatory Accounts. The model shall be fully flexible and transparent.

9.1 Significance of Cost of Capital

Cost of capital is one of the many costs that are incurred by any business. It differs from costs such as wages and operating expenses since it is less tangible than these costs. Nevertheless the cost of capital is still a very relevant cost. In normal circumstances, a business seeks to make a return on the capital that is actively employed by the business that is at least equal to the recurring cost of that capital. This ensures that investors in the business can be properly compensated for the risk that they take for supplying capital to the business.

As the cost of capital must reflect the expectations of investors, its calculation or measurement must consider factors that are external to the business itself. This can lead to some complexity. It must reflect the circumstances of the Omani telecommunications sector, whilst information from other markets can also be drawn-on (benchmarking) so as

to assess the relevant values of the different parameters used in the estimation of a particular licensee's cost of capital. It is often the case that in practice a large business actually comprises several individual business streams that have differing risk profiles and thus different costs of capital. The TRA will allow different WACC rates for different markets/services, provided the difference is duly justified by the concerned licensee in its documentation.

9.2 Calculation of Cost of Capital

A licensee's cost of capital shall reflect the opportunity cost of funds invested in the network components and other related assets. It conventionally reflects the following:

- The (weighted) average cost of debt for the different forms of debt held by each licensee;
- The cost of equity as measured by the returns that shareholders require in order to invest in the network given the associated risks; and
- The values of debt and equity.

This information can then be used to determine the weighted average cost of capital (WACC) using the following formula:

$$WACC = \frac{re \times E}{(D+E)} + \frac{rd \times D \times (1-T)}{(D+E)}$$

where 're' is the cost of equity, 'rd' is the cost of debt, 'E' is the total market value of equity, 'D' is the total market value of interest-bearing debt and 'T' is the corporate tax rate. This calculation gives the post-tax WACC which needs to be converted to the pre-tax rate (i.e. WACC post-tax divided by (1-T)).

9.3 Documentation of Cost of Capital Calculation

The licensee shall submit the WACC value and relevant detailed description of the method it has used to determine the cost of capital. Such description, which shall be an integral part of Accounting Documents, should enable the TRA to gain a complete understanding of the cost of capital estimation made by the licensee, including assumptions, methodology and calculations. The WACC value shall be the same for FAC HCA, FAC CCA and LRIC.

10. COST ACCOUNTING METHODOLOGIES AND COST BASIS

There are two main cost accounting methodology options which can be used to allocate costs to services: Fully Allocated Cost (FAC) sometimes referred to as Fully Distributed Cost (FDC), and Long Run Incremental Cost (LRIC).

FAC can be undertaken on a Historic Cost Accounting (HCA) or Current Cost Accounting (CCA) basis. Hence three main cost accounting methodologies are typically used in the preparation of separated regulatory accounts, namely:

- FAC / HCA
- FAC/ CCA
- LRIC

10.1 FAC / HCA

Adopting an FAC/ HCA methodology means that all the costs of the licensee are allocated and apportioned to the various products or services provided. According to HCA, the values of assets are reported with the same value as per the statutory accounts and Fixed Assets Register record.

The main advantages of this approach are:

- ***Computation:*** it is relatively easy to compute the costs once the correct cost drivers and accounting principles have been adopted;
- ***Reconciliation:*** it is possible to reconcile the figures back to statutory accounts which are prepared on the same HCA basis;
- ***Completeness:*** FAC accounts ensure that all costs have been allocated so that
- consistency can be maintained when regulatory intervention is focused on one part of the business as opposed to another.

In the telecoms industry it is common practice that companies prepare their annual accounts using HCA. However, FAC/ HCA suffers from some major flaws, particularly if used as a basis for setting interconnect or certain other prices:

- HCA, based on past actual expenditure, may include inefficiencies that have developed over a period of time;
- Evolution of the costs of assets is not taken into account. Purchase prices can significantly increase or decrease over time and affect the value of assets. Decreases in equipment costs have characterized Telecoms in recent years whereas the costs of laying duct have tended to increase over time;
- Changes in asset prices gives rise to holding gains and losses which impact upon the profit and loss statement;
- Historic cost accounts cannot incorporate the impact of continuously evolving technologies. Hence HCA cannot ensure that costs are those of a licensee employing modern technologies.

The FAC / HCA convention is based on audited Statutory Accounts, statements and data from the following internal reporting systems:

(i) General Ledger
(ii) Fixed Assets Register
(iii) Billing System
(iv) Data Warehouse
(v) Routing Factors
(vi) Management Accounting System

In the event of any inconsistencies between the data available in the systems listed above, the order in which the systems take priority, shall be:

(i) first, the Statutory Accounts and,
(ii) second, other internal reporting systems in the same order as they appear above.

10.2 FAC / CCA

The process of shifting from FAC / HCA to FAC /CCA involves the following:

- ***Revaluation of Assets:*** In principle, it is necessary to make detailed estimates of the current value of all fixed assets on a replacement cost or modern equivalent asset (MEA) basis[1]. In practice, many assets may be valued using more straightforward methodologies such as indexed historic or historic cost. The discussion in Section 10.2.1.2 below outlines the circumstances in which these approaches are appropriate. The difficulty of this task is directly related to the age and complexity of the network. The older and more complex the network the more challenging the task is likely to be. Generally the newer the network the better and more up to date are the records of that equipment.

  To arrive at current cost asset valuations it is necessary to revalue capital equipment to estimate the gross replacement cost of that equipment, i.e. what it would cost to purchase and install the equipment today. The Gross Replacement Cost (GRC) is the current cost equivalent of the gross book value in historic cost terms. In order to calculate the GRC for a given asset class it is necessary to identify whether existing assets would be replaced with similar assets or whether a new technology would be used instead. In the latter case the valuation method is known as the Modern Equivalent Asset (MEA). Once the quantity of assets has been determined a price is attached to the assets.

  The asset value used in the CC Accounts is known as Net Replacement Cost (NRC) which is simply Gross Replacement Cost less Accumulated Current Cost Depreciation. NRC is the current cost equivalent of Net Book Value and can be derived using normal depreciation rules. Thus, for example, if a particular piece of equipment is five years old and has a useful life of 10 years, then, under straight-line depreciation, its net replacement cost will be half of its gross replacement cost;

- ***Depreciation Adjustments:*** existing asset lives are normally applied to the current cost asset values, where the asset currently in use would be replaced with the same asset. Historic depreciation charges then need to be adjusted to reflect changes in asset values, whilst holding gains and losses (which are generated by asset price changes that occur during the accounting period) need to be recognized.

  There are two different approaches for calculating current cost adjustments. These reflect differences in the definition of "capital maintenance", i.e. the way in which the capital of the company is viewed when determining profit. These approaches are Operating Capital Maintenance (OCM) and Financial Capital Maintenance (FCM). OCM considers the operating capability of the company while FCM considers that the financial capital of the company is maintained in current price terms. The respective merits of these approaches are further examined below.

10.2.1 Revaluation of Assets

A key element of the current cost methodology is the valuation of assets. As provided above, in principle, it is necessary to make detailed estimates of the current value of all fixed assets on a replacement cost or MEA basis. In practice, many assets may be valued using more straightforward methodologies such as indexed historic or historic cost. The difficulty

[1] Where there has been technological change an existing technology may be replaced with a newer technology. This is known as the MEA. Where MEA valuations are used it is important to ensure that the replacement asset has the same functionality as the existing asset.

of this task is likely to vary according to the age and complexity of the network. The older and more complex the network, the harder is the task. Generally the newer the network the better and more up to date are the records of that equipment.

10.2.1.1 Methods of asset valuation

Gross replacement cost (GRC) approximates to the value of a brand new network providing the same level of functionality and capacity as the existing network. As outlined in Section 10.2.1.2, the methodology which shall be used to determine the GRC is likely to vary according to the asset being revalued.

In the event that all assets of a particular asset class were purchased during the same period as the regulatory accounts (implying that assets are valued at the start of their useful economic life), the GRC would be equivalent to both the Net Replacement Cost (NRC) and NBV.

More usually the assets subject to valuation would have been purchased at various times and are at various stages in their useful economic lives. In this case, the NRC, which is the cost of replacing the existing asset with another asset – with similar performance characteristics and of similar age - will be lower than the GRC. In cases where there has been technological change, the existing asset might be replaced by an alternative asset with the same capacity and functionality. Such an asset is known as the Modern Equivalent Asset (MEA).

There are three broad methodologies for determining the current cost asset valuation. These methodologies are outlined below and it is shown that in most circumstances the replacement cost methodology is likely to be the preferred valuation method. We then consider alternative approaches for calculating replacement cost.

The three broad valuation methodologies are as follows:

- The net realizable value (NRV) is the amount, which would be obtained by selling the asset (less sales costs).
- The economic value (EV) measures the net present value (NPV) of future cash flows that the asset will generate whilst in use in the business.
- The Net Replacement Cost, as defined above.

In addition, the following definitions are useful:

- The recoverable amount (RA) is the greater of NRV and EV.
- The deprival value is the loss which would be incurred if the company were to be deprived of an asset. This amount which is the lower of the NRC and the RA provides the best estimate of the current cost of an asset.

In comparing the NRV and EV it is appropriate to measure the RA. This is because:

- If EV > NRV, the asset is worth more to the undertaking in its current use than a potential sale proceeds, hence the undertaking will keep the asset in its current use.
- If NRV > EV, the undertaking will sell the asset, because the potential income from the sale exceeds the economic value that the asset would be expected to generate while remaining in use.

As stated above, deprival value is the lower of NRC and RA. This can be seen by considering that:

- If the NRC < RA, this means that if the undertaking disposed of an asset, it would not lose all the returns (the recoverable amount), but it would simply replace the asset. Therefore, in this case the deprival value (current cost) equals the replacement cost. This is normally the case since businesses only buy assets if the returns are expected to exceed the cost.
- If the NRC > RA, it means that the asset has irreversibly lost value (become impaired). In this case, if an asset is disposed of the undertaking will not seek to replace it. Therefore, the deprival value to the undertaking equals the lost returns the asset would have provided.

The method of deriving the current cost of an asset, determined by its deprival value (DV), is presented in Figure 1 below:

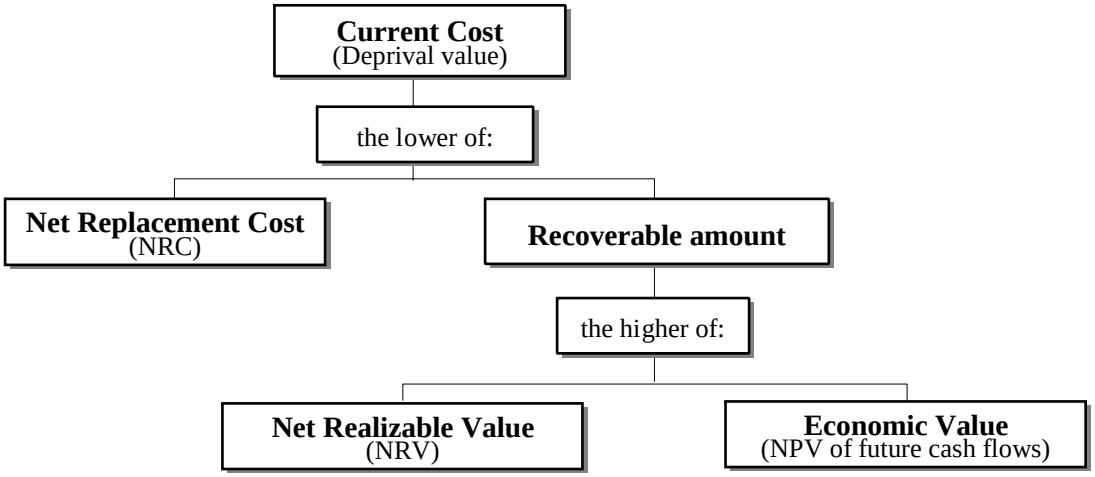

Figure 1: The method of deriving the current cost of an asset

If an asset is vital to a business to provide its service, it is not appropriate to consider its NRV as the asset shall not be sold. In addition, EVs can be difficult to calculate in practice. As a result, in practice, the revaluation of an asset is usually limited to calculation of NRC.

The TRA is of the view that NRC shall be adopted for the revaluation of assets. In cases where the NRC is significantly higher than the NBV then there is a case for considering the RA. The TRA is also of the view that EV and NRV methods shall be used in order to determine the current value of a licensee's real estate (property owned, buildings owned and long term leases) reason being that commercial property (but not necessarily exchange buildings) can be readily bought or sold in the market whereas this may not be the case with most other assets.

10.2.1.2 Calculation of Gross Replacement Cost (GRC)

This section presents the different valuation methodologies that can be used when assets are revalued by replacement cost for the purposes of current cost accounting. The selection of valuation methodology will depend on the nature of the asset that is being valued. Any chosen set of valuation methods will need to be reviewed from time to time to ensure that they are still appropriate and produce accurate valuations, taking into account changes in technology and levels of investment.

International practice shows that the methodology adopted by undertakings and accepted by regulatory authorities for determining GRC asset values incorporates a mix of practices which includes the use of absolute valuations using current purchase prices, commercial valuation, the application of appropriate indices and, for asset classes, historic cost valuations. In some instances an asset would be replaced by a different technology and in such instances the Modern Equivalent Asset (MEA) methodology is appropriate. This involves establishing the cost of replacing existing assets with new ones, based on the latest proved technology, that have the same functionality. Where the MEA approach is used, adjustments may be needed to the GRC to take account of differences between the current and latest technology e.g. in respect of operating costs.

The principal valuation methods that can be used are described below.

(i) Historic cost

Historic cost can be used as a proxy for the current cost of an asset where it is unlikely that this would give a materially different result. This is typically the case in the valuation of assets which account for a very small percentage of total asset values and for assets with short lives. Hence, if there is no significant difference between the assets' acquisition and replacement costs, no revaluation of the asset is required. The historic cost is also used for additions made during the year, as again there is likely to be no noticeable difference to using the current cost at the valuation date.

An asset can be maintained at historical cost and not be revalued, when:

(i) it does not have a market price, or
(ii) it is fully depreciated [or virtually fully depreciated], or
(iii) it is not tradable (such as rights of way or licenses), or
(iv) it has been granted, received free of charge, or
(v) it meets the materiality criteria for not revaluing an asset, as per Section 10.2.4.1 of these Guidelines.

Under the HCA methodology, the NRC of an asset is given by its NBV – which is its Gross Book Value (GBV) less accumulated depreciation – adjustments of the asset values are not needed.

While it is difficult to give a precise figure of the extent to which historic cost valuations are appropriate, the TRA is of the view that a licensee's historic cost valuations, in total, should not account for more than 5% of overall asset valuation. In the event that a licensee proposes to exceed this figure, it should provide justifications for the use of historic cost valuations for each case where such valuations are used.

(ii) Appraisal

The appraisal method relies on expert opinion for the determination of the asset's value. It is used for assets that have a market value and are of heterogeneous nature and use. In particular, the appraisal method is used for the valuation of real estate (land, buildings and sites) owned by the licensee.

The appraisal shall be conducted by an independent and impartial expert, that is, the expert shall not have worked directly or indirectly for the licensee or for one of the companies controlled by or controlling the licensee in the previous six months and shall not accept other assignments from the licensee in the following 12 months.

The expert shall produce a statement of independence where it declares its compliance to and acceptance of these obligations and the statement shall be submitted with the Separated Regulatory Accounts.

(iii) Indexation

Indexation is appropriate for assets where there has been little technological change, and the capitalized costs would have to be incurred again if the asset were to be replaced. Under the indexation method, a group of assets is revalued by applying yearly price change indices that are specific for each group of assets. The indices to be used shall, where possible, be asset specific, and based on real prices paid by licensees. Where a suitable specific index is not available a more general index may be used as a proxy.

Indexation is usually used to revalue assets, when:

- there has been no technological change regarding the asset or the change has not been material/ significant,
- the available data is not sufficient to apply the absolute valuation method,
- the licensee's databases and the fixed asset register deliver sufficient and accurate information about the asset to enable it to be subject to indexation (but not absolute valuation), or
- the asset group is homogenous in respect of price changes.

The price index can be based on internal or external studies. The indexation method, processes and studies shall be documented in detail.

(iv) Absolute valuation

If the asset being valued has not been subject to technological change since its purchase date, but the price of the asset has changed over time, then the absolute valuation methodology should be used to value that asset. For any particular class of asset, the absolute valuation methodology involves consideration of current unitary market prices and the number of units currently in service. The current market unitary price shall be calculated as the average price paid by the licensee for assets purchased or ordered during the reference year. This shall include all applicable discounts and conditions of payment. This shall be supported by a signed confirmation letter or approval document from the purchasing department of the licensee. Where appropriate the fixed asset shall be disaggregated into its constituent parts and current market prices applied to those constituent parts.

For the methodology to be applied the licensee must have:

- A reliable database containing detailed information on the quantities of fixed assets, beyond that all data, which is normally available in the technical inventory.
- Reliable information on up-to-date prices.

The absolute valuation methodology shall be used to value a wide range of telecommunications equipment including the following:

- Ducts and cables (both copper and fiber)
- Switches (excepting circuit switches)
- Transmission equipment.

It is recognized that in respect of some asset classes the application of the absolute valuation methodology may involve a significant data collection and analysis process. Further, in order to make the data collection realistic it may be necessary to use a sampling process for some asset classes. Where, as a result of the first consideration, the licensee values assets on the basis of the indexed historic valuation methodology or as a result of the second consideration, the licensee uses sampling for a certain asset class, it should provide justification for its decisions in the documentation. In addition, where as a result of the first consideration the indexed historic methodology is used the operator should state when it proposes to move to the absolute valuation methodology.

It may be noted that where there has been significant technological change for a particular class of asset or asset group, the absolute valuation methodology may not be appropriate. In this case an alternative methodology, known as the MEA, discussed below, is likely to be preferable.

(v) Modern Equivalent Asset (MEA)

The determination of current cost must take account of technological changes. As a result of changes in technology an asset may substantially differ in any or all of the following respects:

- the initial purchase cost;
- the level of operating costs, e.g. lower maintenance costs;
- the service provided (capacity and/or functionality); and/or
- economic life.

Where assets using a particular technology cannot be replaced by assets using the same technology (i.e. no direct replacement for the asset is available), the replacement cost should be determined using the GRC of "the modern equivalent asset", where the MEA is defined as that asset which produces the stream of services at minimum cost. The MEA should also be used where a new technology will be implemented within a given time horizon.

Since new technologies are usually superior to old ones in terms of functionality and efficiency, MEA values need to take account of differences in capacity and functionality relative to existing assets. Therefore, adjustments (abatements) need to be made to reflect the cost of an asset with similar characteristics.

The TRA is of the view that the core network shall be modeled using Next Generation Network (NGN) technology, whereby the existing circuit switches and transmission systems are replaced by packet data technology, for both voice and data services. It should be remarked that the assumption of NGN technology is appropriate even if the licensee continues to use older circuit-switching technology, since the principles of CCA suggest that the latest technology shall be adopted as the Modern Equivalent Asset for revaluation purposes.

The licensees should clearly state the assumptions made in respect of these issues and provide justification for these assumptions.

The situation regarding next-generation access is less clear, and in any case the preliminary treatment of both the core and access network shall be set out clearly in the licensee's Accounting Separation Methodology Document, for approval by the TRA.

Adjustments related to MEA

Where the MEA differs from the existing asset in terms of operating costs, asset life or service provided, this needs to be allowed for during the asset revaluation by means of specific adjustments. These adjustments include:

(i) Operating expenditure adjustments

The operating cost of new equipment may be lower than that of the existing equipment. In this case, the cost of the MEA shall be reduced by the present value of the additional operating costs associated with the existing equipment over the remainder of its life.

(ii) Functionality adjustments

Similarly, new equipment may have increased functionality. If so, the cost of the MEA shall be reduced. The licensees should clearly state the assumptions made in respect of any functionality adjustments made (or not made) and provide justification for these assumptions.

(iii) Surplus capacity adjustments

In case of surplus capacity, i.e. capacity that is not currently required and is not expected to be required within the network planning horizon, valuations shall be adjusted downwards. For example, an asset for which the licensee has surplus capacity under the above definition might be specialized accommodation such as exchange buildings. This is because the space required to house modern switching equipment, such as routers or MSANs, may be lower than that required for existing switching equipment. One way to deal with this is to use modern building and site costs but to assume a space requirement consistent with that necessary to house modern equipment, including an appropriate allowance for space required to access the equipment.

The TRA is of the view that the cost accounting system of the licensee shall specify what MEA technologies have been used for the revaluation of assets under the CCA approach. The choice of the MEA shall be clearly explained and documented. Furthermore, where the MEA and the asset differ in functionality and/or efficiency, appropriate adjustments to the purchase price and operating costs shall be made and disclosed. The MEA adjustment shall be required where the difference is materially significant and feasible with the provision of a clear specification of the MEA with documentation to support the choice of the MEA.

The TRA is of the view that, given the availability of suitable data, absolute valuation and MEA valuation methods are likely to give more robust values of current costs. The TRA therefore requires the licensees to use absolute valuation and MEA valuation techniques wherever possible. In all cases, the licensee shall justify the valuation approach applied to each asset category in its documentation. Further, in case where a licensee applies indexation to revalue a particular asset category that ought to be valued on an absolute form of valuation (either absolute valuation or MEA) it shall set out in its documentation a timetable for moving to an absolute form of valuation.

The TRA also acknowledges that the most appropriate form of valuation for any asset category may change over time; therefore a licensee shall annually review the most appropriate approach for calculating the current cost value of each asset category.

10.2.2 Annual capital charges

There are effectively three methods which can be used to calculate annual capital charges, which essentially differ in the way they treat and calculate depreciation and in turn net asset values:

- Economic cost approach;
- Annuities approach; and
- Accounting cost approach.

10.2.2.1 Economic cost

Under the economic cost approach, the focus is on economic depreciation, which measures the change in the economic value of an asset and, hence, takes into account technological change and obsolescence (asset life). The asset's economic value is the stream of discounted net revenues (gross revenues less costs) which the asset will produce over the course of its lifetime.

The decision to invest in a capital asset is made by calculating its present value (PV). Therefore, an undertaking will not purchase a network component unless the PV of future revenue streams is greater than or equal to its purchase price inclusive of installation, meaning that its NPV is greater than or equal to zero. The economic depreciation is therefore calculated as the difference between the estimated NPV of future cash flows at the beginning of a given period and the estimated NPV of future cash flows at the end of this period.

The depreciation profile for an asset will depend on factors such as:

(i) its initial purchase price and change in purchase price over time;
(ii) its output potential;
(iii) its annual operating costs and the way in which these change over time;
(iv) the revenue stream generated by the asset; and
(v) the cost of capital.

The length of the depreciation profile (the economic life of the asset) will depend on the period over which revenues exceed operating costs. As soon as operating expenditure exceeds revenues, continued operation of the asset is normally no longer economically justified.

If the asset's operating costs are expected to increase over time, the depreciation charge will be higher than otherwise in the early years of the asset's lifetime. This will also be the case where the asset's price falls over time. On the other hand the depreciation charge will be lower than otherwise in the early years of an asset's lifetime if revenues rise over this period.

Under the economic depreciation approach the annual capital charge is the sum of economic depreciation and cost of capital (which is set at WACC multiplied by the average economic value of the asset).

10.2.2.2 Annuities

The annual charge produced from the annuity formula is the sum of the depreciation charge and the capital charge. Summing the discounted annual charges over the asset's lifetime gives a total equal to the original purchase price of the asset.

Under the simplest form of annuity, the annual capital charge can be calculated using the following:

Annual capital charge = GRC x WACC / (1-(1/ (1+WACC) ^{t}))

Where 't' is the asset life. It should be noted that the GRC is equivalent to the purchase price of the asset.

Under this formula the annual charge will be the same in each year. In early years the largest part of the cost will consist of capital (i.e. interest) charges, while in later year's depreciation charges (i.e. principal) charges, will account for a larger part of the cost.

If the price of an asset is expected to change over time, it can be better to use a tilted annuity, where the tilt factor reflects the expected rate of price changes. According to this approach the annuity charge will change over time at the same rate at which the price of the asset is expected to change. This means that the annual capital charge will decline (increase) where asset prices are expected to fall (increase) over time.

Annual capital charge = GRC x (WACC – p) / (1-[(1+p)/ (1+WACC)]^{t})

Where p = rate of price change or "tilt".

10.2.2.3 Accounting cost

Accounting depreciation is designed to measure the consumption of the service potential of the assets. The amount by which assets are depreciated is determined by the accounting and/or tax allowance rules under which licensees prepare their financial statements.

A variety of depreciation rules can be applied. However, in practice it is normal to use one of the following methods:

- Straight line depreciation means that the depreciation charge is equal in each year with the charge calculated by simply dividing the purchase cost of the asset, or it's GBV, by its expected useful life.

- In the case of declining balance depreciation, depreciation charges are a constant proportion of the NBV each year. Under this approach the depreciation charge is higher in earlier years. As with straight line depreciation, the NBV is calculated as GBV less accumulated depreciation.

The TRA is of the view that accounting cost is the most appropriate approach for estimating the capital charges to be included in separated regulatory accounts. This is because the accounts are derived using a top-down approach, which is based on the current costs of the licensee, as recorded in its accounting records and network databases.

In addition to above, there are two principal methods for calculating Current Cost Accounting depreciation:

(i) the NBV/GBV methodology, and

(ii) the rolling forward methodology.

(i) NBV/GBV methodology

The simplest way of calculating the NRC is to multiply the gross asset valuation by the historic cost ratio of NBV to GBV:

$$NRC = NBV/GBV * \text{GRC}$$

Where used, this methodology shall be applied on an asset category by asset category.

However, the approach will not provide accurate results when asset prices are changing. Where asset prices are rising, the methodology will place too much weight on recent observations. This is because the asset price increases will result in a higher GBV per unit of output for more recent observations whereas the gross asset valuation per unit of output shall be the same for all observations. The impact of this bias will lead to an overestimation of net asset valuations, and therefore of capital costs. The converse holds when asset prices are falling. In practice, there are other factors that might affect the bias. For example, the investment pattern is unlikely to be even.

The actual investment pattern will affect the NBV to GBV ratio, which may result in biases, either positive or negative, if using this ratio to calculate net asset values.

(ii) Rolling forward methodology

The rolling forward methodology calculates the net asset value as the gross asset value less current cost accumulated depreciation (CC AD). The CC AD in turn is calculated as:

[CC AD (start year) x (1+ Asset Price Inflation)$^{0.5}$ + (Historic Depreciation x GRC/GBV) – CC Write Outs)] x (1 + Asset Price Inflation)$^{0.5}$

The formula can be explained as follows. CC AD at the start of the year is multiplied by (1+Asset Price Inflation)$^{0.5}$ to put that value into mid-year prices. To this value is added CC Depreciation (that is historic depreciation x GRC/GBV). CC Write outs (Historic Write Outs x GRC/GBV) are then deducted. The resultant value is multiplied by (1 + Asset Price Inflation)$^{0.5}$ to put into end of year prices.

The rolling forward approach produces the correct net asset values if the following assumptions hold. First, it requires that current cost depreciation plus holding gains and losses are equal to economic depreciation in each and every year. Secondly, the starting net replacement cost must be correct. Thirdly, the methodology requires the book life and actual life of assets to be the same. Where there are fully depreciated assets, implying that the actual life is greater than the book life of assets, the rolling forward methodology can give rise to significant problems.

In relation to the second issue, the starting net replacement cost may be difficult to calculate in practice, since it requires details on the installation dates of each of the assets included in the GRC. Such information may not be available, particularly for asset categories that include a large number of items or where individual items have been modified at various stages during the asset's lifetime. In such circumstances, an initial net asset valuation could be calculated using the NBV/GBV methodology. Clearly, the longer the period for which the application of the NBV/GBV is used, the greater is the potential error in the calculation of net replacement cost.

In relation to the third issue, where the useful life of an asset exceeds its book life, the GRC will normally include fully depreciated assets – since it is calculated as the equipment required (some of which is written-off) multiplied by the price of that equipment. The existence of fully depreciated assets can result in negative NRCs with the problem particularly likely to occur where the GRC includes the value fully depreciated assets but the GBV does not.

Although the rolling-forward methodology is in many circumstances the theoretically correct methodology, as noted above, it is associated with a number of practical difficulties. The licensee may therefore choose between either of the two methodologies. However, it is suggested that the rolling forward methodology should not be used where there are significant levels of fully depreciated assets.

As the NBV/GBV methodology will lead to higher (lower) annualized costs than the rolling forward methodology where asset prices are rising (falling), the TRA believes that the two methodologies must be used in a consistent manner. If different methodologies are used for different assets, this will need to be documented and justified in the documentation.

As stated above the TRA is of the view that the cost accounting system of the licensee shall use an accounting based approach to capital charges. More specifically the depreciation policy adopted for generating the Statutory Accounts shall be consistent with the policy adopted within the cost accounting system.

10.2.3 Capital Maintenance Concepts

Since asset prices often differ between the start and end of a financial period (due to e.g. inflation or technological progress), it is necessary to reflect the impact of those differences in Current Cost Accounting statements. This is done by applying the adjustments described in this section.

Two alternative approaches can be used to produce CCA results. These approaches differ in how they treat capital that is required to be maintained before a profit is recognized. Capital maintenance is primarily of importance in measuring the profit available for distribution in the Profit and Loss Statement. However, it also affects the division between capital and retained profits in the balance sheet.

Capital can be examined from two different points of view:

(i) in operational terms (i.e. as the company's capacity to produce goods and services)

or

(ii) in financial terms (i.e. as the value of shareholders' equity interest).

Reflecting these different perspectives, there are two concepts of capital maintenance: Operating Capital Maintenance and Financial Capital Maintenance, respectively:

(i) Operating Capital Maintenance (OCM) focuses on maintaining the output capability of the company's assets. Capital maintenance under this approach requires the company to have as much operating capability – or productive capacity – at the end of the period as it had at the beginning of it. Under OCM, profit is therefore only realized after provision has been made for replacing the output capability of a company's assets. In general, this requires the alteration of the values of the company's assets with specific inflation indices.

(ii) Financial Capital Maintenance (FCM) is concerned with the maintenance of the company's financial capital and with its ability to continue financing its functions. Capital is assumed to be maintained if shareholders' funds at the end of the period are maintained in real terms at the same level as at the beginning of the period. Under this concept, profit is only realized after that a sufficient amount of provision has been made to ensure that the purchasing power of opening financial capital is maintained.

The choice between OCM and FCM is a vital determinant of the exact specification of the revenue requirement. If OCM is applied in determining charges, the revenue requirement would be calculated as the sum of operating costs, historical cost depreciation, supplementary depreciation and a return on net assets. On the other hand, using FCM means that the revenue requirement would be the sum of operating costs, a return on net assets less holding gains/losses plus the adjustment to shareholders' funds, historical cost

depreciation, and supplementary depreciation. Consequently the required revenue is different depending on which of the capital maintenance concepts is used.

The approach typically used most widely and historically preferred by the European Commission is FCM. There are a number of reasons for preferring this approach:

- Under FCM the returns to the providers of capital would equal the required return (as measured by the cost of capital) irrespectively of whether replacement costs were rising or falling relative to general prices. However, this is not the case under OCM, since the profit measure does not include unrealized holding gains or losses.
- The EC has historically recommended FCM based on the fact that *"the use of the OCM concept may systematically incorporate insufficient or excess returns into the level of allowed revenue (depending, respectively, on whether asset-specific inflation was expected to be lower than or higher than general inflation). This is not a desirable feature of any regulatory regime"*.
- In the European Union, the majority of countries applied the FCM approach.

The TRA is of the view that FCM is the appropriate capital maintenance concept.

10.2.3.1 The cost accounting formula

Under historic cost accounting, the formula that gives the cost base that must be recovered in year t is as follows:

$\text{Cost Base}_t = \text{Opex}_t + \text{Depreciation}_t + \text{WACC} \cdot (\text{NBV}_{avg} + \text{WC}_{avg})$

Where:

Opex = cash operating expenditure,

Depreciation = current depreciation in the period, not accumulated depreciation,

WACC = Weighted Average Cost of Capital,

NBV_{avg} = Net Book Value, average of start and end of year

WC_{avg} = Working Capital, average of start and end of year

10.2.3.2 Implications of the FCM concept on the cost accounting formula

The application of the FCM method means that the above equation must be adjusted to:

$\text{Cost Base}_t = \text{Opex}_t + \text{HC Depn}_t + \text{Suppl Depn}_t + \text{WACC} \cdot (\text{NRC}_{avg} + \text{WC}_{avg}) - \text{NHG}_t + \text{Adj to SF}_t$

Where:

HC Depn = Historical Cost Depreciation

Suppl Depn = Supplementary Depreciation

NRC_{avg} = Net Replacement Cost, average of start and end of year

WC_{avg} = Working Capital, average of start and end of year

NHG = Net Holding gains/losses

Adj to SF = Adjustments to Shareholders' Funds

This equation represents the total cost base that, for upstream businesses recovering the costs of their operation, must be recovered each year either from transfer charges or interconnection and access charges.

Operating expenditure and Working capital are discussed later in Section 10.3.3. Supplementary depreciation, backlog depreciation used for appropriate NRC, holding gains/losses and adjustments to shareholders' funds are described below:

(i) Supplementary depreciation

The current year depreciation charge is calculated on the basis of the revised current cost asset valuations. This ensures that the current cost of fixed assets consumed during the year is charged against revenue. For each asset, or group of assets, the current cost depreciation charge – assuming that straight-line depreciation is used - can be derived by dividing the difference between the current GRC and residual value of the asset by the asset life.

Supplementary depreciation is the difference between the historic cost depreciation charge (based on the original purchase cost of the asset) and the 'revised' current cost depreciation charge (based on the current replacement cost of the asset). It may be positive or negative depending on whether the values of assets are rising or falling.

These relationships can be summarised as follows:

Supplementary Depreciation = HC depreciation x [GRC / Acquisition cost] – HC depreciation

Given that HC depreciation is derived as acquisition cost divided by asset life, this formula can be reduced to:

(GRC – Acquisition cost) / Asset life

which is equivalent to supplementary depreciation.

Since accounting depreciation can be calculated using one of three methods (straight line, reducing balance or sum of digits), attention has to be paid to make the correct adjustments depending on which method has been used.

(ii) Backlog depreciation

Depreciation charges are based each year on the current gross book value of the assets. The value of these assets increases/decreases/ over time, so does the associated depreciation charge. Consequently, in any particular year, the current cost depreciation charge for the year exceeds/is less than/ the amounts charged as depreciation in previous years (which were based on lower/higher/ gross values of the assets). There is therefore a need to correct past depreciation charges to reflect the prevailing gross book values of the assets. These corrections are known as backlog depreciation.

In practice, where the NBV/GBV methodology is used it is not necessary to calculate backlog depreciation. This is because the start and end of year NRC can be explicitly calculated and net holding gains (gross holding gains less backlog depreciation) can be calculated as a residual. Where the rolling forward methodology is used the concept of backlog depreciation is more useful, although even here it does not need to be explicitly calculated. The issue is discussed further below.

(iii) Holding gains/ losses

Holding gains and losses result from changes in the price of the assets. The holding gain/loss is calculated as follows:

Gross holding gain = $GRC_{closing}$ – $GRC_{opening}$ – Additions + Disposals (at current cost)[2]

Current Cost Accumulated Depreciation Holding Gain = $CCA_{closing}$ – $CCA_{opening}$ – CC Depreciation + Disposals (at current cost) = Backlog depreciation

(Note that CC Depreciation is the sum of historic depreciation + supplementary depreciation)

Net holding gain = Gross holding gain – Backlog depreciation

Note that where the NBV/GBV methodology is used the Net Holding Gain can be calculated as: $NRC_{closing}$ – $NRC_{opening}$ – Additions + CC Depreciation + Net Disposals (at current cost).

(iv) Adjustments to shareholders' funds

The effect of general inflation on shareholders' funds can be taken into account through an adjustment to shareholders' funds. This adjustment is often derived by multiplying the opening value of shareholders' funds by the change in the index of general price inflation for the period.

The TRA is of the view that the inflation adjustment for shareholder's funds would not be required since the profit is reported in nominal terms.

10.2.4 Practical issues of asset valuation

10.2.4.1 Materiality level for revaluation

As mentioned above, current cost valuation of assets involves the use of specific resources to perform the preliminary activities like the identification of physical quantities, determination of price indices, and so on. In some cases, in order to simplify this process, a maximum asset value level can be identified related to historic values registered in the corporate accounting system, below which the relevant account can be defined as immaterial. Consequently the account's components can be maintained at their historic value. This critical value level is known as materiality level.

In aggregate terms, it is considered that the CCA process is suitably accurate when assets excluded from CCA and maintained at historic cost, on account of their recent acquisition or short useful life or limited amount, have overall gross book value within the limits of the materiality level. If the licensee defines such a level, then it shall be clearly documented and justified.

10.2.4.2 Assets in the course of construction

Capitalized interest arising from assets in the course of construction shall be included in the GRC of the assets. Such capitalization shall only occur for those activities that are necessary

[2] The GBV of disposals may be multiplied by the ratio GRC opening / GBV opening for the asset concerned.

for the asset to be ready for service. However, depreciation shall not be charged until the asset comes into use.

10.2.4.3 Leased equipment

Assets can be held under finance leases or operating leases.

(i) Finance leases

Finance leases involve the payment by a lessee to a lessor of the full cost of the asset together with a return on the finance provided by the lessor. Finance leases therefore transfer the majority of the risks and rewards of holding the asset to the lessee. Assets held under finance leases are capitalized in the balance sheet and depreciated, with a capital charge taken through the P&L account.

(ii) Operating leases

Operating leases involve the lessee paying a rental for the hire of an asset which is substantially less than its useful economic life. The risks and rewards therefore remain with the lessor. Such assets will have a rental payment put through the P&L account, but the value of the asset shall not be part of the asset base.

The TRA is of the view that the assets held under finance leases shall be included under the asset base and the depreciation charge shall be allowed. However, the finance charge shall not be allowed under operating expenditure, since this cost will be recovered through the capital charge on the asset base. Any alternative treatment shall be given sufficient explanation, detailing the impact on the cost base.

Furthermore, the rental payments for assets held under operating leases are allowable under operating expenditure. The value of these assets shall not be included in the asset base.

10.2.4.4 Fully depreciated assets

A licensee may have many assets which have been fully depreciated in the statutory accounts but are still being used by the business to generate revenue and to provide interconnection capability to new entrants. In other words, the economic/operational life of the asset has exceeded the designated accounting life of the asset. The issue is therefore one of dealing with the differences between an accounting approach to depreciation and an economic approach to depreciation.

However, since assets must be revalued under CCA, there is a need for consistency between the basis that is used for estimating the initial value of assets and the basis that is used for calculating the other components of allowed revenue (i.e. operating expenditure and depreciation). Using an accounting approach, the asset is fully depreciated and hence, to ensure consistency between HCA and CCA, further depreciation cannot be charged.

To restate the matter, fully depreciated assets have a positive GRC and are likely to have a positive GBV, but a zero NBV and consequently a zero NRC (assuming the ratio of NBV divided by GBV is applied to the GRC to arrive at the NRC). Under an accounting approach to depreciation, fully depreciated assets shall therefore not be included in the Asset Base.

As previously noted, the application of the rolling forward methodology can give rise to negative NRCs where there are fully depreciated assets. The problem is particularly likely to occur where such assets are included in the GRC (since they are still in operation) but have been written off the GBV. However, the problem could potentially occur where both the GRC and GBV includes fully depreciated assets. For this reason, the TRA does not believe

it is appropriate to use the rolling forward methodology in current cost computations, where fully depreciated assets form a significant proportion of the gross asset value for a particular asset class

The TRA is of the view that the net value of fully depreciated assets shall be zero under Current Cost Accounting revaluations since their value has already been recovered through past depreciation.

10.3 LRIC

LRIC is often considered to be the ideal methodology to adopt in setting regulated prices at economic cost. From an economic perspective it delivers the best approximation of what an efficient licensee's costs should be since it shows the actual resource cost in providing an additional amount of output. This in turn means that LRIC can provide the correct economic signals to the market. As such, LRIC information is an important part of a set of separated regulatory accounts. The definition of LRIC has three aspects.

(i) Long run

The long run is defined as the period over which all inputs can be varied. In the long run there are no fixed inputs. In practical terms this means that incremental cost includes both operating and capital costs, including sunk costs such as duct.

The undertaking has to make two types of production decisions. First, it has to decide about the volume of the output it will produce. Secondly, it needs to decide what capacity should be installed. Since the focus is on the long run all costs are considered to be variable. Therefore Long Run Total Costs (LRTC) equals to Long Run Variable Costs (LRVC).

(ii) Incremental

For regulatory purposes, two definitions of LRIC tend to be used. The first definition splits the business into a limited number of broadly defined increments and then calculates the costs associated with those increments. One such increment could be the access network, which is the incremental cost incurred in the provision of all services within the access network (e.g. business and residential subscriber lines, leased line tails). A further increment would then be the core network, which is the incremental cost incurred in providing core services (e.g. telephony calls, broadband services upwards from the DSLAM and MSAN). Other increments may also be defined such as an international increment. In this approach (often referred to as LRIC+, or LRAIC, fixed and common costs are allocated to services).

The second definition measures the LRIC of particular services such as local calls and national calls. This is, in effect, the pure LRIC concept. This definition will tend to result in a much lower per unit cost since the cost of assets such as duct, which would be included in the costs of the first definition (except where duct is shared by the access and core networks), would only be included to a limited degree under the second definition.

In order to develop a model capable of calculating LRIC under either of these definitions a number of common steps are required, including the derivation of a manageable set of Homogeneous Cost Categories and the development of a set of Cost Volume Relationships – both of which are discussed in detail below. However, although there is a considerable degree of common grounds in developing models under these two definitions, the workload required to develop the two measures is significantly greater than for a single measure. Given that a considerable amount of work will be required at an early stage to develop other accounting separation outputs there is thus a strong case for focusing on a

single measure of LRIC initially and at a later stage considering whether the model and reporting requirements should be extended to produce outputs under the alternative measure as well.

A further consideration which lends support to this approach is the fact that a number of issues are likely to arise in respect of the outputs produced by either measure. In the TRA's view, it is important to have confidence in the outputs produced by one LRIC definition before producing results under the alternative definition.

In the TRA's view the chosen measure should be LRIC+ rather than pure LRIC. There are a number of reasons underlying this view. Firstly, regulators in many European countries have used LRIC+ in the past to set prices for a wide range of regulated services. Although a number of EU countries have moved towards pure LRIC for termination services, LRIC+ is still applied in many EU countries for other services, such as access. Further, outside the EU, LRIC+ is still widely used for termination services. Secondly, the TRA has previously applied the LRIC+ approach, using similar arguments to those above, in its document 'Development of Bottom-Up Models in the Sultanate of Oman'. Thirdly, insofar as there is a case for pure LRIC or some intermediate measure such as Distributed LRIC (DLRIC, which uses pure LRIC as a starting point), this is likely to be stronger in markets where competition is more developed than in Oman currently (for example, in terms of number of competitors and competitor market shares)[3]. Fourthly, it is somewhat more straightforward to develop a model producing LRIC+ than pure LRIC and the resultant outputs depend less on the precise shape of CVRs.

For all of the reasons outlined above, the TRA is of the view that LRIC+ results should be produced initially. In the future, the TRA will consider whether there is a case for licenses to show pure LRIC costs and potentially also DLRIC and DSAC.

(iii) Forward-looking

Even though HCA is generally accepted for financial reporting purposes, it may prove to be unsatisfactory and too subjective for regulatory decision making. One concern with such an approach (as opposed to current cost accounting) is that it is not forward looking. Forward-looking costs are defined as the costs of an efficient licensee building its network today using the most modern technology bought at current prices. These costs are the appropriate cost base for LRIC cost modeling.

Costing measures should be forward-looking to reflect the true economic costs of producing an increment of output. In practice, however, there is likely to be considerable debate about the precise definition of forward-looking. Networks evolve over time with the result that the network of even an efficient licensee may look very different from the network design that would be used if starting from scratch (often referred to as a scorched earth assumption).

"Looking forward" implies that the expected development in prices, first of all asset prices, and expected development in demand will need to be taken into account. Forward-looking costs are the costs of a company optimizing its production by taking into account the demand for its services.

Finally, it should be noted that the models shall consider the optimized network as if it were already in place. No costs associated with moving from the existing network to the optimized network shall be included.

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[3] Under DLRIC various classes of common fixed cost (e.g. intra-core, intra-access and intra-wholesale) are allocated across components pro-rata to allocated costs. DLRIC and its companion measure Distributed Stand-Alone Cost (DSAC) can be used to set cost floors and ceilings.

10.3.1 LRIC Modeling approach

10.3.1.1The top-down LRIC model

The top-down LRIC approach is based on the licensee's current costs as well as its actual network topology and architecture. Therefore these costs reflect the economic cost of providing and maintaining existing capacity.

An overview of the typical process of top-down LRIC modeling is illustrated in the Figure 2 below:

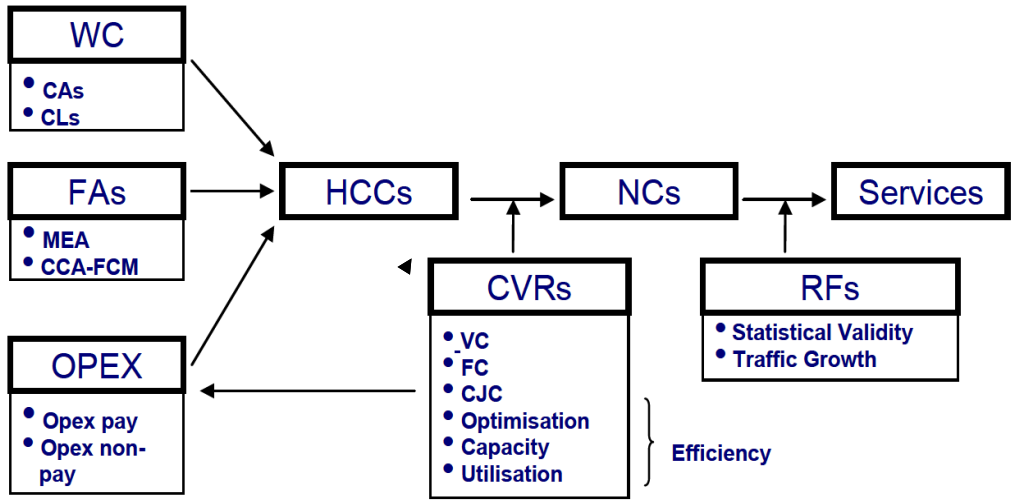


Figure 2: Steps of cost allocation in Top-down LRIC model

Where:

WC = Working Capital

FAs = Fixed Assets

OPEX = Operating Expenditure

CCA-FCM = Adjustments regarding capital maintenance

VC (Variable Costs), FC (Fixed Costs) and CJC (Common and Joint Costs) are discussed later.

NCs = Network Components

RFs = Route Factors

CJC = Common and Joint Cost

As illustrated in the figure above, the first step is to group costs that have similar characteristics into individual cost categories, also called Homogenous Cost Categories (HCCs). The level of homogeneity is determined by the need to identify individual cost drivers and to account for changes in costs over time.

Once the HCCs have been identified, the next step is to determine network components (NCs). Costs are allocated to NCs by using Cost-Volume Relationships (CVRs), and the result is a cost per NC. In particular, CVRs:

- trace how individual costs vary with underlying cost drivers; and
- identify all variable, fixed, common and joint costs.

In simple terms, a CVR is a curve which describes the relationship between the volume of a cost driver and its related costs.

The last step is attributing services to different NCs. The costs of NCs are allocated to services through of service routing factors, and a NC cost per unit is calculated.

The TRA is of the view that the LRIC models developed by the licensee shall adopt a Top-Down approach to ensure that costs can be reconciled back to licensee's actual set of accounts.

10.3.1.2 Data requirements

Top-down LRIC models use the following types of data:

- Financial data – operating costs, depreciation, net book values, etc.;
- Network operational data – route factors, cost-volume relationships, etc.; and
- Network traffic data – Busy Hour Traffic, etc.

The requirements for this data are dealt with in respective sections of these Guidelines. However, it is critical that this data is derived from a specified period:

Financial data shall be based on the latest available set of fully audited financial accounts such that it can be reconciled back to these accounts.

Network operational data shall be derived from network statistics covering the same period as the latest available audited financial accounts.

Network traffic data shall be based on traffic of the same period as the latest available audited financial accounts.

10.3.2 Homogenous cost categories

10.3.2.1 The level of granularity

To calculate LRIC, costs needs to be grouped into a more manageable set of HCCs. Telecommunications networks are characterized by hundreds of pieces of distinct equipment. Hence it is desirable to group similar network equipment costs into HCCs. The level of homogeneity (or granularity) is determined by the need that for each HCC the following shall be identified:

- cost drivers;
- price trends of the particular equipment; and
- Cost-Volume Relationships (CVRs).

Cost drivers are a common requirement for both Fully Allocated Cost (FAC) models and LRIC models. On the other hand, CVRs are only required for LRIC models while price trends are required for both FAC CCA and LRIC models. As a result, considerably more cost categories are usually required for LRIC models than for FAC models.

Cost-drivers

Costs determined by different cost drivers shall be grouped into separate HCCs. To understand the determination of cost drivers, take the example of local telephone exchanges. The driver of line cards is the number of access lines, which is driven by the number of subscribers. The driver of the switching stage, however, is the traffic volume of

the exchange. As a result, since there are two different drivers (number of subscribers and traffic volume) it would be inappropriate to include all costs of local telephone exchanges into a single cost category.

Price trends of particular equipment

For a fixed line example, consider access equipment. The ADSL access network consists of the following broad plant groups:

- Ducting;
- Cables;
- DSLAMs; and
- Customer Premises Equipment (CPE).

However, over time the price trend of these groups has moved in different directions. The main cost component of building a duct network is the civil engineering costs used to dig and fill in trenches. Due to general wage inflation, civil engineering costs have increased steadily over the years. On the other hand, costs of DSLAMs and CPEs have generally been falling. Hence, in order to revalue these assets on a current replacement cost basis, they need to be grouped into different cost categories.

Cost volume relationships (CVRs)

The cost volume relationship is the function that describes how costs vary with the volume of the cost driver. Only one CVR shall be applied to each homogeneous cost category. The CVR shall be the same for all the equipment grouped in the same HCC because the CVR is used to calculate the incremental cost.

Cost-Volume Relationships are considered in detail later.

The TRA is of the view that:

- Cost categories shall be identified, and every cost category in the model must be a HCC. HCCs are characterized by their cost drivers, price trends, and CVRs. Though, one CVR can also be assigned to more HCCs;
- Fixed assets or operating expenditure with different cost drivers shall not be grouped into the same HCC;
- Fixed assets or operating expenditure having different price trends shall not be grouped into the same HCC;
- Fixed assets or operating expenditure with different underlying CVRs shall not be grouped into the same HCC;
- The licensee shall be able to reasonably determine its own set of HCCs on best effort basis broadly complying with the best practices.

10.3.3 Definition of cost types

HCCs shall be clearly categorized into the following broad cost types:

- Fixed Assets;
- Depreciation;
- Operating Expenditure; and
- Working Capital.

These may be defined as follows.

Costs of fixed assets

Costs of fixed assets are all the cash outlays on assets which are in use for more than one year. The value of fixed assets can be derived from the licensee's Balance Sheet. Ducting, cables, switches, exchange buildings and motor vehicles are examples of this cost type.

The costs of fixed assets are the cost of capital and the holding gains/losses incurring from changes in asset prices.

Depreciation

Depreciation is a non-cash expense, which reflects the fact that the value of the asset declines over time. Therefore it shall be written-off over the useful lifetime of the asset - and not just in the year of acquisition - to represent the consumption of the asset over time. Depreciation is a line item in a licensee's P&L account.

Operating expenditure (OPEX)

Operating expenditure refers to cash outlays incurring in each accounting period. Operating expenditure appears as a line item in a licensee's P&L account. Within operating expenditure pay and non-pay items can be distinguished. Examples of pay items are salaries paid to employees. Non-pay items are operating expenditure that does not fall into this category, like electricity costs.

Working capital

Working capital is defined as current assets less current liabilities. Both are line items in a licensee's Balance Sheet.

Current Assets shall include stock, debtors and cash. Debtors shall include debtors from sales and prepayments such as rent and rates. Cash shall consist of cash at bank and in hand, and short-term investments.

Current Liabilities are short-term creditors. The creditors that shall be included in the model are those arising from operating activities and capital expenditure. For example, these will include payments to suppliers, salaries, and rent and rates.

The model shall clearly separate creditors and debtors arising in the network division from those arising in the retail division.

As a summary of the above working capital includes:

- Short term investments (including cash at bank and in hand)
- Stocks
- Trade debtors/receivables
- Other debtors/receivables
- Trade creditors
- Short term loans
- Liabilities for dividends

The level of working capital shall be a yearly average that can be calculated as the average of the level of working capital at the start of the year and the working capital at the year end.

10.3.4 Network topology

To calculate incremental cost it is first necessary to design the underlying network, specifically the topology of the network. There are two network topology options:

- Scorched Earth Network Topology; or
- Scorched Node Network Topology.

10.3.4.1 Scorched Earth Network Topology

This option means that the topology of the network can be designed in such a way as to provide the number of lines and traffic demanded in the most efficient manner. Applying the Scorched Earth network topology may result in a network which differs from a licensee's actual network, e.g. the number of nodes with equipment may be less than in the licensee's actual network.

As incumbent licensees have developed their network over many years they are often constrained in the way in which the network can change such that networks evolve and change configuration slowly and in a predictable way. As an example, it would be theoretically possible to replace many hundreds of circuit switches with fewer switches. The cost of building such a network from scratch may be considerably lower than the existing network. However, it is almost impossible to redesign a huge network with millions of subscribers from scratch.

The scorched earth network topology is mainly used in some bottom-up models, although many bottom-up models use variants of the scorched node network topology.

10.3.4.2 Scorched Node Network Topology

Under the scorched node network topology, changing the location of existing network nodes is not allowed. Network exchange sites are a product of the evolution of the network. The topology of a digital network may be vastly different from that of a mainly analogue one, but once exchanges are built it is difficult to decommission them. In the basement of exchange buildings is a cable chamber in which cables enter the building. Re-locating an exchange would mean re-cabling streets which is very expensive.

Geographical and logical scorched node

As stated above, under a geographical scorched node network the geographic location of the nodes of a licensee's existing network are not allowed to change. This means that exchange and transmission nodes remain in their existing geographic location. The geographic topology of the network is not allowed to change. However, existing equipment can be replaced with equipment of smaller capacities.

Likewise, under a logical scorched node network the logical location of equipment in a licensee's existing network is not allowed to change. This means that exchange and transmission equipment remain in their existing geographic location. Each piece of equipment in a licensee's network will have a unique (logical) identification, and the logical topology of the network is not allowed to change. Each piece of existing equipment must remain in its present location. Though, existing equipment can be replaced with equipment of smaller capacities.

The TRA is of the view that the geographic scorched node approach shall be applied as the underlying network topology of the LRIC model.

10.3.5 Equipment optimization

Equipment Optimization can include both efficiency and equipment optimization (optimal capacity and utilization). In other words, the process of equipment optimization shall only be adopted if it also lowers costs.

The TRA is of the view that when constructing the LRIC models, the principle of equipment optimization shall be applied, resulting in lower costs.

10.3.5.1 Efficiency

According to the European Regulator's Group (ERG), efficiently incurred costs need to be identified and only these should be attributed to services or network components.

In a telecoms market where licensees have market power, it is important to assume that the cost to provide regulated services shall be modeled based on the operations of an efficient licensee. This is because the competition should not have to pay for inefficiencies.

Therefore, the consideration of efficiency is a key aspect of the application of the LRIC methodology, and must be carefully considered in the calculation of interconnection charges.

Where regulators have concerns about the efficiency of a licensee, it is advisable to commission a study to analyze in some detail the required level of cost reductions to make a licensee more efficient.

International comparison of the incumbent licensee to other licensees in other countries is a key component of identifying inefficiency. However, there must be careful selection of appropriate benchmarks for such an analysis of efficiency.

Redundant space

Most exchange buildings were built or acquired for old analogue switching equipment, which was electro-mechanical in nature and occupied a considerable amount of floor space. According to technological change the analogue equipment has subsequently been replaced with digital switches, which occupy a much smaller floor space. Some floor space became therefore redundant. However, licensees now face a similar problem, when replacing existing digital switching equipment with new digital switches.

New entrants, faced with today's switching technology, would build smaller exchange buildings. If licensees were allowed to recover the cost of (now) redundant floor space, this could distort the build-buy decision and lead to inefficient entry.

The TRA is of the view that any floor space which is found to be surplus due to the introduction of modern technologies and exists in an exchange building containing operational switching equipment, shall be valued at a NRV of zero, except where it can be shown that it is economically rational to maintain such vacant space.

10.3.5.2 Capacity and Utilization

The cable and duct network is an area where any licensee typically has significant spare capacity. But it should be noted that it would not be economically reasonable to provide cable and ducting just for the traffic levels expected for the next few years. It would be

much more costly to increase capacity by adding cables every few years than to provide sufficient capacity for a longer time frame (say 15-20 years). For this reason current levels of spare capacity are usually treated as efficient.

Similarly, in the switching and transmission equipment used, it is necessary to have a certain degree of spare capacity, and the utilization of this equipment will always be less than 100%. Again, the TRA would need to review the current levels of network utilization and decide whether these are appropriate.

Therefore the licensee shall provide justification for the utilization levels achieved, and allowance shall be made for many factors including:

- impact of customer churn (especially where competition is developing);
- need to provide for growth;
- need to upgrade equipment as technology develops;
- need to offer suitable levels of service;
- distribution of customer density that must be served.

10.3.6 HCCs and equipment optimization

It is important to note that costs that are entered into the model should have been subjected to adjustments (efficiency and capacity adjustments) for equipment optimization. This optimization must not just apply to fixed assets but must flow through to operating expenditure. To ensure this optimization effect flows through to all assets and operating expenditure affected by the optimized asset it is helpful to consider costs in further sub-categories:

- Primary Plant;
- Secondary Plant;
- Operating Expenditure; and
- Overheads.

10.3.7 Cost volume relationships (CVRs)

10.3.7.1 Definitions

CVRs are the basis of calculating incremental costs, because CVRs:

- specify all variable costs;
- specify all fixed costs;
- specify all common and joint costs; and
- show how individual costs vary with underlying cost drivers.

In particular, CVRs reveal the relationship of costs and the underlying cost driver volumes. In turn, cost driver volume is driven either by the demand for lines or the demand for traffic. For example, the driver for the cost item "transmission nodes" is the number of transmission circuits. The more transmission circuits required between transmission nodes the greater is the associated cost. What drives the number of circuits between nodes is the amount of traffic. By varying the amount of traffic, carried over the network it is possible to

trace the impact on the number of transmission circuits and thus the cost of transmission nodes.

Variable Costs (VC) are costs that vary with the cost driver. For each HCC, variable costs are allocated to an NC based on the volume of that cost driver allocated to that particular component

Component Specific Fixed Costs (CSFC) are fixed costs, which can be directly attributed to a particular component.

Common and Joint Cost (CJC) is also a fixed cost, but it is common to two or more components. Telephone switches have CJCs in the form of racks. These hold cards which have different cost drivers and cannot be allocated to components in a meaningfully causative way. There are several reasons for identifying very specific network components, one of them is trying to reduce the proportion of costs that are common and joint. Common and Joint Costs are discussed in detail in later.

A simple CVR is illustrated in the Figure 3 below. The cost driver of the illustrated cost category is square meters. The costs can be attributed to 3 different services (Service 1, 2 and 3). Cost driver volumes are obtained by floor space occupancy surveys, which are periodically undertaken by licensees.

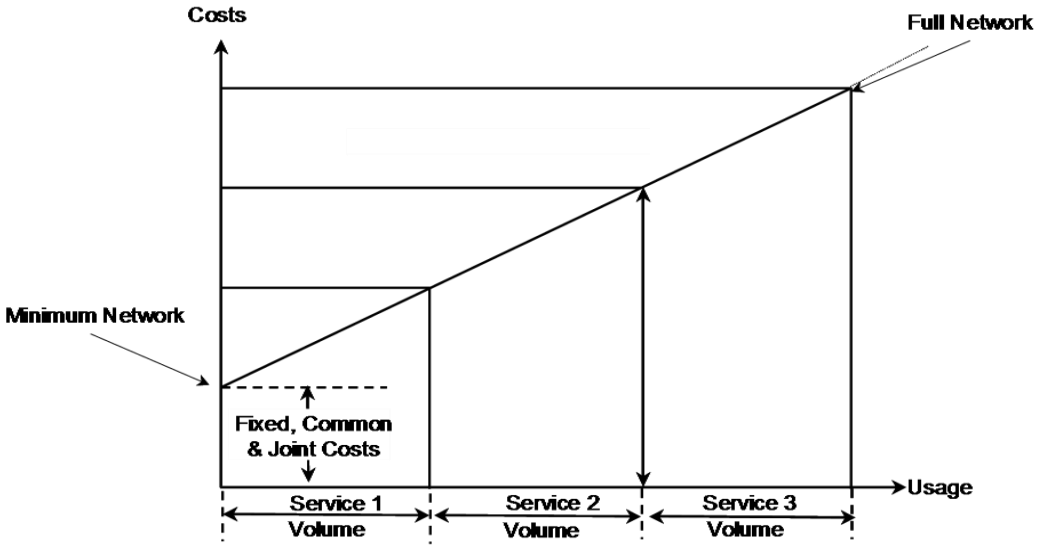


Figure 3: A simple CVR

A minimum network is defined as one in which it is possible to make or receive a call from any telephone currently connected to the network in question. As a result there is a minimum requirement for exchange buildings.

The full network, however, is a network designed to carry existing traffic levels. It requires more local exchanges and as a result more exchange buildings are needed.

The TRA is of the view that a minimum network is defined as one in which it is possible to make or receive a call from any telephone currently connected to the network in question.

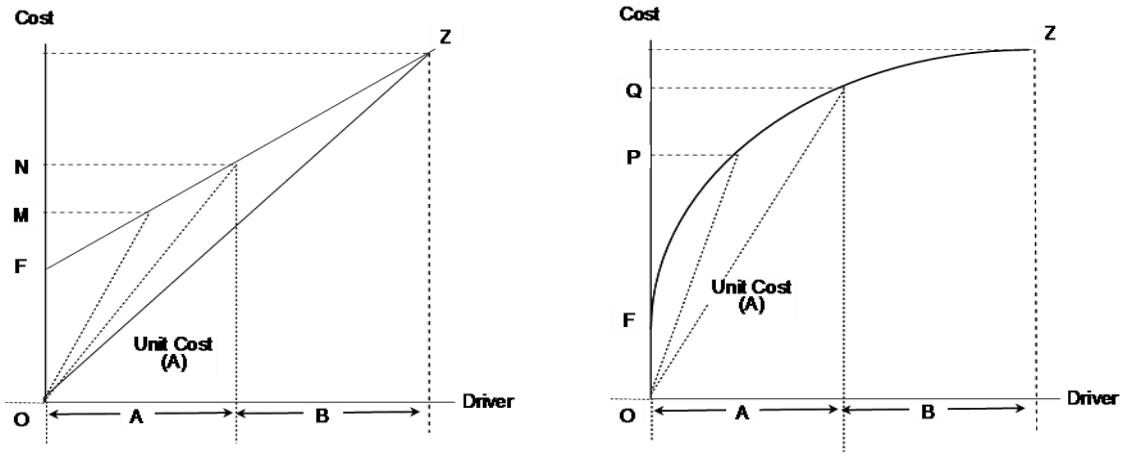
The diagram also shows how incremental costs can be calculated for the two definitions of LRIC discussed in section 10.3 (i). The first definition, which is the measure which licensees should develop, focuses on the LRIC of broadly defined increments, specifically the access and core increments. In this case, the LRIC would be the cost of all services within the access and core increments including the fixed, common or joint costs specific to

that increment. It would only exclude fixed, common or joint costs between the core and either the access increment or the retail network.

It is also useful to show the second definition of LRIC to understand why the two definitions differ. This definition focuses on the LRIC of particular services, such as Service 3. This service cost is defined as the difference in incremental costs with and without the service in question. Hence, one initially measures the cost of the whole network and from this subtracts the cost of a network with all services except for the service in question.

10.3.7.2 Economies of scale and the CVRs

The two graphs below (Figure 4) illustrate the impact of economies of scale on CVRs. Panel (a) shows how the inclusion of Fixed, Common and Joint Costs affect unit costs. As the line FZ reveals, it leads to unit costs falling as volumes increase. Without fixed costs, unit costs remain constant throughout (as shown by line OZ).



Panel (a) Panel (b)

Figure 4: The impact of the inclusion of fixed, joint and common costs on the CVRs

Panel (b) shows the impact of purchasing power as volumes increase. Purchasing power is the ability of larger licensees with larger gross investment plans to negotiate better prices from suppliers. This leads to a non-linear/convex cost-volume relationship with unit costs falling at a faster rate as volume increases. Since purchasing power is usually present in telecommunications plant purchasing, all CVRs are expected to exhibit a non-linear relationship. If the CVR is a straight line, it shall be fully justified with details of why no economies of scale/scope/purchasing power exist.

The TRA is of the view that the CVRs shall be convex relationships capturing the effects of purchasing power and/or economies of scale/scope. If CVRs represent a straight line relationship, it shall be documented sufficiently why purchasing power and/or economies of scale/scope have no effect on the shape of CVR.

10.3.7.3 The construction of CVRs

For the construction of CVRs one or more of the following methodologies are used:

- engineering models (also called simulation models);
- statistical surveys; and
- interviews (on-site research).

Engineering models

Engineering models are used to construct CVRs for plant such as exchanges and transmission switches. They are bottom-up simulation models, which use engineering relationships and algorithms to model how costs will vary as volumes change.

Statistical surveys

Statistical surveys are mostly used to calculate the length of duct networks and average number of bores per kilometer of duct (to generate bore kilometers in the network). These surveys require the examination of network records and statistics and will generate the number of bore kilometers required under a minimum network and a full capacity network.

Interviews/ on-site research

Interviews/field research are primarily used to gather information on operating costs such as maintenance costs. For example, field research will focus on discussing with engineers on the costs associated with service volumes for specific switching equipment.

The TRA is of the view that the CVRs shall be constructed using one or more of the following:

- engineering models;
- statistical surveys; and
- interviews.

Furthermore, the TRA is of the view that all models and research documentation related to construction of CVRs shall be submitted to the TRA. The detail of the data submitted to the TRA shall be kept within the relevant specifications according to the statistical parameters fed into the costing model.

10.3.7.4 Dependent and independent HCCs

There are two types of HCCs:

- Independent; and
- Dependent.

Independent cost categories

Cost drivers of independent cost categories are directly linked to the demand for lines or the demand for calls. In the case of independent cost categories, volumes can be gathered directly from the undertaking's management systems.

Dependent cost categories

Cost drivers of dependent cost categories are linked indirectly to the demand for lines or calls. An example is exchange maintenance costs. The cost driver for exchange maintenance costs is the amount of working hours associated with maintenance, which is a function of the number of lines and the amount of traffic. If it were classified as an independent HCC, then specific volumes would have been derived for the network components.

In the case of dependent cost categories, volumes need to be calculated based on the LRIC of the cost category on which they depend. Considering the example of office buildings, office building costs depend on square meters of the buildings, which depend on personnel numbers. Personnel numbers are related to pay costs (or rather, pay costs are related to

personnel numbers). Hence it is possible to construct a cost-volume relationship in which pay is the cost driver for office building costs.

The natural sequencing order in calculating LRIC is that first the LRICs of all independent cost categories have to be calculated. Then using these independent LRICs the volumes and LRICs of dependent cost categories can be calculated.

The TRA is of the view that the licensee shall clearly identify whether HCCs are independent or dependent. Where HCCs are dependent, the licensee shall document the CVRs upon which they depend. Furthermore, equipment optimization shall flow through all areas of the network (from HCC to HCC and from CVR to CVR), where the optimization of one area impacts another.

10.3.8 Traffic data

The TRA is of the view that the traffic data shall be consistent with the base year of the audited financial statements.

10.3.9 Fixed, joint and common costs

Two types of fixed costs can be distinguished: Component Specific Fixed Costs (CSFCs) and Common and Joint Costs (CJCs):

- CSFCs are fixed costs that can be directly attributed to a particular NC.
- CJCs are fixed costs that are common (or span) to two or more NCs.

Common costs are those costs that cannot be directly allocated to NCs. They are common to two or more activities. They can therefore only be removed by stopping all of the activities to which the costs are common.

Joint costs are costs, which occur where an input produces two or more separable outputs in fixed proportions irrespective of volume.

Licensees usually produce more than one service and due to this costs might be common to two or more services.

Cost can be considered from different perspectives. If we define LRIC from a retail/wholesale service perspective, then there will be a large amount of common or joint costs. However, if we calculate LRIC from a NC perspective, then there will be fewer common or joint costs. In the latter case costs will be only considered common or joint if they span two or more NCs. This is likely to be the case for support plant such as power supply equipment and air conditioning.

The TRA is of the view that the percentage of common cost must be documented for each HCC including an explanation about what these costs are common to.

As previously stated under the broad definition of LRIC common fixed costs associated with either the access or core network should be included in the measure of incremental cost. However, if service based incremental cost is being measured only common/fixed costs specific to the service in question should be included.

10.3.9.1 Mark-up

Under some definitions of LRIC, some common fixed costs should be allocated to services and this can be done in one of two ways:

(i) Ramsey pricing

In this method the allocation of common costs to different services depends on the impact of tariff changes made to a particular product on the undertaking's profitability. Ramsey Pricing essentially allows for differentiated mark-ups to be applied according to the elasticities of demand of particular services (and also their cross-elasticities of demand). If a service has a high elasticity of demand, the mark-up will tend to low since the level of demand is more sensitive to price. On the other hand, for those services with low demand elasticity a change in price has less impact on the demand of these services. For this reason the majority of common costs are allocated to these services.

Ramsey pricing, however, has a number of practical implementation problems. First of all, price elasticities are very difficult to estimate and verify. This is of special concern since a licensee operating in both competitive and regulated markets will have a strong incentive to attribute a disproportionate amount of the common costs to the regulated services. Price elasticities are also likely to vary over time, with price, and be dependent on the level of competition in various segments of the market. Also multiple price elasticities could occur depending on the intended use of the product. The method therefore faces a number of operational difficulties.

Secondly, it may seem unfair that consumers should bear a larger burden of the costs just because they are so dependent on provision of the services or have so few alternatives that their demand is not very sensitive to the price.

Finally, it is not always clear how to estimate demand elasticities for access and interconnection services, since these services are sold to other licensees reselling and re-packaging the services to end-users with very different demand elasticities.

(ii) Equal Proportional mark-up (EPMU)

Another way of recovering common costs is to apply the EPMU method. In this method the common costs are allocated to the separated services or products in proportion to the incremental costs already allocated to these services or products. This means that for each service the percentage of incremental costs is calculated, which is directly connected with this service and then the same percentage of common costs is allocated to this service. Therefore, there is no distortion introduced to the relative levels of incremental costs.

This kind of method of allocation does not reflect the real service contribution in common costs, however it is easy to implement and does not create any distortion in the relative levels of incremental costs of different network elements. In part because it is easy to apply it is very often used.

As an example, if in a model with two increments – access, and interconnection - the LRIC of access is OR 6 million, and of interconnection OR 4 million, with common costs of OR 2 million, then the mark-up would be set at 20% (=2/(6+4)) and common costs would be split between access and interconnection accordingly, i.e. OR 1.2 million for access and OR 0.8 million for interconnection.

The TRA is of the view that the mark-up mechanism used shall be EPMU.

Returning to the earlier definitions of incremental cost it should be noted that an EPMU based mark-up (based on the common fixed costs between the access and core increments) should be added to the incremental costs of both the access and core networks. In respect of the second (service based definition) no mark-up should be applied.

10.4 Other Issues

Having set out guidance on the preparation of FAC HCA, FAC CCA and LRIC accounts in the preceding sections, this section of the Guidelines discusses other matters of relevance to these costing methodologies.

10.4.1 Routing Factors

Under each costing standard, after the annual cost of each network component (NC) has been calculated, the next step is to convert the cost of NCs into a per minute charge (or per unit charge). A network component is typically used by a number of services and it is therefore necessary to divide the cost of a network component by the total volume of traffic associated with that component.

It can be noted that services using a particular increment may be measured using different units. For example, both calls and data services use MSANs but the former is measured in minutes while the latter is measured in bits or bytes. To address this issue the licensee will need to convert units for services to a common base. In the present case call minutes would need to be converted into bits or bytes.

In order to identify the total usage of a network component it is necessary to identify: i) the services using that component; ii) the routing factors of these services (i.e. the average use of each NC by each service). The cost for a particular service can be calculated by summing the unit cost of each NC used by that service taking into account the average number of uses (routing factor) the service uses of a given NC.

Panel A

Services	Traffic (million minutes)	Routing Factors		
		NC1	NC2	NC3
S1	5000	1	2	3
S2	8000	1,5	1	1,5
S3	4000	2,5	2	2

Panel B

Services	Traffic (million minutes)	Incremental cost per NC minute		
		NC1	NC2	NC3
S1	5000	5000	10000	15000
S2	8000	12000	8000	12000
S3	4000	10000	8000	8000
Total NC demand		27000	26000	35000
Incremental cost		30000	50000	100000
Incremental cost per minute		1,11	1,92	2,86

Panel C

Services	NC1	NC2	NC3
S1	1,11	3,85	8,57
S2	1,67	1,92	4,29
S3	2,78	3,85	5,71

Figure 5: Routing factor matrix and incremental cost per unit

The figure above (Figure 5) gives a simple illustrative example of how to calculate the LRIC of a service.

Panel A shows a matrix of routing factors. This matrix captures both the extent to which services use the different NCs and also the volumes of these services (minutes).

Using Panel A the total demand is calculated for each NC, by simply multiplying the routing factors by the traffic of services, and summing it for each NC. Panel B illustrates how the incremental cost per minute is calculated using total component demand – the incremental cost per component is divided by total component demand.

Finally, the last of the panels (Panel C) shows how we get the incremental cost of service per minute. Taking the routing factors from Panel A and multiplying them by the incremental cost per minute for each NC, and sum up for each network service.

The TRA is of the view that model documentation shall provide supporting information of the statistical validity of traffic volumes and routing factors shall be consistent with the relevant traffic volumes provided.

10.4.2 Model requirements

The models for accounting separation are often large, complex and insufficiently transparent. However, the complexity (plus the lack of transparency) is often unwarranted. When building the model for accounting separation, the licensee shall make the model as transparent as possible. For example, in many cases it may be possible to build the model using standard-software such a MS Excel, Visual Basic or Access.

The model shall have the flexibility to examine the impact of a change in:

- Equipment prices;
- Utilization Rates;
- Cost of capital;
- Volumes;
- Annualisation methodologies;
- The inclusion/exclusion of fully depreciated assets; and
- Asset lives.

10.4.3 Documentation of the model

Licensees must provide adequate and detailed documentation to support their model submission. In particular, the documentation of the model shall allow a third party to gain a complete understanding of the model's assumptions, methodology and calculations.

The models submitted by the licensee under FAC HCA, FAC CCA and LRIC must be supported by the following documentation:

(1) User Manual containing:

- Methodological overview (including input/output flowchart of the model);
- Opening the model;
- Dataset selection;
- Editing data;
- Model run options; and
- Model output.

(2) Detailed explanations for each engineering sub-model including planning rules used (i.e. busy hour traffic per urban residential subscriber, equipment utilization, etc.).

(3) A Non-Technical Functional Specification (NTFS). The NTFS must contain a complete logical description of the business layer including numerical examples.

(4) A detailed description and results of the test of the model.

(5) If the model was developed by an independent third party, then a written third party consent allowing the TRA and the TRA's third party advisors access to the model.

10.4.4 Audit of the model

The following elements of the model shall be covered by the audit:

- the scope of revenue, costs and capital employed included in the model;
- the scope of revenues, costs and capital employed allocated to Relevant Markets and Individual Services;
- reconciliation between the model and statutory accounts;
- correctness of figures including: operational data: volumes, technological parameters;
- methodologies used regarding amortization, cost capitalization, allocation and evaluation of the assets;
- transfer charges in separated accounts;
- reconciliation between the model and the separated accounts;
- CVRs; and
- accounting system information.

The TRA is of the view that:

- the model shall be made as transparent as possible.
- the licensee shall provide adequate and detail documentation to support the model submission in such a way that can be thoroughly understood by a third party in accordance with Section 10.4.3 of the Guidelines.
- it shall have full access to the licensee's models. Furthermore, the licensee shall provide any kind of data related to the model if requested to do so by the TRA. The TRA will put in place such measures so as to protect the security of commercially sensitive information.
- it shall have access to and be able to review all parts of the model.
- the model shall be audited in line with Section 10.4.4 of the Guidelines.

11. SUBMISSION OF SEPARATED REGULATORY ACCOUNTS

The licensee, who is subject to accounting separation obligation, is obliged to prepare and submit Separated Regulatory Accounts to the TRA for each of the Relevant Markets in which it is dominant. The licensee must submit to the TRA the following documents:

1. Separated Regulatory Accounts
2. Accounting Separation Methodology Document
3. Accounting Documents

The Separated Regulatory Accounts shall also be prepared at Individual Service level and for that purpose the licensee shall prepare and submit to the TRA, for approval and in line with the requirements of the Regulation, the list of Individual Services under each Relevant Market. The list shall contain those regulated retail and wholesale services which were offered by the licensee anytime during the last financial year. The list shall also contain a brief description of each service, respective customer category (i.e. internal or external) and the reference average unit price of that service.

Although it is desirable that the list goes to sufficient level of granularity to enhance the value of information, the TRA acknowledges the difficulties a licensee can face in this regard especially in the first year. Therefore the TRA will not require the level of granularity at the level of individual bandwidth, quality of services, etc. in the first year. However, it can require such service disaggregation from the licensees in later years.

Appendix D provides the list of Relevant Markets and Individual Services for which the Separated Regulatory Accounts are required to be prepared. This list may be amended by the TRA from time to time. The licensee, while submitting its list of Individual Services to the TRA, shall explain and justify the differences, if any, between the list required by the TRA and the licensee's proposed list of Individual Services.

11.1. Separated Regulatory Accounts

The Separated Regulatory Accounts shall be prepared in accordance with the Accounting Documents. These shall include the following:

(i) Profit and Loss Statement - A statement of revenues (including Transfer Charges), operating costs (including Transfer Charges) and depreciation for all Relevant Markets and Individual Services. The profit shall be stated before interest, tax and cost of capital. The Profit and Loss Statement shall state return on capital employed, defined as profit divided by mean capital employed.

(ii) Statement of Mean Capital Employed - A statement of average non-current assets (fixed and intangible) and average working capital (separated into current assets and current liabilities). The Statement of Mean Capital Employed shall be reported for all Relevant Markets and Individual Services.

(iii) Reconciliation Statements:

a. For the Separated Regulatory Accounts based on FAC using HCA, between the HCA Profit and Loss Statement as well as Statement of Mean Capital Employed and the Dominant Licensee's audited Statutory Accounts;

b. For the Separated Regulatory Accounts based on FAC using CCA, between the CCA Profit and Loss Statement as well as Statement of Mean Capital Employed and the Separated Regulatory Accounts based on FAC using HCA;

c. For the Separated Regulatory Accounts based on LRIC, between the LRIC Profit and Loss Statement as well as Statement of Mean Capital Employed and the Separated Regulatory Accounts based on FAC using CCA.

d. Between each consolidated Profit and Loss Statement as well as Statement of Mean Capital Employed with the respective detailed Profit and Loss Statement as well as Statement of Mean Capital Employed.

(iv) Statement of Transfer Charges – highlighting the transfer charges between each Relevant Market and between each Individual Service reflecting the quantities and prices of services provided.

(v) Statement of Average Unit Revenue.

(vi) Statement of Network Component Unit Cost.

(vii) Statement of Routing Factors and Network Unit Cost of Services.

(viii) Notes to the Separated Regulatory Accounts.

The formats of the Separated Regulatory Accounts are provided in Appendix B of these Guidelines.

The Separated Regulatory Accounts shall be accompanied with the Statement of Responsibility which shall be in the form as prescribed in Appendix C of these Guidelines and shall be signed by the Chief Executive Officer, or equivalent, of the licensee.

11.2 Accounting Separation Methodology Document

The licensee shall prepare and submit to TRA, an Accounting Separation Methodology Document. The licensee shall submit the first Accounting Separation Methodology Document to TRA in the following manner:

(i) One (1) printed original Accounting Separation Methodology Document signed by the licensee's management on the first page and with initials on all other pages.

(ii) One (1) original DVD signed on its front by the licensee's management that shall include:
  (a) Files in PDF format (not protected or scanned).
  (b) Files in MS Word (not protected).

(iii) Three (3) printed copies of the original Accounting Separation Methodology Document.

(iv) Three (3) DVD copies of the original DVD.

In the event that the licensee makes no changes in the subsequent Accounting Separation Methodology Document, as compared with the one that was approved by TRA, the

licensee shall provide a certificate, signed by its management, to the TRA stating that it has made no changes in the approved Accounting Separation Methodology Document and shall submit the Accounting Separation Methodology Document in the manner prescribed above.

Where the licensee makes changes in the subsequent submission of Accounting Separation Methodology Document, it shall submit the same to TRA in the following manner:

(i) One (1) printed original Accounting Separation Methodology Document signed by the licensee's management on the first page and with initials on all other pages.

(ii) One (1) printed original document containing details of all changes made to the previously approved version of the Accounting Separation Methodology Document, and the reasons for, and impact of, such changes on the Separated Regulatory Accounts. The document shall be signed by the licensee's management on the first page and with initials on all other pages.

(iii) One (1) original DVD signed on its front by the licensee's management that shall include:
  (a) Files in PDF format (not protected or scanned).
  (b) Files in MS Word for track-change and clean versions (not protected).

(iv) Three (3) printed copies of the original Accounting Separation Methodology Document.

(v) Three (3) DVD copies of the original DVD.

11.3 Accounting Documents

Accounting Documents shall be submitted to the TRA, in a sealed envelope or package to be signed by the licensee's management, in the following manner:

(i) One (1) printed original set signed by the licensee's management on the first page and with initials on all other pages.

(ii) One (1) original DVD signed on its front by the licensee's management that shall include:
  (a) Files in PDF format (not protected or scanned).
  (b) Files in MS word or excel format depending on the nature of the document (not protected).

(iii) Three (3) printed copies of all the original Accounting Documents.

(iv) Three (3) DVD copies of the original DVD.

Reports consisting of numerical data tables, including all accounting separation reports, shall be provided both in document format (such as a PDF file) as well as in the form of a widely used database or spreadsheet format (such as MS Excel). For Spreadsheet files all links and formulas shall be visible and editable.

In case of failure to provide the requested documentation in the required format, the Accounting Documents shall not be accepted and evaluated further.

In case changes to Accounting Documents are made by the licensee, it shall submit to the TRA the details of all such changes and the effects of such changes on the Separated Regulatory Accounts.

The licensee shall prepare and submit to TRA, Accounting Documents for FAC/HCA, FAC/CCA and LRIC which shall contain, at minimum, the following:

(i) For FAC / Historic Cost Accounting

- A Description of Accounting Principles and Policies - with a description of each of the Accounting Principle that applies in the preparation of Separated Regulatory Accounts, along with a description of each of the Accounting Policies used to prepare the Separated Regulatory Accounts;

- A Description of the Relevant Markets and Individual Services - with a description of each of the Relevant Markets and Individual Services contained in the Separated Regulatory Accounts;

- Mapping of Services - description of each service provided by the licensee as well as the mapping of the service to:
    - the Relevant Markets, for which the licensee shall provide Separated Regulatory Accounts; and
    - the Individual Services, for which the licensee shall provide Separated Regulatory Accounts.

- A Description of Transfer Charges – (where applicable), a summary of the transfer charges, and a description of the methodologies applied, between each of the Relevant Markets and Individual Services;

- A Description of Asset Categories - for each network asset/asset class, an asset description including specification of its useful life and current asset age together with the historical gross book value (GBV) and historical net book value (NBV) at the year-end date;

- Allocation Methodology – a description of revenue and cost allocation methodologies and cost items including source data, cost centres, cost centre classifications and an overview of the cost allocation processes; and

- Detailed Allocation Methodology (DAM) Document – the DAM document shall be sufficiently detailed to enable the TRA to develop a complete process map of all the allocations in the licensee's accounting separation system. As such, it shall include, at a minimum, a description of:

    - The allocation methodologies used to prepare Separated Regulatory Accounts;
    - All costs (underlying General Ledger (GL) accounts/codes or cost centres) that are inputted into the model;
    - All cost centres;
    - Cost accounts/cost types; and

- Activities as well as the detailed allocations from cost centres to cost centres and/or activities and from activities to both Relevant Markets and Individual Services.

(ii) For FAC / Current Cost Accounting

- CCA documentation - to ensure consistency, the licensee shall develop FAC/CCA Separated Regulatory Accounts using the same allocation principles as applied to its FAC/HCA Separated Regulatory Accounts. In case of any differences, the licensee is required to detail all differences clearly in its Accounting Documents.
- Valuation Methods – a description of the approaches used by the licensee to derive gross replacement cost (GRC) and net replacement cost (NRC - at the year-end date); as well as all adjustments made under CCA Financial Capital Maintenance (FCM).

- Detailed Valuation Methodology (DVM) Document - For each asset class in the licensee's Accounting Separation system, the DVM document shall provide detailed information on the underlying data and methodology used to prepare the FAC/CCA Separated Regulatory Accounts. This shall include, at a minimum:

  - An asset description including useful life and current asset age together with historical GBV, historical NBV, GRC and NRC. The methods used to derive GRC together with the NRC shall also be provided and justified, including, but not limited to:
    - The revaluation methodologies and sources of GRCs for all assets;
    - For all assets revalued using absolute valuation or modern equivalent asset (MEA) valuation, quantity and unit price information underlying the GRCs for asset categories;
    - For all assets revalued using indexation, detailed unit price information used to derive the price indices applied in the revaluation; and
    - Depreciation concepts and assumptions, including methodology, assets lives, price trends for all assets and treatment of holding gains and losses.

  - Asset category (for assets other than network assets) descriptions including asset category useful life and asset category age, together with GBV and NBV. The methods used to derive GRC and NRC shall also be provided and justified, including, but not limited to:
    - The revaluation methodologies and sources of GRCs for all assets;
    - For all assets revalued using absolute valuation or modern equivalent asset (MEA) valuation, quantity and unit price information underlying the GRCs for asset categories;
    - For all assets revalued using indexation, detailed unit price information used to derive the price indices applied in the revaluation; and
    - Depreciation concepts and assumptions, including methodology, assets lives, price trends for all assets and treatment of holding gains and losses.

- In the DVM document, where a MEA methodology has been used, the licensee is required to provide a complete and detailed comparison of the characteristics and functionality of the chosen MEA against those of the asset actually in place.

(iii) For Long Run Incremental Costing

- LRIC Methodology – a description of the methodologies associated with the calculation of LRIC including, at a minimum:
  - A definition of all terms used in the LRIC Methodology, a description of the underlying increments (and the rationale for the chosen increment structure), cost definition, and a description of the methodologies relating to the measurement and recovery of fixed common and joint costs;
  - The approach used;
  - All CVRs used within the LRIC model; and
  - An outline of all dependent and independent cost categories.

- Detailed LRIC Methodology (DLRICM) Document – the DLRICM Document shall be sufficiently detailed to enable the TRA to develop a complete process map of all the allocations in the licensee's LRIC model. It shall include, at a minimum:
  - A step-by-step description of the methodology used to derive the costs of relevant services;
  - A detailed description of all costs (underlying GL accounts/codes or cost centres) that go into the LRIC model developed by the licensee;
  - Route factors and description of the methodology used to derive those route factors;
  - The number of network nodes;
  - A description of the type and function of equipment deployed in each network node;
  - Definitions and descriptions of methodologies, assumptions, and sampling techniques used for data gathering;
  - A list of homogenous cost categories (HCCs) and network components, together with documentation demonstrating that HCCs have been properly defined. This shall include, for all HCCs: cost centre-to-HCC mappings, HCC to cost-volume relationship (CVR) mappings and, for all dependent HCCs, a list of the dependency hierarchy;
  - A description of the cost driver(s) for each HCC, together with the chain of dependencies through which dependent cost categories are modelled. In all cases, the licensee shall provide justification for the cost driver(s) selected for each HCC. This justification shall be sufficiently detailed to enable the TRA to review the appropriateness of the chosen driver(s);
  - A description of operating costs and their allocation methodologies used in the LRIC model;
  - Evidence demonstrating that only efficient and appropriate working capital balances have been included in the model;
  - Utilization rates of switching equipment and transmission equipment (existing as well as modelled);
  - Documentation of all efficiency adjustments used, in particular:
    - A description of the existing network structure of the licensee, and its network structure after any efficiency adjustments have been

made, together with an explanation of the efficiency adjustments made; or

- In the absence of any efficiency adjustments, an explanation as to why the licensee considers its cost base to be reflective of an efficient licensee.
- An identification of spare network capacity i.e. specific network components and associated levels of spare capacity. Technical and economic justifications for inclusion of any costs associated with spare network capacity.

- CVR Methodology (CVRM) Document - For each HCC in the licensee's LRIC system, the CVRM Document shall provide a detailed specification of all CVRs used in the model. This shall include for each HCC, a description of how each CVR used is constructed, including at a minimum:
  - The underlying cost driver;
  - The shape of the CVR;
  - A definition of the level of network coverage used to generate a CVR; and
  - The process by which an underlying cost driver volume has been reduced from the licensee's existing network to its minimum point.

12. AUDIT OF SEPARATED REGULATORY ACCOUNTS

The regulatory auditor is required to audit the Separated Regulatory Accounts in accordance with International Standards on Auditing under fair presentation framework where the term "fair presentation framework" refers to a financial reporting framework that requires compliance with the specific requirements of the framework and:

(i) acknowledges explicitly or implicitly that, to achieve fair presentation of the financial statements, it may be necessary for management to provide disclosures beyond the specific requirements of the framework; or

(ii) acknowledges explicitly that, in extremely rare circumstances, it may be necessary for management to depart from a specific requirement of the framework to achieve fair presentation of the financial statements.

The audit opinion on Separated Regulatory Accounts, prepared on LRIC, can be provided on "properly prepared in accordance with" basis until such time as the TRA requires the audit opinion on 'fairly presents' basis.

The audit opinion will be provided on Separated Regulatory Accounts as a whole as well as on the Relevant Market and Individual Service level. The audit opinion will also be provided on restated Separated Regulatory Accounts for previous year, as a whole, where applicable.

The Licensee shall appoint the regulatory auditor, according to the requirements set down in the Regulation and the Guidelines. The TRA shall approve or reject the appointment of the proposed regulatory auditor based on the requirements provided in the Regulation. The licensee shall bear all costs of the audit.

The TRA can require the licensee to ask for the audit to be re-performed, in whole or in part, if it considers that regulatory objectives have not been achieved.

12.1. Tasks of the Regulatory Auditor

Without prejudice to any other task that is required to be performed under the Framework, the regulatory auditor shall, at minimum, perform the following tasks:

(i) Review of the methodologies used in the preparation of FAC HCA, FAC CCA and LRIC systems to ensure that they are in accordance with the Framework;
(ii) Reconciliation of input data used in the FAC HCA, FAC CCA and LRIC systems with statutory accounts;
(iii) Review of the Accounting Separation Methodology Document and the Accounting Documents to ensure that the Accounting Documents are appropriate to implement the principles contained in the Accounting Separation Methodology Document;
(iv) Review of the cost of capital methodology and its calculation;
(v) Review of technical studies prepared for the Separated Regulatory Accounts;
(vi) Recommendation of improvements required in the Separated Regulatory Accounts and related accounting systems, including changes proposed for overall improvements in the system and changes required for the next year. The document setting out these recommendations shall be made available to the TRA along with the Separated Regulatory Accounts; and
(vii) Impact analysis of the proposed changes to the system, if practical.

The licensee shall implement the changes required by the regulatory auditor to its system within the time period prescribed by the TRA and all such changes shall be duly verified by the regulatory auditor.

12.2 Capability of the Regulatory Auditor

The regulatory auditor shall have audit as well as technical knowledge (regulatory accounting, accounting separation and telecoms business/operations) experience and capabilities.

Its team should preferably include:

(i) one auditing expert, with at least seven years of experience in auditing and/or accounting experience and good understanding of the financial and accounting standards employed in the Sultanate;
(ii) one regulatory accounting expert, with at least seven years of experience in regulatory accounting in the telecommunications industry;
(iii) one regulatory expert, with at least seven years of experience in regulation in the telecommunications industry; and
(iv) one technical expert, with at least seven years of relevant experience and familiarity with the auditing of regulatory accounts.

The regulatory auditor shall be fully independent from the licensee or its affiliated companies. In particular, the licensee must ensure that the regulatory auditor (including its affiliated companies):

(i) has not audited the Statutory Accounts of the licensee or its affiliated companies in the past three years.
(ii) has not been working for the licensee or its affiliated companies for assignments exceeding OR 200,000 over the last 12 months.

(iii) shall not accept other assignments of any nature and scope except the audit of the Separated Regulatory Accounts from the licensee or its affiliated companies, during the audit and in the forthcoming nine months after completion of the audit.

(iv) shall not accept other assignments from the licensee or its affiliated companies, for any nature or scope, that cumulatively exceed OR 200,000 in the forthcoming 12 months after completion of the audit.

In exceptional circumstances, where any of the above conditions is not met by the regulatory auditor, the licensee shall submit written request to the TRA requesting permission for the appointment and explaining that regulatory auditor independence will not be compromised. The TRA will use its discretion in granting or refusing such request on case to case basis.

12.2 Audit Report

The audit report shall be self-explanatory, cover management and auditor's responsibility, basis of opinion, audit opinion and shall meet all the requirements of the Regulation and these Guidelines. An example audit report is provided in Appendix E to these Guidelines which shall be used for initial years by the regulatory auditor. Suitable changes to the audit report can be made whenever the TRA requires the audit opinion on Separated Regulatory Accounts, prepared on LRIC, on a "fairly presents" basis.

Appendix A

Cost Allocation Guidelines

1. Allocation of Operating Costs

Category of Operating Cost	Description	Method of Allocation
Depreciation	Depreciation	The allocation of depreciation shall follow the allocation of the fixed assets to which it relates.
Provision and installation of equipment	Payroll costs	Direct to network components/other plant where possible; otherwise allocate based on the time spent carrying out installation work.
	Installation, contract and maintenance costs	Direct to network components/other plant where possible on the basis of the plant installed or maintained.
Maintenance and repair costs	Payroll costs	Direct to network components/other plant where possible; otherwise allocate based on the time spent carrying out maintenance and repair work.
	Other costs	Direct to network components/other plant where possible.
Network planning and development costs	Payroll and external costs	Direct to network components/other plant where possible.
Network Support Costs	Activities such as allocation of jobs to engineers, non-operational engineering costs such as training and team meetings	Allocate in proportion to maintenance and repair costs.
Network management costs	Payroll costs	Allocate to network components/other plant on the basis of the time spent by staff to manage each type of plant.
	Other costs	Allocate to network components/other plant on the basis of the plant managed, where possible.

Marketing and sales costs	Payroll	Direct to products and services where possible; otherwise allocate between products based on labor time.
	Cost of sales of equipment	Allocate to customer equipment services within "Other activities".
	Publicity Promotions Market research Distributors fees Other costs	Direct to products and services where possible. Otherwise, for those costs where multiple services are being marketed or promoted, cost shall be attributed to the related services on a reasonable basis.
Billing and collection costs	Payroll costs	Direct to products and services where possible; otherwise allocate between products based on labor time.
	Other billing costs (incl. Bad debts)	Direct to products and services where possible; otherwise allocate between products based on usage (e.g. number of bills produced).
Licensee services costs	Payroll costs	Direct to services where possible. The costs of staff that carry out tasks for several licensee services shall be allocated to the related licensee services based on time spent on different tasks.
Directory services costs	Payroll and other costs	Direct to products and services.
Customer Support Centres	Centres for orders; complaints	To products and services or components on basis of time spent.
Payments to other licensees	Out-payments for outgoing international traffic	Direct to products and services.
	Payments for interconnection agreements	Direct to products and services.
	Transfer Charges from Holding companies	Transfer charges from holding companies, if any, need to be calculated in a non-discriminatory manner.
	Human resources function costs	HR function costs shall be allocated to the staff that are overseen by the HR function and allocated using the same basis as the

Support Costs		payroll costs of HR staff.
	Finance and other head office support functions	If related specifically to a product, service or business allocate accordingly. Payroll activities shall be allocated on basis of pay. Accounting related activities can also be allocated on basis of pay.
	Vehicle Running Costs	Costs shall be allocated in the same way as the vehicles themselves.
	Building costs and rent	Costs shall be allocated in the same way as land and buildings.
	General computing/IT costs	Allocate to the applications run by the licensee on the basis of the use of the computers to support each application. Costs allocated to applications can then be attributed to those products and services that they support.
	Other Management Functions such as General Management	Where possible on the basis of time spent; otherwise on the basis of previously allocated costs.
Royalty fee	Royalty fee payable to TRA	Allocated to services according to how royalties are charged.

Table 1: Operating Cost Allocation Guidelines

2. Allocation of Capital Employed

Category of assets and liabilities	Description	Method of Allocation
Tangible assets		
Primary Plant		
Connection Related	Drop-wire capital, CPE	In general costs can be allocated directly to service, e.g. connections.
Switching equipment	Local switching equipment *(note that this is only relevant for HCA valuations; for both CCA and LRIC, NGN assets shall be considered)*	Direct to access or core network components where possible. Otherwise costs shall be allocated to local access network services and to network components on the basis of the relevant cost of the equipment dedicated to provide customer lines and of the parts dedicated to switch traffic, respectively. Local switch network components can be allocated to products and services based on seconds of use.
	Tandem switching equipment *(note that this is only relevant for HCA valuations; for both CCA and LRIC, NGN assets shall be considered)*	Direct to network components where possible and from there to services based on seconds of use.
	International switching equipment	Direct to network components where possible and from there to services based on seconds of use.
	Switching equipment for special services networks	Direct to core network components where appropriate/required by regulation or to the specific services provided by other networks – e.g. data transmission switching equipment shall be allocated to data transmission services on the basis of usage.
	Equipment used for both data and voice services, such as MSANs aggregation switches and routers	The underlying principles outlined above shall be followed. However, in addition, voice and data traffic need to be converted into common measure based on bandwidth and taking into account Quality of Service.
	Other switching equipment	Direct to network services or components where possible and from components to services on the basis of equipment usage.

Transmission equipment	Traffic-sensitive transmission equipment	Direct to network components where possible, and in turn to services based on the usage of circuits.
	Cable and wire	Direct to access or network components where possible. Component costs can be allocated to services on the basis of usage (e.g. number of fibres used by different services).
	Local loop equipment	Direct to products where possible (e.g. separately identifiable ISDN access equipment), otherwise allocate between access services based on line usage.
	Radio and satellite equipment	Direct to network components where possible, and from there to services based on the usage of channels.
	Transmission equipment for special services networks	Direct to the specific non-PSTN/non-ISDN services provided by the network – e.g. data transmission equipment directly allocated to data transmission services.
	International/submarine cable	Direct to network components where possible and in turn from network components to services based on usage.
Other primary network assets	Special network plant	Plant and equipment that is used solely to provide one specific service shall be allocated directly to the relevant services. Examples may include: • Intelligent networks equipment; • Data transmission equipment; • Multimedia equipment.
	Customer premises equipment	Direct to products and services.
	Public payphones and related equipment	Direct to service.

Support Plant	Ducting	Ducting can be allocated to the cable and wire that it supports and allocated to products in the same way as cable and wire.
	Power and air conditioning equipment	Allocate to primary plant groups on the basis of the use of power equipment to support each plant– e.g. kilowatts per hour. Assets shall then be allocated to products in the same way as the relevant primary plant groups.
	Distribution Frames: MDFs, ODFs; Jumpering	MDFs shall be allocated on the basis of subscriber lines; ODFs on the basis of fibre usage. Jumpering costs shall be allocated in relation to equipment being jumpered.
	Management systems	Allocate to primary plant of the different networks provided on the basis of the use of the systems to support each plant – e.g. time spent to control local exchanges, tandem exchanges and international exchanges. Costs shall be attributed to products and services in the same way as the related primary plant group.
	Land and buildings	Allocate to products, services and network components on the basis of the space occupied (i.e. floor space) to support each product, service or network component.
	General computers	Allocate to the applications run by the licensee on the basis of the use of the computers to support each application. Costs allocated to applications can then be attributed to those products and services that they support.
	Motor vehicles	Allocate to the products and network components based on usage.
	Furniture and office equipment	Allocate to the products and network components based on usage.

Non-network fixed assets	Land and buildings	Allocate to products, services and network components on the basis of the space occupied (i.e. floor space) to support each product, service or network component.
	General computers	Allocate to the applications run by the licensee on the basis of the use of the computers to support each application. Costs allocated to applications can then be attributed to those products and services that they support.
	Motor vehicles	Allocate to the products and network components based on usage.
	Furniture and office equipment	Allocate to the products and network components based on usage.
Intangible fixed assets	Intangible fixed assets	Direct to products where possible. Any residual or un-attributable assets will need to be allocated on an arbitrary basis, to be agreed with the TRA.
Fixed asset investments	Pure financial investments	Direct to "Other activities".
	Investments in unrelated activities	Direct to "Other activities".
	Other investments	Direct to the services to which the investments are related, otherwise allocate based on usage.
Working capital	Short-term investments (including cash at bank and in hand)	Direct to businesses where possible, otherwise allocate based on the operational requirements of each business.
	Stocks	Stocks shall be allocated directly to products and services.
	Trade debtors/receivables	Trade debtors may be allocated to products and services based on billing system information where possible. Un-attributable balances will need to be allocated on an arbitrary basis, to be agreed with the TRA.
	Other debtors/receivables	Other debtors/receivables shall be apportioned to products and services if possible. Un-attributable balances will need to be allocated on an arbitrary basis, to be agreed with the TRA.
	Trade creditors	Trade creditors shall be allocated directly to products and services if possible. Un-attributable trade creditors will need to be allocated on an arbitrary basis, to be agreed with the TRA.
	Long term provisions	Direct to the activities that give rise to the provisions in question.

	Liabilities for dividends	No allocation required. Instead average liabilities shall be taken into account when considering the operational cash requirements of each business (see "Short-term investments")

Table 2: Capital Employed Cost Allocation Guidelines

Appendix B

Formats of Separated Regulatory Accounts

1. PROFIT AND LOSS STATEMENT

1.1 Profit and Loss Statement (FAC HCA)

(a) Consolidated Profit and Loss Statement (FAC HCA)

Consolidated Profit and Loss Statement (FAC HCA)

Current Year

	Market 1	Market 2	Market 3	Other Retail	Total Retail	Market 10	Market 11	Market 12	Other Wholesale	Total Wholesale	Total
Currency OR '000											
Revenue:											
External Sales											
Internal Sales											
To Market 1											
To Market 2											
To Market N											
Total Revenue(a)											
Operating Cost:											
Operating Cost											
Internal Transfer Charge											
From Market 10											
From Market 11											
From Market N											
Total Operating Cost (b)											
HCA Depreciation (c)											
Total HCA Operating Cost (d=b+c)											
HCA Profit (Loss) (a-d)											
HCA Mean Capital Employed											
Return on Capital Employed (%)											
WACC (%)											

Consolidated Profit and Loss Statement (FAC HCA)

Previous Year

	Market 1	Market 2	Market 3	Other Retail	Total Retail	Market 10	Market 11	Market 12	Other Wholesale	Total Wholesale	Total
Currency OR '000											
Revenue:											
External Sales											
Internal Sales											
To Market 1											
To Market 2											
To Market N											
Total Revenue(a)											
Operating Cost:											
Operating Cost											
Internal Transfer Charge											
From Market 10											
From Market 11											
From Market N											
Total Operating Cost (b)											
HCA Depreciation (c)											
Total HCA Operating Cost (d=b+c)											
HCA Profit (Loss) (a-d)											
HCA Mean Capital Employed											
Return on Capital Employed (%)											
WACC (%)											

(b) Detailed Profit and Loss Statement (FAC HCA)

Detailed Profit and Loss Statement - Market 1 (FAC HCA)

Current Year

	Service 1	Service 2	Service 3	Service N	Others	Total
Currency OR '000						
Revenue:						
External Sales						
Internal Sales						
To Market 1						
To Market 2						
To Market N						
Total Revenue(a)						
Operating Cost:						
Operating Cost						
Internal Transfer Charge						
From Market 10						
From Market 11						
From Market N						
Total Operating Cost (b)						
HCA Depreciation (c)						
Total HCA Operating Cost (d=b+c)						
HCA Profit (Loss) (a-d)						
HCA Mean Capital Employed						
Return on Capital Employed (%)						
WACC (%)						

Detailed Profit and Loss Statement - Market 1 (FAC HCA)

Previous Year

	Service 1	Service 2	Service 3	Service N	Others	Total
Currency OR '000						
Revenue:						
External Sales						
Internal Sales						
To Market 1						
To Market 2						
To Market N						
Total Revenue(a)						
Operating Cost:						
Operating Cost						
Internal Transfer Charge						
From Market 10						
From Market 11						
From Market N						
Total Operating Cost (b)						
HCA Depreciation (c)						
Total HCA Operating Cost (d=b+c)						
HCA Profit (Loss) (a-d)						
HCA Mean Capital Employed						
Return on Capital Employed (%)						
WACC (%)						

Note: Similar format shall be used for reporting profitability of Individual Services for all other Relevant Markets.

1.2 Profit and Loss Statement (FAC CCA)

(a) Consolidated Profit and Loss Statement (FAC CCA)

Consolidated Profit and Loss Statement (FAC CCA)

Current Year

	Market 1	Market 2	Market 3	Other Retail	Total Retail	Market 10	Market 11	Market 12	Other Wholesale	Total Wholesale	Total
Currency OR '000											
Revenue:											
External Sales											
Internal Sales											
To Market 1											
To Market N											
Total Revenue(a)											
Operating Cost:											
Operating Cost											
Internal Transfer Charge											
From Market 10											
From Market N											
Total Operating Cost (b)											
HCA Depreciation (c)											
Supplementary Depreciation (d)											
CCA Depreciation (e=c+d)											
Total CCA Operating Cost (f=b+e)											
Revaluation of Fixed Assets (g)											
Backlog Depreciation (h)											
Net Holding Gain/(Loss) (i=g-h)											
CCA Profit (Loss) (a-f+i)											
CCA Mean Capital Employed											
Return on Capital Employed (%)											
WACC (%)											

Consolidated Profit and Loss Statement (FAC CCA)

Previous Year

	Market 1	Market 2	Market 3	Other Retail	Total Retail	Market 10	Market 11	Market 12	Other Wholesale	Total Wholesale	Total
Currency OR '000											
Revenue:											
External Sales											
Internal Sales											
To Market 1											
To Market N											
Total Revenue(a)											
Operating Cost:											
Operating Cost											
Internal Transfer Charge											
From Market 10											
From Market N											
Total Operating Cost (b)											
HCA Depreciation (c)											
Supplementary Depreciation (d)											
CCA Depreciation (e=c+d)											
Total CCA Operating Cost (f=b+e)											
Revaluation of Fixed Assets (g)											
Backlog Depreciation (h)											
Net Holding Gain/(Loss) (i=g-h)											
CCA Profit (Loss) (a-f+i)											
CCA Mean Capital Employed											
Return on Capital Employed (%)											
WACC (%)											

(b) Detailed Profit and Loss Statement (FAC CCA)

Detailed Profit and Loss Statement - Market 1 (FAC CCA)

Current Year

	Service 1	Service 2	Service 3	Service N	Others	Total
Currency OR '000						
Revenue:						
External Sales						
Internal Sales						
To Market 1						
To Market 2						
To Market N						
Total Revenue(a)						
Operating Cost:						
Operating Cost						
Internal Transfer Charge						
From Market 10						
From Market 11						
From Market N						
Total Operating Cost (b)						
HCA Depreciation (c)						
Supplementary Depreciation (d)						
CCA Depreciation (e=c+d)						
Total CCA Operating Cost (f=b+e)						
Revaluation of Fixed Assets (g)						
Backlog Depreciation (h)						
Net Holding Gain/(Loss) (i=g-h)						
CCA Profit (Loss) (a-f+i)						
CCA Mean Capital Employed						
Return on Capital Employed (%)						
WACC (%)						

Detailed Profit and Loss Statement - Market 1 (FAC CCA)

Previous Year

	Service 1	Service 2	Service 3	Service N	Others	Total
Currency OR '000						
Revenue:						
External Sales						
Internal Sales						
To Market 1						
To Market 2						
To Market N						
Total Revenue(a)						
Operating Cost:						
Operating Cost						
Internal Transfer Charge						
From Market 10						
From Market 11						
From Market N						
Total Operating Cost (b)						
HCA Depreciation (c)						
Supplementary Depreciation (d)						
CCA Depreciation (e=c+d)						
Total CCA Operating Cost (f=b+e)						
Revaluation of Fixed Assets (g)						
Backlog Depreciation (h)						
Net Holding Gain/(Loss) (i=g-h)						
CCA Profit (Loss) (a-f+i)						
CCA Mean Capital Employed						
Return on Capital Employed (%)						
WACC (%)						

Note: Similar format shall be used for reporting profitability of Individual Services for all other Relevant Markets.

1.3 Profit and Loss Statement (LRIC)

(a) Consolidated Profit and Loss Statement (LRIC)

Consolidated Profit and Loss Statement (LRIC)

Current Year

	Market 10	Market 11	Market 12	Other Wholesale	Total Wholesale
Currency OR '000					
Revenue:					
External Sales					
Internal Sales					
To Market 1					
To Market 2					
To Market N					
Total Revenue(a)					
Operating Cost:					
Operating Cost					
Internal Transfer Charge					
From Market 10					
From Market 11					
From Market N					
Total Operating Cost (b)					
HCA Depreciation (c)					
Supplementary Depreciation (d)					
CCA Depreciation (e=c+d)					
Total CCA Operating Cost (f=b+e)					
Revaluation of Fixed Assets (g)					
Backlog Depreciation (h)					
Net Holding Gain/(Loss) (i=g-h)					
CCA Profit (Loss) (j=a-f+i)					
LRIC Adjustments[4] (k)					
LRIC Profit (Loss) (j-k)					
LRIC Mean Capital Employed					
Return on Capital Employed (%)					
WACC (%)					

[4] Include any adjustments to operating cost that arise from the introduction of LRIC.

Consolidated Profit and Loss Statement (LRIC)

Previous Year

	Market 10	Market 11	Market 12	Other Wholesale	Total Wholesale
Currency OR '000					
Revenue:					
External Sales					
Internal Sales					
To Market 1					
To Market 2					
To Market N					
Total Revenue(a)					
Operating Cost:					
Operating Cost					
Internal Transfer Charge					
From Market 10					
From Market 11					
From Market N					
Total Operating Cost (b)					
HCA Depreciation (c)					
Supplementary Depreciation (d)					
CCA Depreciation (e=c+d)					
Total CCA Operating Cost (f=b+e)					
Revaluation of Fixed Assets (g)					
Backlog Depreciation (h)					
Net Holding Gain/(Loss) (i=g-h)					
CCA Profit (Loss) (j=a-f+i)					
LRIC Adjustments (k)					
LRIC Profit (Loss) (j-k)					
LRIC Mean Capital Employed					
Return on Capital Employed (%)					
WACC (%)					

(b) Detailed Profit and Loss Statement (LRIC)

Detailed Profit and Loss Statement - Market 10 (LRIC)						
Current Year						
	Service 1	**Service 2**	**Service 3**	**Service N**	**Others**	**Total**
Currency OR '000						
Revenue:						
External Sales						
Internal Sales						
To Market 1						
To Market 2						
To Market N						
Total Revenue(a)						
Operating Cost:						
Operating Cost						
Internal Transfer Charge						
From Market 10						
From Market 11						
From Market N						
Total Operating Cost (b)						
HCA Depreciation (c)						
Supplementary Depreciation (d)						
CCA Depreciation (e=c+d)						
Total CCA Operating Cost (f=b+e)						
Revaluation of Fixed Assets (g)						
Backlog Depreciation (h)						
Net Holding Gain/(Loss) (i=g-h)						
CCA Profit (Loss) (j=a-f+i)						
LRIC Adjustments (k)						
LRIC Profit (Loss) (j-k)						
LRIC Mean Capital Employed						
Return on Capital Employed (%)						
WACC (%)						

Detailed Profit and Loss Statement - Market 10 (LRIC)

Previous Year

	Service 1	Service 2	Service 3	Service N	Others	Total
Currency OR '000						
Revenue:						
External Sales						
Internal Sales						
To Market 1						
To Market 2						
To Market N						
Total Revenue(a)						
Operating Cost:						
Operating Cost						
Internal Transfer Charge						
From Market 10						
From Market 11						
From Market N						
Total Operating Cost (b)						
HCA Depreciation (c)						
Supplementary Depreciation (d)						
CCA Depreciation (e=c+d)						
Total CCA Operating Cost (f=b+e)						
Revaluation of Fixed Assets (g)						
Backlog Depreciation (h)						
Net Holding Gain/(Loss) (i=g-h)						
CCA Profit (Loss) (j=a-f+i)						
LRIC Adjustments (k)						
LRIC Profit (Loss) (j-k)						
LRIC Mean Capital Employed						
Return on Capital Employed (%)						
WACC (%)						

Note: Similar format shall be used for reporting profitability of Individual Services for all other Wholesale Markets.

2. STATEMENT OF MEAN CAPITAL EMPLOYED

(a) Consolidated Statement of Mean Capital Employed

Consolidated Statement of Mean Capital Employed

Current Year

	Market 1	Market 2	Market 3	Others	Total Retail	Market 10	Market 11	Market 12	Others	Total Wholesale	Total
Currency OR '000											
Non-current Assets											
Land and buildings											
Plant and equipment											
Furniture and fixtures											
Intangible assets											
Other fixed assets											
Total Non-current Assets (a)											
Current Assets											
Stock											
Debtors											
Cash at bank and in hand											
Other current assets											
Total Current Assets (b)											
Current Liabilities											
Creditors											
Other current liabilities											
Total Current Liabilities (c)											
Working Capital (d=b-c)											
Mean Capital Employed (a+d)											

Consolidated Statement of Mean Capital Employed

Previous Year

	Market 1	Market 2	Market 3	Others	Total Retail	Market 10	Market 11	Market 12	Others	Total Wholesale	Total
Currency OR '000											
Non-current Assets											
Land and buildings											
Plant and equipment											
Furniture and fixtures											
Intangible assets											
Other fixed assets											
Total Non-current Assets (a)											
Current Assets											
Stock											
Debtors											
Cash at bank and in hand											
Other current assets											
Total Current Assets (b)											
Current Liabilities											
Creditors											
Other current liabilities											
Total Current Liabilities (c)											
Working Capital (d=b-c)											
Mean Capital Employed (a+d)											

Note: Similar format shall be used for reporting Mean capital Employed under FAC HCA, FAC CCA and LRIC.

(a) Detailed Statement of Mean Capital Employed

Detailed Statement of Mean Capital Employed - Market 1

Current Year

	Service 1	Service 2	Service 3	Service N	Others	Total
Currency OR '000						
Non-current Assets						
Land and buildings						
Plant and equipment						
Furniture and fixtures						
Intangible assets						
Other fixed assets						
Total Non-current Assets (a)						
Current Assets						
Stock						
Debtors						
Cash at bank and in hand						
Other current assets						
Total Current Assets (b)						
Current Liabilities						
Creditors						
Short-term Loans						
Other current liabilities						
Total Current Liabilities (c)						
Working Capital (d=b-c)						
Mean Capital Employed (a+d)						

Detailed Statement of Mean Capital Employed - Market 1

Previous Year

	Service 1	Service 2	Service 3	Service N	Others	Total
Currency OR '000						
Non-current Assets						
Land and buildings						
Plant and equipment						
Furniture and fixtures						
Intangible assets						
Other fixed assets						
Total Non-current Assets (a)						
Current Assets						
Stock						
Debtors						
Cash at bank and in hand						
Other current assets						
Total Current Assets (b)						
Current Liabilities						
Creditors						
Short-term Loans						
Other current liabilities						
Total Current Liabilities (c)						
Working Capital (d=b-c)						
Mean Capital Employed (a+d)						

Note: Similar format shall be used for reporting Mean Capital Employed of Individual Services for all other Relevant Markets under FAC HCA and FAC CCA and of Individual Services for all Wholesale Markets under LRIC.

3. RECONCILIATION STATEMENTS

3.1 Reconciliation Statement between Profit & Loss Statement for FAC HCA and Statutory Accounts

Current Year

	Revenues	Operating Cost	Profit before Tax
Currency OR '000			
As per Statutory Accounts			
Adjustments:			
Interest Income			
Dividend Income			
Interest on Loans			
Impairment Loss			
Exchange Gain or Loss			
Penalties (if any)			
Other Income			
CCA Adjustments			
LRIC Adjustments			
Total Adjustments			
As per Separated Regulatory Accounts			

	Revenues	Operating Cost	Profit before Tax
Markets:			
Market 1			
Market 2			
Market 3			
Market N			
Others			
Total			

3.2 Reconciliation Statement between Statement of FAC HCA Mean Capital Employed and Statutory Accounts

Current Year	
	OR '000
As per Statutory Accounts:	
Opening Capital Employed	
Closing Capital Employed	
Mean Capital Employed	
Adjustments:	
Investments	
Cash and Cash at Bank held for non-daily operations	
Government Bonds	
Inter-group Balances with subsidiary companies	
Income tax recoverable	
Penalty	
Deferred tax liability	
Other Non-relevant assets	
Total Adjustments	
As per Separated Regulatory Accounts	
Markets:	
Market 1	
Market 2	
Market 3	
Market 4	
Market N	
Other	
Total	

3.3 Reconciliation Statement between Profit & Loss Statement for FAC HCA and Profit & Loss Statement for FAC CCA

Current Year

	Market 1	Market 2	Market 3	Other Retail	Total Retail	Market 10	Market 11	Market 12	Other Wholesale	Total Wholesale	Total
Currency OR '000											
FAC HCA Profit (Loss)											
Adjustments:											
Total Adjustments											
FAC CCA Profit (Loss)											

3.4 Reconciliation Statement between Statement of Mean Capital Employed for FAC HCA and Statement of Mean Capital Employed for FAC CCA

Current Year

	FCA HCA	Adjustment 1	Adjustment 2	Adjustment 3	Total Adjustments	FCA CCA
Currency OR '000						
Non-current Assets						
Land and buildings						
Plant and equipment						
Furniture and fixtures						
Intangible assets						
Other fixed assets						
Total Non-current Assets (a)						
Current Assets						
Stock						
Debtors						
Cash at bank and in hand						
Other current assets						
Total Current Assets (b)						
Current Liabilities						
Creditors						
Short-term Loans						
Other current liabilities						
Total Current Liabilities (c)						
Working Capital (d=b-c)						
Mean Capital Employed (a+d)						

3.5 Reconciliation Statement between Profit & Loss Statement for FAC CCA and Profit & Loss Statement for LRIC

Current Year

	Market 10	Market 11	Market 12	Other Wholesale	Total Wholesale	Total
Currency OR '000						
FAC CCA Profit (Loss)						
Adjustments:						
Total Adjustments						
LRIC Profit (Loss)						

3.6 Reconciliation Statement between Statement of Mean Capital Employed for FAC CCA and Statement of Mean Capital Employed for LRIC

Current Year						
	FCA CCA	**Adjustment 1**	**Adjustment 2**	**Adjustment 3**	**Total Adjustments**	**LRIC**
Currency OR '000						
Non-current Assets						
Land and buildings						
Plant and equipment						
Furniture and fixtures						
Intangible assets						
Other fixed assets						
Total Non-current Assets (a)						
Current Assets						
Stock						
Debtors						
Cash at bank and in hand						
Other current assets						
Total Current Assets (b)						
Current Liabilities						
Creditors						
Short-term Loans						
Other current liabilities						
Total Current Liabilities (c)						
Working Capital (d=b-c)						
Mean Capital Employed (a+d)						

4. STATEMENT OF TRANSFER CHARGES

(a) Consolidated Statement of Transfer Charges

Consolidated Statement of Transfer Charges

Current Year

	Market 1	Market 2	Market 3	Market 4	Market 5	Market 6	Market 7	Market 8	Market 9	Market 10	Market N	Total
Currency OR '000												
Market 1												
Market 2												
Market 3												
Market 4												
Market 5												
Market 6												
Market 7												
Market 8												
Market 9												
Market 10												
Market N												
Total												

Consolidated Statement of Transfer Charges

Previous Year

	Market 1	Market 2	Market 3	Market 4	Market 5	Market 6	Market 7	Market 8	Market 9	Market 10	Market N	Total
Currency OR '000												
Market 1												
Market 2												
Market 3												
Market 4												
Market 5												
Market 6												
Market 7												
Market 8												
Market 9												
Market 10												
Market N												
Total												

Note: Similar format shall be used for FAC HCA, FAC CCA and LRIC.

(b) Detailed Statement of Transfer Charges

Detailed Statement of Transfer Charges **Current Year**												
	Quantity				**Average Price per Unit (OR/unit)**				**Transfer Charge (OR)**			
	Market 1	**Market 2**	**Market N**	**Total**	**Market 1**	**Market 2**	**Market N**	**Total**	**Market 1**	**Market 2**	**Market N**	**Total**
Providing Market and Service:												
Market 1	[redacted]											
Service 1												
Service 2												
Service N												
Market 2						[redacted]						
Service 1												
Service 2												
Service N												
Market N											[redacted]	
Service 1												
Service 2												
Service N												
Total												

Detailed Statement of Transfer Charges **Previous Year**												
	Quantity				**Average Price per Unit (OR/unit)**				**Transfer Charge (OR)**			
	Market 1	**Market 2**	**Market N**	**Total**	**Market 1**	**Market 2**	**Market N**	**Total**	**Market 1**	**Market 2**	**Market N**	**Total**
Providing Market and Service:												
Market 1	[redacted]											
Service 1												
Service 2												
Service N												
Market 2						[redacted]						
Service 1												
Service 2												
Service N												
Market N											[redacted]	
Service 1												
Service 2												
Service N												
Total												

Note: Similar format shall be used for FAC HCA, FAC CCA and LRIC.

5. STATEMENT OF AVERAGE UNIT REVENUE

Statement of Average Unit Revenue - Market 1

Current Year

	Service 1	Service 2	Service 3	Service 4	Service N	Total
Currency OR '000						
Revenue:						
Revenue from External Sales (a)						
Revenue from Internal Sales:						
To Market A						
To Market B						
To Market C						
Total Revenue from Internal Sales (b)						
Total Revenue (a+b)						
Volume:						
Volume for External Sales						
Volume for Internal Sales (d)						
Total Volume (c+d)						
Average Unit Revenue - External (a/c)						
Average Unit Revenue - Internal (b/d)						

Statement of Average Unit Revenue - Market 1

Previous Year

	Service 1	Service 2	Service 3	Service 4	Service N	Total
Currency OR '000						
Revenue:						
Revenue from External Sales (a)						
Revenue from Internal Sales:						
To Market A						
To Market B						
To Market C						
Total Revenue from Internal Sales (b)						
Total Revenue (a+b)						
Volume:						
Volume for External Sales						
Volume for Internal Sales (d)						
Total Volume (c+d)						
Average Unit Revenue - External (a/c)						
Average Unit Revenue - Internal (b/d)						

Note: Similar format shall be used for reporting Average Unit Revenue of Individual Services for all Relevant Market.

6. STATEMENT OF NETWORK COMPONENT UNIT COST

6.1 Statement of Network Component Unit Cost (FAC HCA)

Components	HCA Operating Cost	HCA Mean Capital Employed	Cost of Capital (%)	Capital Cost	Total Operating and Capital Cost	Total Volume	Average Unit Cost
Component 1							
Component 2							
Component 3							
Component 4							
Component 5							
Component 6							
Component 7							
Component 8							
Component 9							
Component 10							
Component 11							
Component 12							
Component 13							
Component 14							
Component 15							
Component N							
Total							

6.2 Statement of Network Component Unit Cost (FAC CCA)

Components	HCA Operating Cost	Supplementary Depreciation	Holding Gains/Losses	Total CCA Operating Cost	CCA Mean Capital Employed	Cost of Capital (%)	Capital Cost	Total Operating and Capital Cost	Total Volume	Average Unit Cost
Component 1										
Component 2										
Component 3										
Component 4										
Component 5										
Component 6										
Component 7										
Component 8										
Component 9										
Component 10										
Component 11										
Component 12										
Component 13										
Component 14										
Component 15										
Component N										
Total										

6.3 Statement of Network Component Unit Cost (LRIC)

Components	HCA Operating Cost	Supplementary Depreciation	Holding Gains/Losses	LRIC Adjustments	Total LRIC Operating Cost	LRIC Mean Capital Employed	Cost of Capital (%)	Capital Cost	Total Operating and Capital Cost	Total Volume	Average Unit Cost
Component 1											
Component 2											
Component 3											
Component 4											
Component 5											
Component 6											
Component 7											
Component 8											
Component 9											
Component 10											
Component 11											
Component 12											
Component 13											
Component 14											
Component 15											
Component N											
Total											

Note: Examples of network components include, amongst others, MSAN line related (e.g. line cards), MSAN traffic related, aggregation switches, Edge routers, core routers, transmission (optical fibre and duct) between the MSAN and aggregation switch.

7. STATEMENT OF ROUTING FACTORS AND NETWORK UNIT COST OF SERVICES

	Component							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**N**
Average Unit Cost[5]								
ROUTING FACTORS:								
Market 1:								
Service 1								
Service 2								
Service N								
Market 2:								
Service 1								
Service 2								
Service N								
Market 3:								
Service 1								
Service 2								
Service N								
Market N:								
Service 1								
Service 2								
Service N								
SERVICE UNIT COST[6]**:**								
Market 1:								
Service 1								
Service 2								
Service N								
Market 2:								
Service 1								
Service 2								
Service N								
Market 3:								
Service 1								
Service 2								
Service N								
Market N:								
Service 1								
Service 2								
Service N								

Note: Similar format shall be used for FAC HCA and FAC CCA for all Individual Services under Retail and Wholesale Markets. For LRIC, the statement shall be provided for all Individual Services under Wholesale Markets.

[5] From Statement of Network Component Unit Cost.
[6] Obtained by multiplying the Average Unit Cost by the Routing Factors.

Appendix C

Statement of Responsibility

The ABC (the "Company") is required to prepare and submit its Separated Regulatory Accounts in accordance with the Accounting Separation Framework issued by the Authority.

The Separated Regulatory Accounts include:

(i) Profit and Loss Statement;
(ii) Statement of Mean Capital Employed;
(iii) Reconciliation Statements;
(iv) Statement of Transfer Charges;
(v) Statement of Average Unit Revenue;
(vi) Statement of Network Component Unit Cost;
(vii) Statement of Routing Factors and Network Unit Cost of Services; and
(viii) Notes to the Separated Regulatory Accounts.

The Separated Regulatory Accounts include comparative information for the year ended 31 December 20[XX] subject to certain restatements and re-presentations detailed in section [xx] of the Separated Regulatory Accounts.

We confirm that the Separated Regulatory Accounts, under FAC HCA and FAC CCA, as a whole and for each of the Relevant Markets and Individual Services for the year ended 31 December 20[XX], have been fairly presented in accordance with the Accounting Separation Methodology Document and the Accounting Documents, and comply with the requirements of the Accounting Separation Framework.

We confirm that the Separated Regulatory Accounts, under LRIC, as whole and for each of the Wholesale Markets and Individual Services for the year ended 31 December 20[XX], have been properly prepared in accordance with the Accounting Separation Methodology Document and the Accounting Documents, and comply with the requirements of the Accounting Separation Framework.

If there are any inconsistencies in the Accounting Separation Methodology Document and the Accounting Documents, the Separated Regulatory Accounts are prepared in accordance with the Accounting Separation Methodology Document.

We reconcile the Separated Regulatory Accounts to our Statutory Accounts and we explain any differences.

We confirm that the comparative information for the year ended 31 December 20[XX] included in the Separated Regulatory Accounts have been prepared in accordance with the requirements of the Accounting Separation Framework issued by the Authority, the Accounting Separation Methodology Document and the Accounting Documents.

We confirm that the Accounting Documents are appropriate to implement the principles contained in the Accounting Separation Methodology Document.

[Signed by the Chief Executive Officer]

[Date]

Appendix D

List of Relevant Markets and Individual Services

Retail Markets	Retail Services
Market 1: Retail access to the public telephone network at a fixed location	Line Connections – with further splits into PSTN, ISDN2 and ISDN30
	Line Rental – with further splits into PSTN, ISDN2 and ISDN30
	Others
Market 2: Retail local and national voice call service from a fixed location	Local Calls
	Fixed to Fixed National Calls
	Fixed to Mobile Calls
	Fixed Non-geographic calls – with further splits into: toll free, standard rate, premium rate
	Fixed Internet (dial-up) Calls
	Fixed Directory Enquiry Calls
	Payphone Calls
	Others
Market 4: Retail broadband internet access from a fixed location	Asymmetric Broadband Installation and Rental – with further splits into broad bandwidth categories e.g. low, medium and high
	Symmetric Broadband Installation and Rental – with further splits into broad bandwidth categories e.g. low, medium and high
	Double Play Service
	Triple Play Service
	Others
Market 6: Retail mobile services market	Post-paid: Connection
	Post-paid: Rental
	Pre-paid: Connection
	Pre-paid: Renewal
	Mobile to Mobile – on-net
	Mobile to Mobile – off-net
	Mobile to Fixed Calls
	Mobile Non-geographic calls – with further splits

	into: toll free, standard rate, premium rate
	Mobile Directory Enquiry Calls
	SMS
	MMS
	Mobile Data Services
	Mobile Roaming: Voice
	Mobile Roaming: Data
	Others
Market 7: Retail national leased line services and business data services at a fixed location	Domestic Leased Lines (internet) – with further splits into broad bandwidth categories e.g. low, medium and high
	Domestic Leased Lines (other) – with further splits into broad bandwidth categories e.g. low, medium and high
	IP-VPN National – with further splits into broad bandwidth categories e.g. low, medium and high
	Others
Market 8: Retail international leased lines	International Leased Lines (internet) – with further splits into broad bandwidth categories e.g. low, medium and high
	International Leased Lines (other) – with further splits into broad bandwidth categories e.g. low, medium and high
	IP-VPN International – with further splits into broad bandwidth categories e.g. low, medium and high
	Others

Wholesale Markets	**Wholesale Services**
Market 10: Wholesale voice call origination on the public telephone network provided at a fixed location	Fixed Call Origination – Carrier Pre-Selection
	Fixed Call Origination – Call by Call Selection
	Fixed Call Origination – Non-Geographic Calls
	Fixed Call Origination – Prepaid Calling Cards
	Fixed Call Origination - Operator Services
	Fixed Call Origination - Directory Enquiry Services
	Fixed Call Origination - Emergency Call Services
	Fixed Call Origination - Value Added Services
	Fixed Call Origination - Toll Free Services

	Others
Market 11: Wholesale voice call termination on individual public telephone networks provided at a fixed location	Fixed Call Termination
	Fixed Call Termination - Operator Services
	Fixed Call Termination - Directory Enquiry Services
	Fixed Call Termination - Emergency Call Services
	Fixed Call Termination - Value Added Services
	Fixed Call Termination - Toll Free Services
	Others
Market 12: Wholesale network infrastructure access at a fixed location	Local Loop Unbundling
	Line Sharing
	Sub-loop Unbundling
	Colocation
	Others
Market 13: Wholesale broadband access at a fixed location	Wholesale Line Rental
	Bitstream service: broken down by type of service offered (asymmetric/symmetric; Regional/National)
	Bitstream Handover
	Wholesale Transmission
	Others
Market 14: Wholesale terminating segments of leased lines	Terminating segments by broad bandwidth categories e.g. low, medium and high
Market 15: Wholesale trunk segments of leased lines	Trunk segments (National and International) by broad bandwidth categories e.g. low, medium and high
Market 16: Wholesale IP international bandwidth capacity	IP International Bandwidth Capacity – with further splits into broad bandwidth categories e.g. low, medium and high
	Access to Landing Stations
	Access to Earth Stations
	Others
Market 17: Wholesale voice call termination on individual mobile networks	Mobile Call Termination
	Mobile SMS Termination
	Mobile MMS Termination
	Other Mobile Termination
Market 18: Wholesale access and call origination on public mobile	Mobile Call Origination – Carrier Pre-Selection
	Mobile Call Origination – Call by Call Selection

telephone networks	Mobile Call Origination – Non-Geographic Calls
	Mobile Call Origination - Operator Services
	Mobile Call Origination – Prepaid Calling Cards
	Mobile Call Origination - Directory Enquiry Services
	Mobile Call Origination - Emergency Call Services
	Mobile Call Origination - Value Added Services
	Mobile Call Origination - Toll Free Services
	Mobile Call Origination - Others
	National Roaming – Call
	National Roaming – SMS
	National Roaming – MMS
	National Roaming – Data
	Others
Market 20: Wholesale transit	Fixed Call Transit

Appendix E

Report of the Regulatory Auditor

The Regulatory Auditor's Report on Separated Regulatory Accounts to the ABC ("the Company") and the Telecommunications Regulatory Authority of Sultanate of Oman ("the Authority")

We have audited the Separated Regulatory Accounts of the Company based on FAC HCA, FAC CCA and LRIC for the year ended 31 December 20[XX], which comprise the following statements and forms:

(i) Profit and Loss Statement.
(ii) Statement of Mean Capital Employed.
(iii) Reconciliation Statements.
(iv) Statement of Transfer Charges.
(v) Statement of Average Unit Revenue.
(vi) Statement of Network Component Unit Cost.
(vii) Statement of Routing Factors and Network Unit Cost of Services.
and notes to the Separated Regulatory Accounts.

These Separated Regulatory Accounts have been prepared by management of the Company in accordance with the Accounting Separation Framework issued by the Authority, the Accounting Separation Methodology Document and Accounting Documents.

The Separated Regulatory Accounts include comparative information for the year ended 31 December 20[XX] which have been restated by the Company to comply with the Accounting Separation Framework issued by the Authority, and in accordance with the Accounting Separation Methodology Document and Accounting Documents, where applicable.

Management's Responsibility for the Separated Regulatory Accounts

Management is responsible for the preparation and fair presentation of Separated Regulatory Accounts, prepared under FAC HCA and FAC CCA, and for the preparation of Separated Regulatory Accounts, prepared under LRIC, in accordance with the Accounting Separation Framework issued by the Authority, the Accounting Separation Methodology Document and the Accounting Documents, and for such internal control as management determines is necessary to enable the preparation of Separated Regulatory Accounts that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to examine the Separated Regulatory Accounts in accordance with relevant legal and regulatory requirements and International Standards on Auditing. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the Separated Regulatory Accounts are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the Separated Regulatory Accounts. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the Separated Regulatory Accounts, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Company's preparation and fair presentation of the Separated Regulatory Accounts in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the Separated Regulatory Accounts.

This report, including the opinions, has been prepared for and only for the Company and the Authority and for no other purpose. We do not, in giving this opinion, accept or assume responsibility for any other purpose or to any other person to whom this report is provided unless expressly agreed by us in writing.

We report our opinion as to whether the Separated Regulatory Accounts of the Company, under FAC HCA and FAC CCA, as a whole and for each of the Relevant Markets and Individual Services for the year ended 31 December 20[XX] are fairly presented in accordance with the Accounting Separation Methodology Document and comply with the requirements of the Accounting Separation Framework.

We also report our opinion as to whether the restated Separated Regulatory Accounts, under FAC HCA and FAC CCA, as a whole for the year ended 31 December 20[XX] are fairly presented in accordance with the Accounting Separation Methodology Document and comply with the requirements of the Accounting Separation Framework.

We report our opinion as to whether the Separated Regulatory Accounts of the Company, under LRIC, as a whole and for each of the Wholesale Markets and Individual Services for the year ended 31 December 20[XX]are properly prepared in accordance with the Accounting Separation Methodology Document and comply with the requirements of the Accounting Separation Framework.

We also report our opinion as to whether the restated Separated Regulatory Accounts, under LRIC, as a whole for the year ended 31 December 20[XX] are properly prepared in accordance with the Accounting Separation Methodology Document and comply with the requirements of the Accounting Separation Framework.

In respect of the Separated Regulatory Accounts as a whole, each of the Relevant Markets and Individual Services, we also report whether, in forming that opinion, having reviewed the Accounting Separation Methodology Document and Accounting Documents, the Accounting Documents are appropriate to implement the principles contained in the Accounting Separation Methodology Document.

We read the financial and non-financial information presented with the Separated Regulatory Accounts to identify material inconsistencies with the Separated Regulatory Accounts and to identify any information that is apparently materially incorrect based on, or materially inconsistent with, the knowledge acquired by us in the course of performing the examination. If we become aware of any apparent material misstatements or inconsistencies we consider the implications for our report.

Basis for Opinion

The Statutory Accounts of the Company were audited by [*name of the audit firm*] on which they expressed [*type of audit opinion*]. Their audit report on the Statutory Accounts describes the scope of their audit of those Statutory Accounts. In conducting our subsequent examination of the Separated Regulatory Accounts, and in providing the opinion below, we have not performed any additional tests of the transactions and balances which are recorded in the general ledgers and other accounting records beyond those already performed for the purpose of the audits of the Statutory Accounts.

Having regard to the above:

(i) we conducted our examination of the Separated Regulatory Accounts in accordance with International Standards on Auditing. Our work involved obtaining evidence about the amounts and disclosures in the Separated Regulatory Accounts. In respect of the Separated Regulatory Accounts as a whole, each of the Relevant Markets and Individual Services, it also included an assessment of the significant estimates and judgements made by the Company in their preparation;

(ii) we planned and performed our examination of the Separated Regulatory Accounts so as to obtain all the information and explanations which we considered necessary in order to provide us with sufficient evidence to give reasonable assurance that the Separated Regulatory Accounts, under FAC HCA and FAC CCA, as a whole, each of the Relevant Markets and Individual Services are fairly presented in accordance with the Accounting Separation Methodology Document and, on that basis, are free from material misstatement, whether caused by fraud or error. In forming our opinion we also evaluated the overall adequacy of the presentation of information in the Separated Regulatory Accounts prepared under FAC HCA and FAC CCA;

(iii) we planned and performed our examination of the Separated Regulatory Accounts so as to obtain all the information and explanations which we considered necessary in order to provide us with sufficient evidence to give reasonable assurance that the Separated Regulatory Accounts, under LRIC, as a whole, each of the Wholesale Markets and Individual Services are properly prepared in accordance with the Accounting Separation Methodology Document and Accounting Documents. However, as explained in the Accounting Separation Methodology Document, the Accounting Separation Methodology Document contains only the high level principles of attribution. The Accounting Documents contain the procedures describing how these high level principles are applied. In forming our opinion we also evaluated the overall adequacy of the presentation of information in the Separated Regulatory Accounts prepared under LRIC.

In forming our opinion on the Separated Regulatory Accounts, as a whole, each of the Relevant Markets and Individual Services we also reviewed the Company's Accounting Documents which describe how the principles contained in the Accounting Separation Methodology Document are implemented. Our review consisted of reading the Accounting Documents and considering whether each of the significant attribution and

valuation methodologies described in these documents are consistent with the principles described in the Accounting Separation Methodology Document.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion:

(i) the Separated Regulatory Accounts of the Company, under FAC HCA and FAC CCA, as a whole for the year ended 31 December 20[XX], which have been prepared in accordance with the Accounting Separation Methodology Document, fairly present in accordance with the Accounting Separation Methodology Document the results, mean capital employed and costs incurred by the Company and comply with the requirements of the Accounting Separation Framework;

(ii) the Separated Regulatory Accounts of the Company, under FAC HCA and FAC CCA, for each of the Relevant Markets and Individual Services for the year ended 31 December 20[XX], fairly presents in accordance with the Accounting Separation Methodology Document the results, mean capital employed and costs incurred by each of the Relevant Markets and Individual Services and comply with the requirements of the Accounting Separation Framework;

(iii) the restated Separated Regulatory Accounts of the Company, under FAC HCA and FAC CCA, as a whole for the year ended 31 December 20[XX], fairly present in accordance with the Accounting Separation Methodology Document and comply with the requirements of the Accounting Separation Framework;

(iv) the Separated Regulatory Accounts of the Company, under LRIC, as a whole for the year ended 31 December 20[XX], which have been prepared in accordance with the Accounting Separation Methodology Document, properly prepared in accordance with the Accounting Separation Methodology Document the results, mean capital employed and costs incurred by the Company and comply with the requirements of the Accounting Separation Framework;

(v) the Separated Regulatory Accounts of the Company, under LRIC, for each of the Wholesale Markets and Individual Services for the year ended 31 December 20[XX], properly prepared in accordance with the Accounting Separation Methodology Document the results, mean capital employed and costs incurred by each of the Relevant Markets and Individual Services and comply with the requirements of the Accounting Separation Framework;

(vi) the restated Separated Regulatory Accounts of the Company, under LRIC, as a whole for the year ended 31 December 20[XX], properly prepared in accordance with the Accounting Separation Methodology Document and comply with the requirements of the Accounting Separation Framework; and

(vii) the Accounting Documents are appropriate to implement the principles contained in the Accounting Separation Methodology Document.

Basis of Accounting and Restriction on Distribution and Use

Without modifying our opinion, we draw attention to Note X to the Separated Regulatory Accounts, which describes the basis of accounting. The Separated Regulatory Accounts are prepared to comply with the financial reporting provisions of the Accounting Separation Regulation and Accounting Separation Guidelines issued by the Authority. As a result, the Separated Regulatory Accounts may not be suitable for another purpose. Our report is intended solely for the Company and the Authority and should not be distributed to or used by parties other than the Company and the Authority.

[Auditor's signature]

[Date of the auditor's report]

[Auditor's address]