



Consultative Document

Draft Revised Current Cost Accounting Reference Paper

Includes Guidelines to concessionaires for the
submission of data required for the CCA studies

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1.0 Overview

The CCA Reference Paper is designed to provide practical guidelines to assist the fixed, mobile and hybrid network operators in producing cost inputs for the LRAIC models on a current cost accounting (CCA) basis.

The rest of this section is structured as follows:

- Review cycle
- The Consultation process
- summary of the approach to modelling and the need for CCA cost inputs;
- discussion of the modelling process and the role of concessionaires;
- description of the data collection process; and
- a high level description of the main steps involved in calculating CCA costs.

This reference paper contains a detailed description of the main steps involved in calculating CCA costs. In addition, there are a number of annexes which set out:

- a glossary of the abbreviations used in this reference paper;
- a description of the ‘roll forwards’ and ‘ratio’ methods which provide an approximation of CCA depreciation in the cases where CCA depreciation cannot be directly estimated;
- categorisation of assets for different types of networks (fixed, mobile, wireless broadband and cable);
- Decisions on Recommendations to all comments solicited in the 2015 consultation period.

1.1 Review Cycle

As telecommunications markets evolve and the sector develops, changing costing and market dynamics may necessitate the revision and update of costing principles and considerations adopted by the Authority.

This Paper is a subset of the Costing Methodology and can be considered the parent document on Current Cost revaluation.

1.2 The Consultation Process

The Consultation Period 2009 to 2010

The CCA Reference Paper was finalised in March 2010 after undergoing several rounds of consultation with stakeholders during the consultation period September 1st 2009 to March 1st 2010.

The Consultation Period 2012 to 2015

Following the course of initial model development and data gathering in 2010-2011, revisions were proposed in 2012 to ensure that the LRAIC model best captures the operational and financial situation of service providers. Further revisions were incorporated into the 2015 document for consultation and were aimed at providing more guidelines to concessionaires in the submission of data required for the LRAIC model.

The main revisions over this period included:

- Updated categorization of assets for different types of networks (fixed, mobile, wireless broadband and HFC) and descriptions of the fixed wireless and HFC costs and network equipment in the LRAIC model
- Additional information on treatment of impaired assets and work in progress
- The inclusion of a revaluation approach for mobile assets
- An update to data sources for revaluation of mobile network assets, in Table 7
- An update to the revaluation approach and asset lives for fixed network components to include NGN components and HFC, in Table 8 (e.g. Fixed Line Voice mail revaluation approach – General Inflation and Video Conferencing Equipment revaluation approach – AUS TPI)
- An update to the revaluation approach and asset lives for network infrastructure and non –network assets in Tables 9 and 10

The Consultation Period 2015-2016

Following the period of consultation in 2015 on the CCA Reference Paper, the Paper has been revised and issued for second round of consultation in May 2016. The following revisions have been made:

- Inclusion of full details on Price Revaluation Indices and Revaluation Approach
- Status on Accounting Separation Regulations

- Clarification on the Introduction of New Cost Categories
- Annexe 4 - Detailed Decisions on Recommendations which address all concerns raised by operators.

1.3 Approach to LRAIC modelling

The Costing Methodology¹ specifies the development of a top-down LRAIC model of fixed, mobile and hybrid networks in Trinidad and Tobago. This model will be used for a range of regulatory purposes, which may include but are not limited to:

- “the determination of interconnection rates for all concessionaires when required;
- the determination of rates for accessing to facilities of any concessionaire where applicable;
- the determination of rates, where necessary, for any telecommunications service in which there is a monopoly or exclusive provider;
- the determination of rates, where necessary, for any public telecommunications service provided by a dominant provider or
- any exercise by the Authority to detect unfair cross subsidies or any act of anti-competitive pricing.”²

The LRAIC model produces a range of outputs including costs for individual services and network infrastructure costs. It has been constructed on a top-down basis, that is, the model is based on the network structures of the concessionaires and uses cost information provided by them. These may then be adjusted to reflect any inefficiency that has been identified in the existing networks³.

To ensure that regulated charges are in line with the current market environment and concessionaires’ cost structures, the LRAIC modelling process, and thus the CCA studies, will require regular updating going forward. Concessionaires are required to submit up-to-date input data for each update. Within each revision,

¹ “The costing methodology for the communications sector”, TATT, 29 May 2008

² Source: Section 1.1.4 of the Costing Methodology

³ The Methodology for an Efficiency Study, May 9th 2011 TATT 2/3/30

the Authority will firstly update the CCA studies for each concessionaire which will then form an input to the LRAIC modelling process.

1.4 Need for CCA

Since the outputs of the model will be used to determine the efficient level of prices, where necessary, the Costing Methodology requires that the cost models should be based on CCA. Under CCA, charges related to fixed assets are based on the capital expenditure that would be incurred if an operator were to roll out a network today. Prices set on the basis of CCA place the incumbent and new entrant on a level footing and provide the correct signals for entry to the market. As a result, interconnection and access charges determined using CCA asset values provide new entrants with appropriate 'build or buy' signals as to whether to deploy competing network infrastructure or purchase interconnection and access services from existing operators. Therefore, CCA is considered to be a more appropriate accounting convention than historic cost accounting (HCA) for the determination of regulated charges.

1.5 Differences between CCA and HCA

Statutory accounts are generally produced under the historic cost accounting convention with depreciation and the valuation of assets based on the cost of the asset at the time they were acquired. Under HCA, the valuation of assets is based on the acquisition cost of assets with gross book value (GBV) being equal to this cost. The valuation of the assets in the balance sheet; net book value (NBV), is calculated as gross book value less accumulated depreciation and amortisation. However, the current cost of similar assets may differ from historical acquisition costs because of general inflation in the economy, asset-specific inflation (such as increasing copper prices resulting from increased global demand for copper) and technological change. Under CCA, depreciation over an accounting period and the valuation of assets at a point in time are based on the cost of replacing assets with similar assets at that point in time. Under CCA gross replacement cost (GRC) refers to the cost of replacing an asset at a specific point in time and net replacement cost (NRC) refers to the valuation of the asset taking account of depreciation and amortisation.

The difference between asset valuations and capital charges under CCA and HCA will depend on a combination of a number of factors, in particular:

- asset price trends;
- the age of the assets; and

- any changes made to asset lifetimes reflecting current engineering and economic reality rather than accounting rules estimated when the asset was purchased.

1.6 Need for operator input

Given that the LRAIC model has been constructed on a top-down basis using the costs of the networks and associated assets of concessionaires, concessionaires are required to submit data relating to both operating costs and capital costs. A high level view of the data required is set out below. Data provided by concessionaires for the purposes of this study will be treated as confidential and will not be made available to other concessionaires.

1.6.1 Capital costs

Concessionaires will need to provide sufficient data so that the Authority is able to calculate CCA based cost estimates for all their fixed assets used for the provision of fixed and mobile telecommunications services in Trinidad and Tobago. The role of concessionaires will be fundamental to ensure that the model inputs, and therefore the model results and any regulatory decisions based on the results, reflect the operating environment faced by concessionaires in Trinidad and Tobago.

The model requires asset valuations (including installation costs and import duties) and the associated depreciation and amortisation charges to be calculated on a CCA basis. Therefore, operators will need to provide sufficient data in order for the Authority to be able to revalue the relevant assets. The purpose of this reference paper is to describe the data required and how this will be used by the Authority.

The role of operators in the data preparation process and the timeline for the process is set out in further detail in Section 7 below.

Statement on Capital Cost:

The Authority requires that all concessionaires⁴ provide sufficient data in order for the Authority to be able to calculate CCA based cost estimates for all fixed assets used in the provision of fixed and mobile telecommunication services in Trinidad and Tobago.

⁴ The word 'concessionaires' refers to those service providers with a type 1 and/or 2 concessions.

1.6.2 Operating costs

Concessionaires will also need to take operating costs from their financial systems (general ledger) and categorise them into the appropriate cost categories. However this will be a categorisation exercise with no change in the reported level of costs. Furthermore, as operators' operating costs evolve, the model will be flexible enough to introduce new cost categories to capture new costs, where necessary.

Statement on Operating Cost:

The Authority requires that all concessionaires categorize their financial systems (general ledger) into the required cost categories established by the Authority.

1.7 Overview of the LRAIC modelling process and the CCA revaluation study

To ensure that regulated charges are in line with the current market environment and concessionaires' cost structures, the LRAIC modelling process, and thus the CCA studies, will require regular and annual updating. Concessionaires are required to submit up-to-date input data for each update.

Within each revision, the Authority will firstly update the CCA studies for each concessionaire which will then form an input to the LRAIC modelling process.

Should there be a need to revise the LRAIC Specification Paper and CCA Reference Paper to reflect market developments, the Authority will consult on these Papers in accordance with its Procedures for Public Consultation.

1.7.1 CCA revaluation study

The table below provides an overview of the CCA revaluation study showing the roles of the Authority and the concessionaires at each stage and the anticipated timeline for each stage.

Table 1. Overview of the data collection process

Stage	Role of the Authority	Role of concessionaire	Timeline
Issue of detailed data request	Issue data request and CCA reference paper	Seek clarification on any aspects of the data request	2 weeks

	that sets out the requirements for the CCA study and reflects the level of data available, the time scale for data collection and the LRAIC model requirements	not fully understood	
Submission of CCA input data	Review CCA data as it is submitted Request clarification of data submitted where necessary Provide clarification of data requested as required by operators Assist operators in methodological issues and identifying potential data sources	Submit data as it becomes available and before the deadline for data submission Provide clarification/validation of data requested as required within a reasonable time period.	6 weeks
Submission of final version of CCA data		Submit final version of CCA data and full documentation of methodology, sources and results	5 weeks
Data submitted used to calculate CCA inputs and inputted into LRAIC model	Use data to calculate CCA costs and input data into LRAIC model and sense check the outputs	Provide clarification where necessary	5 weeks

As set out in the table above, the data collection process will start with a detailed data request being issued which consists of an Excel data template and detailed written guidelines on how to prepare data for the study. Such templates and guidelines are also located on the Authority's website.

Concessionaires will then be required to submit the relevant cost and revaluation data to the Authority.

Concessionaires are encouraged to submit data as it becomes available and to seek clarification from the Authority as and when queries arise. The Authority's staff will be available to concessionaires throughout the data collection process to assist with queries relating to the data collection that concessionaires may have.

The data collection process is an iterative process and it is envisaged that concessionaires will need to work closely with the Authority in order to prepare the requested data. Therefore, if further clarification is required with respect to the data requested and the data collection process, concessionaires should contact the Authority as queries arise rather than waiting until the final deadline for submissions.

1.8 Relationship between CCA study and accounting separation

Under the *Accounting Separation Guidelines for the Telecommunications Sector* prepared by the Authority (the "AS guidelines"), operators providing two or more services are required to submit separated accounts on an annual basis. These separated accounts must be prepared in accordance with these guidelines and the *Costing Methodology for the Telecommunications Sector* (hereafter referred to as the "Costing Methodology") produced by the Authority. The Accounting Separation Regulations have been promulgated in 2015 and those Regulations govern that process.

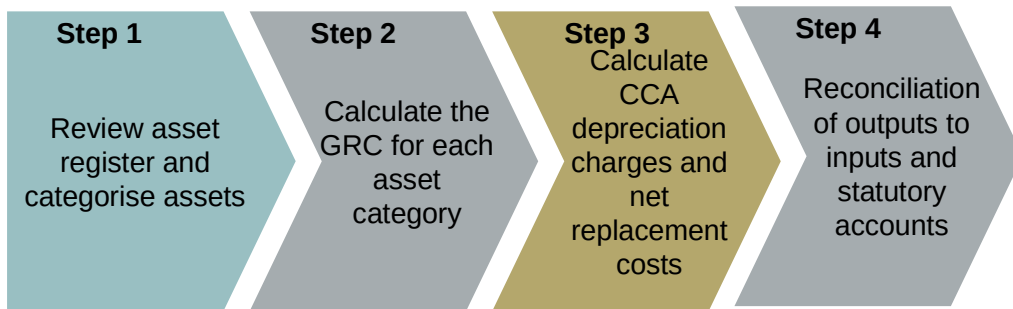
1.9 Calculating CCA asset values and charges

The outputs of the CCA process are the opening and closing valuation of the assets on a CCA basis along with depreciation and amortisation charges relating to the assets on a CCA basis.⁵ These charges will need to be calculated for each accounting period for which the LRAIC model is run. Where there is a change in the price of an asset over the course of a financial year, the revaluation of that asset class will lead either to a holding gain (in the event of a price increase) or a holding loss (in the event of a price decrease) which should also be reported. This is discussed further in Section 4.1.3.

The implementation of CCA can be divided into four main steps. These are illustrated in Figure 1 and then described briefly below. Each step is then discussed in detail in the following sections of this reference paper.

⁵ Depreciation relates to the cost recovery of tangible assets whereas amortisation relates to the cost recovery of intangible assets (such as licence fees).

Figure 1. CCA calculation



Step 1: review of asset register and categorisation of assets

As the first step in the CCA study, each concessionaire will need to review its fixed asset register (FAR) and to map its assets into a set of asset categories. The concessionaires will then need to review the characteristics of each asset category to identify the approach that should be used to revalue each of the asset classes. Guidance on the categorisation of assets and the revaluation approach for each is provided in the Annexes to this reference paper.

The Costing Methodology indicates that indexation is the preferred revaluation method for all asset categories. However, in exceptional cases there may be some asset categories where accurate price indices are not available and cannot be constructed (for example, if an asset is no longer available to purchase because it has been replaced by new technology). Under these circumstances, it may be more appropriate to use a modern equivalent asset (MEA) approach or a direct valuation approach. In other cases for reasons of practicality and materiality, the use of historic prices may be appropriate for smaller asset classes or where assets are relatively new or where asset prices are not expected to have changed significantly since the assets were purchased. Section 2 describes the valuation methodologies in more detail. Annexe 3 sets out the asset categories for each type of network operator, the valuation methodologies which should be used for each asset category and potential data sources.

Step 2: calculation of gross replacement cost

For each asset category where indexation is applied, the concessionaire will need to apply the necessary pricing indices to the time series of acquisition costs of assets (GBV) to calculate GRC. In the event that a direct or MEA approach is adopted the concessionaire will need to collect information on current replacement cost and the volume of assets. Section 3.0 describes this step in more detail.

Step 3: calculation of CCA depreciation charges and NRC

The third step will be to calculate CCA depreciation charges and NRC based on the GRC calculated. Section 4 describes this step in more detail.

Step 4: reconciliation of outputs to inputs

The final step of the study will be to ensure the consistency of the study outputs with the study inputs. It will also be important to understand the source of any large differences in HCA depreciation and CCA depreciation. Section 5 describes the reconciliation process in more detail.

2.0 Step one: categorise assets and choose valuation method

As a first step, it will be necessary for concessionaires to review their asset registers and map the categorisation used in the asset register into the defined asset categories for the LRAIC model.

In order to be able to revalue network assets and determine CCA depreciation, it is important that the asset classes are relatively homogeneous in terms of:

- asset life; and
- rate of price and technological change.

In addition, certain groups of assets need to be separately identified in order for the LRAIC models to accurately model the relationship between costs and demand.

2.1 Categorisation of assets

Concessionaires will need to categorise fixed assets into one of four main discrete headings:

- mobile network assets;
- fixed network assets;
- network infrastructure assets; and
- non-network (support) assets.

In some cases assets may be excluded from the calculation of LRAIC costs and these assets should be identified at this stage.

2.1.1 Mobile network assets

Mobile network assets are the assets that are directly used in the provision of mobile communications in Trinidad and Tobago. Within this category, concessionaires will need to separately distinguish costs of network elements and this will require the further categorisation of assets. This categorisation will be determined by the underlying network structure. The Annexes to this reference paper set out categorisations for mobile network related equipment based on the data provided by the concessionaires during previous CCA studies and the categories set out in the *Accounting Separation Guidelines for the Telecommunications Sector* prepared by the Authority.

Statement on Mobile network assets:

The Authority requires that all concessionaires operating a mobile network to provide the requested data in order for the Authority to be able to calculate CCA based cost estimates for all their fixed assets used in the provision of mobile telecommunications services in Trinidad and Tobago. These fixed assets must be submitted in the cost categories established by the Authority for each network.

2.1.2 Fixed network assets

Fixed network assets are the assets that are directly used in the provision of either fixed wire-line or fixed wireless communications in Trinidad and Tobago. Within this category, concessionaires will need to separately distinguish costs of network elements and this will require the further categorisation of assets. This categorisation will be determined by the underlying network structure. The Annexes to this reference paper set out categorisations for fixed wire-line and fixed wireless network related equipment based on the data provided by the concessionaires during previous CCA studies and the categories set out in the *Accounting Separation Guidelines for the Telecommunications Sector* prepared by the Authority.

Statement on Network Assets:

The Authority requires that all concessionaires operating a fixed wire-line or fixed wireless network to provide the requested data in order for the Authority to be able to calculate CCA based cost estimates for all their fixed assets used in the provision of fixed voice and data services in Trinidad and Tobago. These fixed assets must be submitted in the cost categories established by the Authority for each network.

2.1.3 Network infrastructure assets

In addition to the fixed wire-line, fixed wireless or mobile specific assets, concessionaires will further employ infrastructure assets which are common across different network technologies, including, amongst others:

- network buildings;
- network land;
- duct ; and
- power equipment.

As these assets will also be valued on a current cost basis within the LRAIC model, concessionaires are required to provide the required CCA input data for these assets to the Authority.

Statement on Network Infrastructure Assets:

The Authority requires that all concessionaires provide the requested data in order for the Authority to calculate CCA based cost estimates for network infrastructure equipment used in the provision of fixed and/or mobile telecommunications services.

2.1.4 Non-network assets

It should be noted that the use of current cost accounting should not be limited to the network assets only, but that all the fixed assets of the concessionaires should be valued at current cost basis. Concessionaires are required to provide CCA revaluation of non-network equipment (that is, assets used in the provision of fixed and/or mobile telecommunications services in Trinidad and Tobago but not forming part of the network related activities). Such equipment includes, at a minimum:

- vehicles;
- furniture and office equipment;
- billing systems;
- non-network land; and
- non-network buildings.

Statement on Non-network Assets: *The Authority requires that all concessionaires provide the requested data in order for the Authority to calculate CCA based cost estimates for non-network assets used in the provision of fixed and/or mobile telecommunications services*

2.1.5 Cost exclusions

The LRAIC models should reflect the forward looking costs that are efficiently incurred in the provision of fixed and mobile communications services. To reflect this, the Costing Methodology sets out a number of costs that may or may not be included in the calculation of costs, such as:

- stranded assets; and

- fully depreciated assets.

In determining whether or not stranded assets should be included in the LRAIC cost basis, the Authority will be mindful of efficiency considerations. In particular, the underlying purpose of LRAIC modelling is to determine the costs that would be incurred by an efficient operator on a forward looking basis. The Authority has conducted a separate efficiency study of concessionaires which has reviewed the need for efficiency adjustments to be applied to LRAIC results for each concessionaire when setting cost oriented regulated prices.

Fully depreciated assets should be excluded from the cost base. Including fully depreciated assets in the cost base would lead to the over-recovery of costs by concessionaires. While it could be argued that the exclusion of fully depreciation assets results in the capital costs for that asset not being a reasonable proxy to the economic cost of that asset, the aim of the CCA methodology is to proxy economic cost for the asset base as a whole. In this case, where the assumed asset life is a reasonable approximation to the average economic life of the assets, the zero capital charges for assets which remain in operation past their assumed asset life are offset by charges for retirements for assets which are removed from service before the end of the assumed life.

Concessionaires will be required to provide data on the costs excluded, on an HCA basis, to allow for the reconciliation of the CCA outputs with the statutory accounts (see Section 1.0).

Statement on Cost Exclusions:

The Authority shall exclude all costs that contravene the principles outlined in the Costing Methodology. The Authority shall therefore exclude the costs associated with stranded assets and fully depreciated assets

2.2 Revaluation methods

There are four main approaches to revaluing assets on a current cost basis:

- indexation;
- direct (absolute) valuation;
- modern equivalent asset (MEA) valuation; and
- HCA as a proxy for CCA.

The Costing Methodology provided by the Authority states that the indexation method is the required approach. However, there may be particular asset classes where a reliable price index is not available and cannot be constructed and alternative approaches may be more appropriate. The specific circumstances under which this may occur are set out in more detail below. The rest of this section describes each of the revaluation approaches in more detail. Annexe 3 sets out the revaluation approaches that should be used for each asset category unless concessionaires can provide sufficient evidence that alternative approaches are more appropriate.

2.2.1 Indexation

Under indexation, GRC is calculated by applying a factor to the GBV of additions in each year that reflects the change in the price index from the date the asset was acquired until the current year.⁶ The CCA valuation is thus directly linked to the acquisition cost value that is recorded in the FAR. This link ensures that all relevant costs are included in the valuation. As a result, detailed information on the quantity and specification of assets is not required.

There are a number of options for the choice of index, as outlined in the table below. Annexe 3 sets out the recommended data source for indices for each asset category.

⁶ Only additions that have not been fully depreciated are included in the calculation of GRC under indexation.

Table 2. Types of indices

Index type	Description
Internal asset specific	Based on price information collected over time by the operator. This approach would ensure that the index accurately reflects the actual prices faced by the operator. However, such an index requires the availability of information on prices paid or accurate price quotes over the lifetime of the assets, which in turn requires that the operator has purchased the equipment on a consistent basis and that this cost information has been kept.
External asset specific	An index is constructed and updated by third parties. An external price index would provide a trend for equipment prices but may not fully take account of operator-specific factors, such as the level of supplier discounts offered to individual operators and the use of multiple-year framework agreements.
General price inflation	In the absence of a suitable asset specific price index, a more general index may be used, for example as produced by the Central Statistics Office. Whilst this may not capture asset specific price trends, it may capture more general economy wide trends where it is believed that this may be a good proxy for input cost changes (such as labour costs).

Source: Frontier Economics

Where an asset class includes a number of different cost elements, for example labour and material costs, a separate index should be used to revalue each component (or a weighted average of two or more indices may be used). This may be particularly important for asset classes that include a large element of labour costs – which are likely to have risen since the asset was put in place – and also equipment costs, which may not have increased in line with labour costs.

Although an indexation approach does not require detailed quantity and price information, it does require information from the FAR on:

- the age profile of all assets within a given asset class (typically shown as GBV by year of acquisition); and
- a split between individual cost elements (labour and materials) of the GBV of additions for each year.

Indexation is appropriate for assets where there has been little technological change and all direct costs that have been incurred and capitalised to date would

have to be incurred if the asset were replaced today. Indexation may also be used for groups of assets where the assets within that group share similar characteristics in terms of technological change and price trends. The Authority further notes that the indexation approach provides flexibility as it allows informing indices based on concessionaire-provided data (where provided) or using independent and reliable third party generated indices (such as the AUS TPI indices used by the Authority), as set out in the table above. As such, the indexation approach is particularly helpful during initial CCA valuation exercises since potentially reducing the data requirements from concessionaires.

Whilst the Authority remains of the view that it is important to split out (and treat differently as part of the indexation approach), applying an index to the total cost of an asset may be justified where no reliable data is available on the split of equipment and labour costs. However, concessionaires would need to provide sufficient evidence that this is the case. For example, the Authority understands from recent feedback by concessionaires that the split between labour and materials is often not available in their FAR and thus difficult for concessionaires to provide. The Authority may recommend a split between equipment and labour costs based on international and local benchmark data. The Authority's CCA model is sufficiently flexible to take into account information on the split of labour and material costs, where available.

2.2.2 Direct approach

While indexation should be the default approach, there may be particular asset classes where a reliable price index cannot be found or constructed. In this case a direct valuation approach may be appropriate.

For asset categories requiring valuation using a direct approach, concessionaires will need to collect data on the unit cost of replacing the asset at the valuation date. This means that concessionaires will also need information on the quantity of assets included their FAR. Under the direct approach, GRC is calculated simply by multiplying the quantity of assets by the unit replacement cost per asset. However, there are three main disadvantages of the direct valuation approach which are described in more detail below.

First, in order to adopt this approach, concessionaires will need robust sources of information on the quantity of assets in the FAR, typically derived from other sources such as engineering databases. While this may be possible for some concessionaires and for some asset categories, this is not always the case. Robust information on the quantity of assets is typically available for those assets which are relatively small in number and discrete. Thus for example concessionaires operating cellular networks could expect to have reliable information on the number of base stations in the network and the configuration of each of these base stations (for example, the number of sectors and transponders). For other

assets such as a network of ducts, it is far more difficult to define measures of quantity that effectively summarise the network dimension and typically information on the network dimension is not readily available. For these asset classes a direct approach may not be feasible or would require excessive additional resources to implement.

Second, the direct approach relies on price information being available for all of the elements being valued. This may be problematic for assets that are not purchased on a regular basis or are no longer available for purchase. While some assets will continue to be purchased over the lifetime of a network, (for example additional cellular transponders to serve incremental demand), other assets (such as MSCs), may only be purchased during the initial roll out of the network. While concessionaires could seek price quotes from suppliers for the purpose of the CCA valuation, price quotes made outside of a commercial negotiation may not truly reflect the replacement cost of assets. In the case of obsolete equipment that can no longer be purchased new, there will be no price information available.

Third, the direct valuation is typically not based on information drawn from the concessionaire's FAR but from independent sources such as engineering databases. This means that there is no direct link between the resulting valuation and the FAR. Any deficiencies or inconsistencies in these external databases or the inclusion of assets that should be excluded such as fully depreciated assets could flow through the resulting CCA estimates.

Despite these disadvantages in some cases a direct valuation may result in a more robust valuation than applying an indexation approach.

2.2.3 MEA revaluation

For a number of network elements in a telecommunications network, neither an indexation approach nor a direct approach may be appropriate for a particular asset in service. In particular indexation or direct valuation may not be appropriate where:

- the asset is no longer available for purchase from network equipment vendors; or
- the asset no longer represent the technology that would be used in network deployment by a new entrant.

In the first case it is not possible to revalue individual assets using alternative approaches as the necessary price information will not exist either to construct a price index or to carry out a direct valuation. In the second case, whilst it may still be possible to estimate the replacement costs of the assets, such an approach

would not yield an accurate estimate of the cost for the operator concerned of replacing its network today, as the operator in question would in the circumstance use alternative (modern) technology instead.

When revaluing an asset that falls in either of these categories the GRC should be based on an estimate the value of an MEA. Such a valuation would be conducted using both quantity and price information for each asset. However, the quantity should reflect the number of modern equivalent assets that would be required to replace the existing asset, with the price information reflecting the pricing of the MEA. Again, this valuation should include not only the price of materials and equipment but also any other costs that are included in the GBV of the asset in the FAR and which still apply to the MEA.

In comparison to the assets currently in service, the MEA might exhibit additional features and/or functionality. In such cases, it may be appropriate for the asset valuation to attempt to discount the value of this additional functionality from the estimated current value of the MEA. While such an approach may ensure that only the functionality required for providing a given set of services is included in the cost base, it requires information on the value/cost attributed to the increased functionality. Such information, for example, comparing the price of the MEA both with and without the increased functionality over the existing asset may however not be available.

Similarly, the use of modern equivalent assets may also reduce the operating (maintenance) costs associated with the existing asset. In such cases it may also be appropriate to make an operating cost adjustment within the costing model to reflect this cost saving.

In fixed telecommunications, MEA valuations have been used to revalue any remaining analogue switch equipment as digital switch equipment and PDH transmission equipment as SDH transmission equipment.

In some cases, the rate at which modern assets can be introduced to the network is limited by practical constraints (such as the time taken to install capacity and lead times). Therefore, using an MEA valuation does not fully reflect costs efficiently incurred. In the UK, this issue is resolved by only using the MEA approach where BT has “definitive plans” to replace these assets, that is, within the next three years.⁷ Similarly, Eircom in Ireland outlines that it follows “best practice” by looking at the mix of technology that is likely to be in place in three years’ time.⁸ It is recommended that this approach should also be applied in Trinidad and Tobago.

⁷ Source: Detailed valuation methodology, BT

⁸ Source: “Current cost and LRIC statements for year ending 30 June 2008, Accounting Documents”, Eircom

The operating costs associated with MEA may vary significantly from those associated with historic assets. While in theory, it may therefore be desirable to estimate operating costs on a CCA basis, this is rarely applied in practice due to the resource costs of implementing such an approach, the likely inaccuracy of any resulting adjustments and the limited impact on overall results.

2.2.4 Proxying CCA with HCA

While in theory all asset categories should be revalued, in practice, for some asset categories revaluation would not materially affect the results of the LRAIC model. Requiring the calculation CCA valuations for these assets may place an undue burden on the concessionaires. Thus revaluations of every single asset category will not be required and HCA valuations may provide a suitable proxy. However this should be the exception and the network and related asset groups that make up the majority of an operator's asset base should be revalued.

HCA values may be used as a proxy for CCA values where the two cost valuations would be expected to yield results which are not materially different. This could be the case when one or more of the following conditions are met:

- an asset class has a relatively short asset life;
- an asset class forms a small overall part of the regulatory asset base; or
- where there has been little price movement since the asset was purchased.

2.3 Summary of the criteria for the choice of valuation approach

As previously mentioned in this section, Annexe 3 contains the required categorisation of assets and the revaluation approach for each category. While indexation is the approach set out in the Costing Methodology, there may be specific circumstances under which alternative revaluation approaches may be required.

The table below sets out the criteria for the choice of valuation approach as set out in Annexe 3.

Table 3. Criteria for alternative asset valuation approaches

Valuation approach	Criteria
Direct valuation	Assets where a suitable price index does not exist but where information is readily available on the unit replacement costs and the quantity of the assets
MEA valuation	Assets which are no longer available for purchase or no longer represent the modern technology used in network deployment
No revaluation required (use HCA valuation as proxy)	Either: • The asset is relatively new and there are no <i>a priori</i> expectations that the value will change; or • The asset has a relatively short asset life; or • The asset does not contribute materially to the overall value of the asset base

Source: Frontier

Alternative valuation methodologies may be used by concessionaires where they can provide sufficient evidence to show that this is a more accurate approach. In order to demonstrate that historic costs would be a suitable proxy, concessionaires would need to show that the asset was purchased relatively recently and that there have been no significant changes in the asset price since it was purchased, or that the impact would be immaterial. In the longer term it is unlikely that HCA will represent a good approximation and a change from HCA as a proxy to another methodology such as indexation could lead to a discontinuity in valuations and hence exceptional holding gains or losses. For

this reason it will generally be more appropriate to apply CCA revaluations even where the HCA valuation is currently a reasonable proxy.

Compound indices may be necessary in order to reflect the part of asset costs accounted for by labour costs. In order to do this, concessionaires will need to be able to identify the proportion of asset costs accounted for by labour as this will be needed to determine the weights to use in the cost index.

Statement on Asset Revaluation:

The Authority shall use the criteria outlined in Table 3 above to revalue the assets of concessionaires which will mean using the recommended revaluation approach for each cost category listed in Annexe 3 below.

3.0 Step two: calculate gross replacement cost

When implementing CCA, the GRC of each asset class is calculated as an intermediate step (the GRC of the asset class is not used directly in the LRAIC model). The approach taken depends on the valuation method adopted for each of the asset classes.

Indexation

For the indexation approach, the inputs are a time series of the GBV of the asset class by period (year) of acquisition and time series of the level of the price index over the same time period.

The GRC of the assets purchased in a given year (t) is then the GBV of the assets multiplied by the price index for the valuation data divided by the price index (v) for the year of acquisition. The price index for the acquisition year can be estimated as the value at the mid point of the period or a simple average of the opening and closing values. The GRC of the asset class in year n is then the sum of GRC of assets purchased in all years (excluding fully depreciated assets). This is calculated according to the formula below.

$$GRC_{t=n} = \left(GBV_{t=0} \times \frac{v_{t=n}}{v_{t=0}} \right) + \left(GBV_{t=1} \times \frac{v_{t=n}}{v_{t=1}} \right) + \left(GBV_{t=2} \times \frac{v_{t=n}}{v_{t=2}} \right) + \dots + \left(GBV_{t=n} \times \frac{v_{t=n}}{v_{t=n}} \right)$$

Direct valuation

For a direct valuation, the inputs are the quantity of assets for each element of the asset class and unit replacement costs for each of the assets.

The GRC of each element is calculated as the quantity of the element multiplied by the unit cost. The GRC of the asset class is then the sum of GRC of all elements in the asset class. This is calculated according to the formula below.

$$GRC_t = (\text{number of network elements in current year} \times \text{unit GRC in current year})$$

Modern equivalent asset

The first step in calculation of a MEA valuation is the estimation of the quantity of modern equivalent assets that would be required to replace the existing network. In some cases there is a direct one to one relationship with the existing assets and thus data on the quantity of existing assets can be used. However in many cases the configuration of the MEA technology is significantly different to the currently deployed technology and as such an estimate of the quantity of the

MEA required to serve the current level of demand must be made for engineering rules encapsulated in an engineering model.

Once the quantity of assets has been estimated and information on current prices has been collected the calculation of GRC is similar to that of a direct valuation.

Proxy CCA with HCA

In this case the estimate of GRC for the asset category is simply the GBV of the asset category.

3.1 Data sources

The table below sets out some of the possible data sources which operators may wish to use or consult with in preparing revaluations. These consist of data that may be available within the company and from publicly available resources.

Concessionaires will need to provide details of information sources used so that data can be verified if required by the Authority.

Table 4. Potential data sources

Internal sources	External sources
• Framework agreements with network equipment suppliers and manufacturers • Extrapolations from previous contracts and invoices • Vendor price lists • Management estimates of labour costs for installing different types of equipment and unit labour costs • Engineering databases providing information on the quantity of assets within the network • Engineering models than can be adapted to estimate the replacement cost of the network	• Labour costs prepared by the International Monetary Fund (IMF) • Publicly available commodity price indices • Assumptions used in cost models deployed in other countries • Trinidad and Tobago national statistics agency indices for telecoms equipment, average earnings, producer prices and general price inflation • US Bureau of Labor Statistics (BLS) producer price indices (PPI) for specific assets • Privately compiled indices (such as the AUS Telephone Plant Index) adjusted to reflect country-specific costs

Source: Frontier

4.0 Step three: calculate CCA inputs

This section sets out the methodology required by the Authority for the calculation of LRAIC cost inputs on a CCA basis, having calculated GRC according to the previous section.

4.1 CCA cost components

For each accounting period the capital costs used in the LRAIC model will consist of three components:

- CCA depreciation and amortization charges for the assets during the period;
- The WACC is applied to the NRC of the assets to reflect the opportunity cost to investors of investing; and
- holding gains or losses, reflecting changes in asset value due to price movements during the period.

The NRC inputs will be used to estimate the opportunity cost of the capital employed in these assets expressed as the required rate of return on the net value of the assets (cost of capital)⁹.

Holding gains and losses are included as a charge in order to ensure financial capital maintenance.

Each of these components is addressed in turn below.

4.1.1 CCA depreciation and amortization

Under HCA, the amortisation and depreciation charges are typically calculated using a straight line depreciation profile in which the annual charge is the same in every year of the life of the asset. The charge in each year is equal to the GBV divided by the asset life.

The Costing Methodology requires concessionaires to adopt the titled straight line depreciation method to proxy economic depreciation.¹⁰ This method

⁹ The cost of capital reflects the rate or return on capital investment required to compensate an operator for investing. The economically efficient allowable level is the weighted average cost of capital (WACC) which reflects the opportunity cost of investment. The estimation of the regulatory WACC is the subject of a separate reference paper and therefore not discussed as part of this CCA reference paper.

requires the adjustment of HCA straight line depreciation to reflect the current replacement cost of the asset.

The table below sets out an example of how CCA depreciation is calculated if straight line depreciation is assumed. In this example, the asset is originally valued at \$100 and depreciated over ten years. It is then revalued at \$150. The historic depreciation charge is \$10 (\$100/10 years) and the current cost depreciation charge is \$15 (\$150/10 years). The difference between the historic depreciation charge and the current cost depreciation charge is \$5 (\$15-\$10). The difference between HCA depreciation and CCA depreciation is referred to as 'supplementary depreciation'. In this example, supplementary depreciation is positive since the value of the asset has increased over time. If the value decreased over time, supplementary depreciation would be negative.

Table 5. Illustration of supplementary depreciation

Cost	Level
Gross book value (historic cost)	\$100
Gross replacement cost (current value)	\$150
Historic depreciation charge	\$10
Current cost depreciation charge	\$15
Supplementary depreciation	\$5

Source: Frontier

4.1.2 Net replacement cost

The opportunity cost of capital is calculated by applying a regulated rate of return to an estimate of the capital employed. In the case of fixed assets, the capital employed is the valuation of the assets net of the effects of depreciation.

Under HCA the NBV of an asset is the initial acquisition cost of the asset (GBV) less the accumulated depreciation (AD) to date for the asset. Under straight line depreciation the NBV of an asset declines linearly between the point at which the asset is brought into service and the point at which it is fully depreciated¹¹. Thus

¹⁰ Source: "The Costing Methodology for the Telecommunications Sector", 29 May 20008. This document also contains discussion of alternative depreciation methods.

¹¹ Assuming it has no salvage value.

the NBV of an individual asset can be expressed as the GBV multiplied by the number of years in service as a proportion of the asset life.

Under CCA, the NRC of an asset must reflect the current replacement cost of an asset rather than the acquisition cost of the asset. Thus, under straight line depreciation the NRC of an individual asset can be expressed as the GRC multiplied by the number of years in service as a proportion of the asset life.

As depreciation charges for previous periods were calculated with respect to the replacement cost in those periods, rather than the current replacement cost, the NRC is not equal to GRC less accumulated (CCA) depreciation. Backlog depreciation is the additional depreciation that would have been charged in previous years had the asset always been valued at its current (closing year) GRC and is the difference between NRC and GRC less accumulated (CCA) depreciation.

4.1.3 Holding gains and losses

A change in asset prices during an accounting period leads to holding gains or holding losses, that is, changes in the NRC of assets which are not due to depreciation or amortisation. Holding gains arise when the unit replacement cost of an asset increases over the course of a year. Holding losses arise when the unit replacement cost of an asset decreases over the course of a year.

Capital maintenance is an underlying accounting principle, that profits can only be earned after capital has been maintained at a specified level. This is equivalent to requiring that capital charges must allow capital to be maintained.

Capital can be viewed in two ways. Operational capital is the company's capacity to produce products and services. Financial capital relates to the value of shareholders' equity interest. The choice of capital maintenance concept affects the way in which depreciation is calculated. Operating capital maintenance (OCM) maintains the operating capability of the business whereas financial capital maintenance (FCM) maintains the financial capital of the company in current price terms.

The Authority requires that the FCM concept be used and therefore holding gains and losses should be included in the annual capital charges. This means that shareholders' fund at the end of the period must be maintained at the same level as at the beginning of the period. As a result, holding gains and losses must be included within the cost base.

Statement on Capital Maintenance:

The Authority shall use financial capital maintenance to calculate annual depreciation charges. As a result, holding gains and losses will be included within the cost base.

4.2 Further adjustments and information requirements

4.2.1 Work in progress

Work in progress (WIP) relating to assets in the course of construction will need to be funded and as such should be included in the concessionaire's asset base for the purpose of estimating the mean capital employed and hence the cost of capital.

To ensure that concessionaires are allowed to earn a reasonable return on all their investments, concessionaires are required to provide information on the opening and closing WIP values for each of the asset categories defined for the CCA study.

4.2.2 Treatment of impaired assets

Periodic reviews of the net carrying value of assets against the future cash flows generated by these assets may result in write downs due to impairment. The Authority considers that impairments should be treated within the CCA study in a similar way to the treatment of impairments in concessionaire's statutory accounts. This requires making a series of adjustments to the outputs of the CCA model:

- net asset valuations should reflect any impairment made;
- depreciation and other charges after impairments have been applied should reflect the adjusted asset values; and
- where the carrying value of an asset is reduced in the closing balance sheet there should be a corresponding impairment charge.

This approach is consistent with the principle of Financial Capital Maintenance, adopted in the LRAIC model.

Impairment adjustments in statutory historic cost accounts(HCA) are made when a judgement at a given balance sheet date is made that the carrying value of

the asset exceeds the recoverable value. An adjustment is then made to bring the carrying value into line with the recoverable value.

The estimate of the recoverable value will be the same for CCA purposes, as the recoverable value is based on the estimated value of the asset to the business rather than a calculation made with respect to acquisition cost (HCA) or replacement cost (CCA).

Generally speaking, when such an adjustment is made the recoverable value will also be lower than the equivalent carrying value in the CCA calculations (i.e., the net replacement cost). Thus, when an impairment is made the asset valuation should also be adjusted in the CCA accounts to reflect this estimate of the recoverable cost and a corresponding charge made.

Once an impairment adjustment has been made, the link between the asset replacement cost and depreciation charges will have been broken, as the value will now reflect the estimate of the recoverable value. Thus, any forward looking valuations and capital charges will no longer reflect the costs of a hypothetical new entrant, which is the principal motivation for employing CCA for regulatory service costing.

There is no underlying economic reason for maintaining CCA adjustments for movements in asset prices that have been subject to impairment adjustments. Thus, the Authority has decided to calculate the depreciation and asset values required for the LRAIC modelling for these assets based on the statutory accounting information. As impairment will generally be applied to assets that have been made obsolete, this move to an HCA treatment is consistent with the principle that HCA may be applied as a valuation approach to assets with a relatively short asset life.

4.3 Calculating LRAIC inputs

The approach adopted for calculating the LRAIC inputs will depend on the approach taken for valuation and hence the information available for calculating the required inputs.

Indexation

For the indexation approach, CCA depreciation and NRC can be calculated by applying the identified price indices to the corresponding HCA values.

The inputs required are a time series by period (year) of acquisition of the NBV and depreciation charge of the asset class and the price index over the same time period.

The NRC of the assets purchased in each year at a given date is then the NBV of the assets at that date multiplied by the price index for the valuation date divided by the price index for the year of acquisition. The NRC of the asset class is then the sum of NRC of assets purchased in all years (excluding fully depreciated assets).

$$NRC_{t=n} = \left(NBV_{t=0} \times \frac{v_{t=n}}{v_{t=0}} \right) + \left(NBV_{t=1} \times \frac{v_{t=n}}{v_{t=1}} \right) + \left(NBV_{t=2} \times \frac{v_{t=n}}{v_{t=2}} \right) + \dots + \left(NBV_{t=n} \times \frac{v_{t=n}}{v_{t=n}} \right)$$

The CCA depreciation charge (D) for the assets purchased in each year (t) in an accounting period (n) is the HCA depreciation charge of the assets for that period multiplied by the price index for that accounting period ($v_{t=n}$) divided by the price index for the year of acquisition. The CCA depreciation charge of the asset class is then the sum of CCA depreciation charges of assets purchased in all years (excluding fully depreciated assets).

$$D_{t=n} = \left(H_{t=0} \times \frac{v_{t=n}}{v_{t=0}} \right) + \left(H_{t=1} \times \frac{v_{t=n}}{v_{t=1}} \right) + \left(H_{t=2} \times \frac{v_{t=n}}{v_{t=2}} \right) + \dots + \left(H_{t=n} \times \frac{v_{t=n}}{v_{t=n}} \right)$$

Holding gains and losses can then be calculated as a balancing item between the opening and closing net replacement cost.

Closing NRC =

Opening NRC + Additions – NRC Disposals – Depreciation charge + Holding Gain

Direct valuation and MEA

Under a direct valuation or MEA approach because there is no direct link to the FAR, neither the acquisition date of individual assets nor the NBV of individual assets is known. Instead the calculation must be based on the GRC of an asset class which is known. In this case, there are two approaches to calculating depreciation charges for a particular asset class under CCA:

- the ratio method estimates NRC (or accumulated depreciation) for classes of assets and derives depreciation charges and holding gains and losses from this; and
- the rollover method estimates depreciation and holding gains/losses for each asset class and estimates NRC from these estimates.

It is likely that concessionaires will require a combination of the ratio method for some asset classes and the roll over method for other asset classes. The choice of method will depend on how the volume of assets in the category changes over time. In particular, the ratio method is more appropriate where volumes of

equipment are relatively stable whereas the rollover method will be more appropriate where there have been significant ongoing additions or disposals. This is because the ratio method treats the holding gains/losses as a balancing item under the implicit assumption that the number of assets has not changed over the year. In contrast, the roll forward method calculates the holding gain / loss explicitly. The two depreciation approaches are discussed in further detail in Annex 2.

Proxy CCA with HCA

In this case the estimate of CCA depreciation and NRC for the asset category is simply the HCA depreciation and NBV respectively. As it is implicitly assumed that there have been no price movements holding gains and losses are zero.

4.4 Disposals and write outs

Disposals and write outs made within the accounting period should also be calculated on a CCA basis.

For assets that are part of an asset category revalued under the indexation approach, the value of disposals is calculated as:

$$GRC\ of\ CCA\ disposals = HCA\ value\ of\ disposals * (opening\ GRC / opening\ GBV)$$

For assets that are part of an asset category revalued using a direct or MEA approach, the value of disposals is calculated as:

$$GRC\ of\ CCA\ disposals = volume\ of\ disposals * CCA\ unit\ cost$$

The NRC of disposals should then be calculated (using the same approach as outlined above) and subtracted from the total closing NRC.

5.0 Step four: cross check

The final step in preparing CCA cost information will be to cross check the outputs of the data preparation both with the inputs used and across outputs.

5.1 Cross-check with statutory accounts

The Authority will require information from concessionaires to demonstrate how the input costs (HCA costs) included in the CCA study relate to their statutory accounts. In order to do this, concessionaires will need to show, amongst others:

- total costs from statutory accounts;
- total network costs on an HCA basis;
- total cost of support equipment on an HCA basis;
- total retail costs on an HCA basis; and
- total cost exclusions on an HCA basis.

Concessionaires will not be required to make any changes to the way in which they report their statutory accounts. Concessionaires will not be required to use external auditors to verify the inputs to the study however audited statutory accounts are required.

Other ways in which the Authority may seek to verify data provided include:

- benchmarking between data provided by similar concessionaires;
- as data relating to a number of years becomes available, checks can be run comparing data submitted by a concessionaire between years; and
- benchmarking using publicly available information from comparable operators.

In addition, the Authority reserves the option to use reasonable assumptions if it does not consider that the data provided is an accurate reflection of the costs. Such adjustments could take place as a result of the efficiency study.

Statement on Reconciliation of CCA study with Statutory Accounts:

The Authority requires that all concessionaires demonstrate how the HCA input costs included in the CCA study reconcile with their statutory accounts. Concessionaires shall be required to provide information from their profit and loss statements in the consolidated separated accounts on the main business areas.

Annex 1: Glossary

Table 6. Glossary of terms and abbreviations

Term	Description
CCA	Current cost accounting
HCA	Historic cost accounting
NRC	Net replacement cost
NBV	Net book value
GBV	Gross book value
GRC	Gross replacement cost
WACC	Weighted average cost of capital
TATT	Telecommunications Authority of Trinidad and Tobago
LRAIC	Long run average incremental cost
MEA	Modern equivalent asset
FAR	Fixed asset register
SDH	Synchronous digital hierarchy
DSLAM	Digital subscriber line access multiplexer
IP	Internet protocol
PDH	Plesiochronous digital hierarchy
IMF	International Monetary Fund
BLS	Bureau of Labour Statistics
PPI	Producer price index
FCM	Financial capital maintenance
NPV	Net present value

Source: Frontier

Annex 2: Ratio and roll forwards methods

RATIO METHOD

The ratio method is more appropriate in situations where volumes are relatively stable and the material impacts on GRC are from price fluctuations only. This is because high levels of recent additions can result in the estimated CCA values diverging from the true values.

Calculation steps

Under the ratio approach the opening and closing current cost accumulated depreciation figures under CCA are calculated as the ratio of GRC to GBV multiplied by the historic cost accumulated depreciation.

$$CCA \text{ depreciation charge} = HCA \text{ depreciation} * \text{average } (GRC/GBV)$$

$$\text{Where average } (GRC/GBV) = \{(opening \text{ GRC}/opening \text{ GBV}) + (closing \text{ GRC}/closing \text{ GBV})\} / 2$$

Similarly, the opening NRC is calculated using the ratio GRC to GBV.

$$Opening \text{ NRC} = Opening \text{ NBV} * (GRC \text{ opening}/GBV \text{ opening})$$

The closing NRC is calculated in a similar way:

$$Closing \text{ NRC} = NBV \text{ Closing} * (GRC \text{ closing}/GBV \text{ closing})$$

The holding gain (loss) is the change in the value of NRC resulting from changing asset prices. Under the ratio method, this is calculated as the balancing item:

$$Holding \text{ gain (loss)} = Closing \text{ NRC} - Opening \text{ NRC} - CCA \text{ Depreciation charge}$$

ROLL FORWARDS METHOD

The roll forward approach is used if the asset category has sub-categories of assets with a marked range of asset lives or if there are significant levels of current year additions. In contrast to the ratio approach, the holding gain (loss) is calculated explicitly rather than as a balancing item.

Calculation steps

The CCA depreciation charge and opening NRC are calculated in the same way as under the ratio method. The holding gain (loss) takes explicit account of the change in asset prices in the year.. $Holding \text{ gain (loss)} = (Opening \text{ NRC} + CCA \text{ depreciation charge} / 2) * \% \text{ price change}$

Using this, the closing NRC is calculated as:

$$\text{Closing NRC} = \text{opening NRC} + \text{CCA depreciation charge} + \text{holding gain (loss)}$$

Annex 3: Categorisation and revaluation of assets and asset lives

This Annexe sets out the categorisation of assets used for the provision of telecommunications services in Trinidad and Tobago:

Each of the tables set out the further categorisation of assets, revaluation approach, revaluation data source and asset lives.

High level asset categories

Assets are split into four high level categories.

- mobile network components;
- fixed network components;
- network infrastructure assets; and
- non-network (support) assets.

These categories are then further broken into more specific asset categories. Concessionaires will be required to provide sufficient evidence in order to add additional asset categories.

Data sources

The data sources identified in the tables consist of:

- the concessionaires' own data from their FARs;
- publicly available indices and those used for regulatory purposes;
- the Central Statistics Office; and
- the AUS Telephone Plant Index (AUS TPI).

Alternative sources may be used where objective justification can be provided.

Examples of publicly available sources may include the LRIC models and documentation developed for Sweden, the UK, Denmark and Norway. Documentation also exists for Jamaica and the Eastern Caribbean which may also provide some information.

The AUS Telephone Plant Indices (AUS TPI), formerly known as Turner Indices, are cost indices publicly available on a subscription basis. The indices are prepared by independent consultants and are used widely by operators for

regulatory and statutory accounting purposes. The indices are designed as generalised products as it is not possible to construct an index that exactly matches the changes in input prices for each operator in every country. The indices are designed to show reproduction costs rather than replacement costs but are widely accepted in a number of jurisdictions as providing an appropriate proxy. AUS prepares 31 indices for six different geographic regions:

- North Atlantic
- South Atlantic;
- North Central;
- South Central;
- Plateau; and
- Pacific Coast).

For tradable equipment the Authority would not expect a significant divergence between the movements in the indices and as such the Authority would not expect the choice of index to have a material impact on the results. Based on geographic proximity the Authority has decided to use the ‘South Atlantic’ index.

A significant share of the asset categories, in particular those relating to fixed network assets, will be revalued using one of the AUS TPIs. These indices constitute a neutral and comprehensive source for price indices of telecommunications assets.¹² This makes it a good source for revaluing internationally traded telecommunications assets (i.e. network equipment, etc.). However, the coverage of the AUS TPIs are restricted to fixed network assets and alternative indices must be found for other assets, for example, mobile network assets.

Mobile network assets

For those infrastructure assets which are largely consist of locally sourced inputs, such as masts and towers, the Authority proposes to use a general inflation index, as shown in the table below.

For those assets largely imported, although representing the most appropriate price index for fixed network assets, the AUS TPI index does not cover mobile network assets. As such, the Authority has decided to use a price index for these assets based on price indices sourced from the U.S. Bureau of Labour Statistics

¹² The AUS TPIs were initially developed as an input to FCC Part 32 Costing Standard and therefore the Authority believes that the AUS TPI is a robust and appropriate, neutral standard suitable for all parties

(BLS)¹³.¹⁴ The Authority considers these price indices as the most suitable source since:

- the coverage of the price index is broadly consistent with the assets to be revalued;
- the indices are publicly available and from a well-established source and as such provide full transparency to all concessionaires;
- the indices are likely to be available in future years;
- they are based on price developments in the United States, which are more relevant to the situation in Trinidad and Tobago than other publicly available price indices¹⁵;
- using US based price indices for mobile network assets is broadly consistency with the AUS TPI index (which is also based on US pricing data); and
- a simple indexation approach (i.e. based on a single index) is adequate for mobile network assets (relative to fixed network assets), as the mobile LRAIC model does not require a further disaggregation into core and access networks (as undertaken in the fixed network LRAIC model).

As part of its “Import/Export Price Indexes” series, the BLS publishes, amongst others, export price indices for telecommunication equipment. However there have been a number of changes in classification over the years. After review of the available indices, the Authority has come to the view that the following export price series constitute the most suitable price indices for the CCA revaluation in Trinidad and Tobago over the timescale required:

¹³ <http://www.bls.gov/>

¹⁴ The most appropriate US BLS price index is only available from 2009. Thus, to ensure applying a consistent price index covering the entire period over which currently installed mobile network equipment may have been purchased the Authority has developed a composite index based on three US BLS export price indices.

¹⁵ Most notably the price indices contained in the publicly available mobile operator related LRIC models and documentation developed for Sweden, the UK, Denmark and Norway were considered as alternative sources of price trend information.

Table 7. Export Price Indexes

Series ID	Description	Data available	Dates used for
EIUIX764	Telecommunications equipment & parts, n.e.s.	1977-2005	1977-1992
EIUID8517	Electrical apparatus for line telephony or line telegraphy; videophones; parts	1992- to date	1992-2010
EIUIY33422	Radio and TV broadcasting and wireless equipment (Dec. 2009=100)	2009- to date	2009-

Source: US Bureau of Labour Statistics

The most appropriate index is only available from 2009. Hence alternative price series must be used to estimate price indices for earlier years. The resulting hybrid price index values¹⁶ are presented **Table 8**.¹⁷

Table 8. U.S. BLS price indices and resulting hybrid index for mobile network assets

Year (December)	EIUIX764: Telecommunications equipment & parts, n.e.s.	EIUID8517: Electrical apparatus for line telephony or line telegraphy; videophones; parts	EIUIY33422: Radio and TV broadcasting and wireless equipment (Dec. 2009=100)	Composite Index (Dec 2009=100)
1985	85.3			110.3
1986	85.8			111.0
1987	86.4			111.7

¹⁶ A hybrid index is required as the CCA revaluation requires obtaining an index covering the entire period over which currently installed mobile network equipment may have been purchased.

¹⁷ These price indices are contained in the “US Export Price Indices” sheet of the CCA model.

1988	89.4		115.6
1989	93.7		121.2
1990	96.6		124.9
1991	105.2		136.1
1992	105.3	112.9	136.2
1993	105.4	113.8	137.3
1994	102.9	106.8	128.8
1995	101.9	105.3	127.0
1996		104.6	126.2
1997		101.1	122.0
1998		99.5	120.0
1999		99.3	119.8
2000		99.7	120.3
2001		95.5	115.2
2002		90.6	109.3
2003		85.6	103.3
2004		83.5	100.7
2005		83.7	101.0
2006		84.1	101.4
2007		83.6	100.8
2008		84.5	101.9
2009		82.9	100.0

Source: Frontier Economics based on US BLS data

Adjustments to US Indices

The AUS TPI indices and the US export price indices reflect prices in US dollars in the US. The price series therefore have been adjusted to reflect two differences in prices paid in Trinidad and Tobago (i) exchange rate movements; and (ii) changes in import tariffs.¹⁸

The LRIC models are expressed in Trinidad and Tobago dollars (TTD). While the USD: TTD exchange rate has been relatively stable over the recent past, any changes in the exchange rate will be passed through to the prices paid expressed in TTD. As such, the USD based index has been converted to equivalent series in TTD by multiplying by the annual average exchange rate^{19, 20}.

Import tariffs are applied to imported equipment although these tariffs have fallen over time. The table below sets out the level of tariff reported for the HS Code ‘ 8517: Electrical apparatus for line telephony etc.’.²¹ These percentage increases have been applied to the price series to provide a series adjusted for tariff changes.

Table 9. Simple average tariff for HS Code 8517

Years	Simple average of tariffs (per cent)
1968 - 1995	10.00
1996 - 2000	2.50
2001	2.00
2002 - 2006	2.50
2007 - 2009	1.43

Source: UNCTAD - TRAINS (Trade Analysis and Information System)

¹⁸ The exchange rate and tariff data is contained in the “Exchange rate & tariff adjust.” sheet of the CCA model.

¹⁹ Sourced from the IMF International Financial Statistics (Code PA.NUS.FCRF).

²⁰ While in theory a spot rate could be used this could be adversely affected by volatility which meant that the rate for a specific date was not representative of the exchange rates used for transactions. The use of a spot rate

²¹ Accessible at: <https://wits.worldbank.org/WTTS/wits/restricted/login.aspx>

Asset lives

The asset lives in the tables below are based on publicly available information on asset lives used for regulatory purposes for fixed and mobile operators from a number of different jurisdictions worldwide including the Caribbean and Western Europe. Alternative asset lives may be used where justification can be provided.

Table 10. Revaluation approach and asset lives for mobile network components

	Abbreviation	Notes	Revaluation approach	Data source for revaluation	Asset life (years)
Base station	BTS	Include transceivers	Indexation	US Export Index for wireless equipment	10
Base station controller	BSC		Indexation	US Export Index for wireless equipment	10
Mobile switching centre	MSC	Also called call servers and act as gateways. BSC facing, interconnect facing and interswitch ports should be included as well as the visitor location register (VLR).	Indexation	US Export Index for wireless equipment	10
GPR, GGSN and SGSN	GPRS equipment	General packet radio platform, gateway GRPS support node and serving GPRS support node	Indexation	US Export Index for wireless equipment	10
Short message service centre	SMSC		Indexation	US Export Index for wireless equipment	5
Voice mail system	VMS		Indexation	US Export Index for wireless equipment	5
Home location register	HLR		Indexation	US Export Index for wireless equipment	5
Network management system	NMS		Indexation	US Export Index for wireless equipment	5

Signal transfer point	STP		Indexation	US Export Index for wireless equipment	10
BTS to BSC link	BTS to BSC link	Include only where this is dedicated equipment (e.g. microwave links solely for the purposes of backhaul) and specify the technology used (e.g. microwave or fibre).	Indexation	US Export Index for wireless equipment	10
Dedicated Mobile Network Land		This covers all land dedicated to Mobile service	Indexation	AUS TPI	40
Dedicated Mobile Network Buildings		This covers all buildings dedicated to Mobile service	Indexation	General inflation	Infinite
Dedicated GSM Mast and Towers		This category captures all Towers and Masts that are dedicated to mobile services	Indexation	General inflation	25
Dedicated Mobile Security System		This category captures security systems dedicated to mobile cell sites	Indexation	US Export Index for wireless equipment	10

Source: Frontier Economics

Table 11. Revaluation approach and asset lives for fixed network components

	Abbreviation	Notes	Revaluation approach	Data source for revaluation	Asset life (years)
Main distribution frame	MDF		Indexation	AUS TPI	15
Remote concentrator	RCU	Equipment connecting copper access lines for the purpose of providing TDM voice access with a concentrator function for onwards transmission of the traffic generated by the subscribers to a switch (independently of the protocol used) but with no switching capability. May also aggregate traffic from other voice concentrators and connect fibre connected voice customers.	Indexation	AUS TPI	15
Digital local exchange	DLE	Equipment providing voice switching capabilities for access lines either directly connected over fibre or copper or through concentrators. Switches may operate independently or rely fully or partially on a signalling connection to a host switch	Indexation	AUS TPI	15
Digital tandem exchange	DTX	Switch connecting to other switches but not connecting to access lines or voice concentrators	Indexation	AUS TPI	12
International switch centre	ISC		Indexation	AUS TPI	12
VOIP soft switch or media gateway	VOIP		Indexation	AUS TPI	5
Network management system	NMS		Indexation	AUS TPI	5
Intelligent network platform	IN		Indexation	AUS TPI	12
Co-axial cable	Co-axial cable		Indexation	AUS TPI	15
Twisted pair cable	Twisted pair		Indexation	AUS TPI	15
Access fibre	Access fibre		Indexation	AUS TPI	15
HFC optical node	HFC optical node	Provides interface between fibre and co-axial network in HFC cable networks	Indexation	AUS TPI	8
Point to point wireless	Point to point wireless		Indexation	AUS TPI	8
Point to multi-point wireless	Point to multi-point wireless		Indexation	AUS TPI	8
Pre-wiring of client premises and first time installations	Customer premise wiring and FTI		Indexation	AUS TPI	10
DSLAM	DSLAM	Equipment connecting copper access lines for the purpose of providing DSL broadband access services with a concentrator function for onwards	Indexation	AUS TPI	5

		transmission of the traffic generated by the subscribers. May also aggregate traffic from other DSLAMs.			
MSAN	MSAN	Equipment connecting copper access lines for the purpose of providing both TDM voice access and DSL broadband access services	Indexation	AUS TPI	5
Cable headend equipment - television broadcast	CHE- TV broadcast		Indexation	AUS TPI	8
Cable headend equipment - DOCSIS receiver	CHE- DOCSIS receiver		Indexation	AUS TPI	8
Cable headend equipment - Telephony	CHE - Telephony		Indexation	AUS TPI	8
Packet switched aggregation node	PSAN	Node which aggregate packet switched data traffic from DSLAMs or MSANs or directly connected fibre customers without routing the traffic	Indexation	AUS TPI	8
Packet switched router	PSR		Indexation	AUS TPI	8
Broadband Remote Access Service	BRAS		Indexation	AUS TPI	8
CATV distribution hub		Node aggregating traffic between HFC optical nodes and the head end	Indexation	AUS TPI	8
Other Network Equipment			Indexation	AUS TPI	10
Data Network Equipment			Indexation	AUS TPI	10
DSL Equipment			Indexation	AUS TPI	10
Local Loop Aerial Cables			Indexation	AUS TPI	10
Local Loop Underground Cables			Indexation	AUS TPI	10
IP MPLS Core			Indexation	AUS TPI	10
Wireless Local Loop			Indexation	AUS TPI	10
Underground Cable			Indexation	AUS TPI	10
IPTV Equipment			Indexation	AUS TPI	10
ISDN			Indexation	AUS TPI	10
NGN LINE MEDIA			Indexation	AUS TPI	10
NGN TRUNK MEDIA			Indexation	AUS TPI	10
Interconnection Equipment			Indexation	AUS TPI	10
Fixed Line Voicemail			Indexation	General inflation	10
Video conferencing Equipment		Equipment used in the provision of Video Conferencing Services	Indexation	AUS TPI	10

Source: Frontier Economics

Table 12. Revaluation approach and asset lives for network infrastructure assets

	Abbreviation	Notes	Revaluation approach	Data source for revaluation	Asset life (years)
Duct	Duct		Indexation	General inflation	40
Local loop poles	Local loop poles		Indexation	AUS TPI	15
Signalling equipment	SS7		Indexation	AUS TPI	10
Transmission Infrastructure	Xmn Infrastructure		Indexation	AUS TPI	15
Transmission equipment - SDH	Xmn equipment - SDH		Indexation	AUS TPI	15
Transmission equipment - PDH	Xmn equipment - PDH	Legacy equipment	MEA - used SDH as the MEA	Supplier price quotes/ publicly available regulatory cost models/accounts	15
Power equipment	Power equipment		Indexation	AUS TPI	15
Network buildings	Network buildings	Including building which also house non-network staff and activities	Indexation	AUS TPI	40 (freehold); or unexpired portion of lease at time of purchase
Masts& towers	Masts& towers		Indexation	General inflation	25
Network land	Network land		Indexation	General inflation	Infinite (freehold); or unexpired portion of lease at time of purchase
Motor vehicles - network	Motor vehicles - network		Indexation	AUS TPI	5
Fibre cables (core)	Fibre cables (core)		Indexation	AUS TPI	15
Microwave transmission equipment (core)	Microwave transmission equipment (core)		Indexation	AUS TPI	15
International subsea cables		Including wholly owned cables and partial ownership (IRU) along with associated infrastructure such as cable landing stations	Indexation	AUS TPI	15
CDMA Equipment			Indexation	US Export Index for wireless equipment	10
Local Loop / Distribution Equipment			Indexation	AUS TPI	10
International Transmission SDH			Indexation	AUS TPI	10
Internet Service Provision Equipment			HCA proxy	Concessionaire fixed asset register	10
Network Poles			Indexation	AUS TPI	10
Manholes			Indexation	General inflation	10
Network tools			Indexation	AUS TPI	10
Local Loop / Feeder Equipment			Indexation	AUS TPI	10
GSM hardware			Indexation	US Export Index for wireless equipment	10
Dedicated Roaming		Dedicated GSM Roaming	Indexation	US Export Index for	10

Platform	Platform	Platform	Platform	Platform
			wireless equipment	
Network Common	Captures shared Network items that are non specific and stocked for installation works	HCA proxy	Concessionaire fixed asset register	10

Source: Frontier Economics

Table 13. Revaluation approach and asset lives for non-network assets

Non-network assets	Abbreviation	Notes	Revaluation approach	Data source for revaluation	Asset life (years)
Non-network buildings	Non-network buildings		Indexation	AUS TPI	40 (freehold); or unexpired portion of lease at time of purchase
Land - non network	Land - non network		Indexation	General inflation	Infinite (freehold); or unexpired portion of lease at time of purchase
Furniture and office equipment	Furniture and office equipment		Indexation	AUS TPI	8
Training equipment	Training equipment		Indexation	AUS TPI	8
Vehicles - non-network	Vehicles - non-network		Indexation	AUS TPI	5
Payphones	Payphones		Indexation	AUS TPI	5
IT /General purpose computers	IT /General purpose computers		Indexation	AUS TPI	5
Network management	Network management		Indexation	AUS TPI	5
Marketing, retail, customer support	Marketing and retail		Indexation	AUS TPI	3
Customer premise equipment - fixed	CPE - fixed	e.g. modems	Indexation	AUS TPI	5
Customer premise equipment - mobile	CPE - mobile	e.g. handsets	Indexation	AUS TPI	3
Prepaid service platform	PRP		HCA proxy	Concessionaire fixed asset register	5
Billing system	BIL		HCA proxy	Concessionaire fixed asset register	5
Customer management system	CMS		HCA proxy	Concessionaire fixed asset register	5
Interconnect billing	IB		Indexation	AUS TPI	5
Mobile Retail Assets		Dedicated Mobile Billing System	HCA proxy	Concessionaire fixed asset register	10
Non-Network Assets		Dedicated GSM Customer Management System	HCA proxy	Concessionaire fixed asset register	10

Non Telecom Assets	All Equipment/Assets dedicated to NoN-Telecom Services, e.g. - Security Systems for Blink Vigilance	HCA proxy	Concessionaire fixed asset register	10
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Source: Frontier Economics

Annex 4: Decisions on Recommendations – CCA Reference Paper

The following summarizes the comments and recommendations received from stakeholders on the draft of this document (dated 6th July 2015, and consultation ending September 2015), and the decisions made by TATT as incorporated in this revised document dated 31st May 2016.

Document Sub-Section	Submission Made By: Stakeholder Category ²²	Comments Received	Recommendations Made	TATT’s Decisions
General				
General	Digicel	Digicel wishes to commend TATT for facilitating alpha access to the model thus far, and looks forward to the successful conclusion of this phase before moving forward. Digicel is mindful of the general requirements of law in relation to consultation processes. Digicel’s views on this issue are informed by case law in other common law jurisdictions such as <i>Regina -v- Brent London Borough Council ex parte Gunning; (1985) 84 LGR 168</i> where Hodgson J adopted the argument that a proper consultation must meet the following: <i>“First ... consultation must be at a time when proposals are still at a formative stage. Second ... the proposer must give sufficient reasons for any proposal to permit intelligent consideration and response. Third ... adequate time must be given for consideration and response and, finally, fourth ... the product of consultation must be</i>	Digicel recommends that the queries raised by operators herein are comprehensively addressed before the alpha phase can be deemed completed. It is imperative that errors/issues with the model which have been identified by operators are properly addressed, and that operators are given the opportunity to satisfy themselves of this, before the alpha stage is concluded. Digicel also reiterates the need to provide operators with unfettered access to the model	The Authority agrees with Digicel on the requirements for closing alpha testing. It has been the Authority’s work plan and continues to be its agenda to fully address all comments raised in this consultation process as well as all comments solicited in the alpha testing. On the request for unfettered access, the Authority advises that, as per its meeting with operators in August 2015, the Authority is willing to provide all operators with a copy of the model upon the submission of data from operators. The Authority also confirms that it has granted unfettered access to the model during the period of alpha testing.

²² Regional regulatory or Governmental agencies, Existing service and/ or network provider and affiliates, Potential service and/ or network providers and affiliates, Service/ Network Provider Associations/ Clubs/ Groups, General Public

Document Sub-Section	Submission Made By: Stakeholder Category ²²	Comments Received	Recommendations Made	TATT’s Decisions
		<i>conscientiously taken into account in finalising any ... proposals."</i> The Court of Appeal in <i>R v North and East Devon Health Authority ex p. Coughlan [2001] QB 213</i> took these requirements as its benchmark of proper consultation. Digicel believes that TATT’s consultation process should be measured against this same benchmark. The subject being consulted on by TATT in the current process was a detailed, technical cost model to be used to determine the exact obligation to be imposed on a respondent. Models of this type are complex and while they are based on various principles, the exact implementation of the principles within the model and way that the implemented principles interact can yield widely different results and in some case may result in the model producing outputs which do not conform to reality. This means that the only way in which a respondent can test whether a model is fit for purpose is to exercise the draft model to explore if it gives reasonable outputs conforming to real world experience. In order to be able to respond intelligently to the substance of what was being consulted on (is the model fit for purpose?) a respondent would require unfettered access to the draft model.	during the beta stage, along with a reasonable time frame for consideration of same.	The Authority further advises that it has undertaken a regulatory survey of experiences in other jurisdictions on the disclosure and provision of copies of regulatory cost models. This report has concluded, <i>inter alia</i>, that there is no clear precedence on the disclosure or provision of copies of regulatory cost models. Across the sampled countries, there were mixed experiences, with models being shared fully, partly or not at all. There was also no clear trend in the disclosure of mobile versus fixed network models across European and non-European jurisdictions. However, due to confidentiality reasons, top-down models are less likely to be disclosed than bottom-up models. Bottom-up models based on a hypothetical operator assumption are more likely to be disclosed than those based on an actual operator data. Nevertheless, on its request for further unfettered access, the Authority advises that, as per its meeting with operators in August 2015, the Authority is willing to

Document Sub-Section	Submission Made By: Stakeholder Category ²²	Comments Received	Recommendations Made	TATT’s Decisions
		Digicel has thus far only been afforded limited access to the model which has constrained its ability to fully test the model, to validate that it operates in a way intended, that the input assumptions are reasonable and that it produces outputs which conform to those expected in real world networks. Therefore we believe that the Consultation process as conducted to date, has not meet the second requirement the benchmark process. By way of example, Ofcom has made its LRIC model available the for download on its website and ComReg provided a copy of the LRIC model being consulted on to directly affected operators as a matter of course and to other prospective respondents on application. In the case of the ComReg consultation, this process resulted in the model being revised following detailed analysis and submission on the part of operators who had been provided with a copy of the model. This demonstrates the deficit that would exist had a copy of the model not been provided as the necessary changes could not have been identified or acted upon in its absence. We therefore look forward to the successful completion of the alpha stage and thereafter to the commencement of the beta stage. Although full details of the nature of the “take away” model that will be given to concessionaires at the beta stage have not been provided, we wish to underscore		provide all operators with a copy of the model upon submission of requested cost data by operators.

Document Sub-Section	Submission Made By: Stakeholder Category ²²	Comments Received	Recommendations Made	TATT’s Decisions
		the need to have full transparency at this stage, as it represents the first real opportunity for proper review of the model.		
General	TSTT	TSTT welcomes the opportunity to provide our views on the Draft CCA Reference Paper and its companion document, the LRAIC Specification Paper. Unfortunately, we firmly believe that there are a few significant procedural issues with this present consultation process, compounding fundamental philosophical challenges with the proposals contained within the document, which make our agreement with the Authority’s proposed determinations difficult. TSTT would also like to express the concern about what TSTT sees as an attempt to surreptitiously expand the remit of the Authority, and the function of the Methodology outside of what is provided for in statute. In that regard, TSTT reminds the Authority that it does <u>not</u> have the power to dictate the costs, investment priorities, or terms and conditions of a concessionaire. The Authority does not have the statutory power to impose its model on the general operations of a concessionaire. Further, the Telecommunications Act does not give the Authority the power to usurp the rights of the concessionaire with respect to determining their own rates of return for their investments. This is even more true in instances where that concessionaire has not been declared dominant.		Following the Interconnection Dispute between Digicel and TSTT in 2006, the Arbitration Panel which deliberated and ruled on that dispute, in its decision, recommended that, <i>“The Authority consider developing a sector specific cost model for the purposes of considering whether proposed charges comply with the regulatory framework, or for setting charges if so required”</i>. Also, as required under the Telecommunications Act, the Telecommunications (Interconnections) Regulations and the Telecommunications (Access to Facilities) Regulations of Trinidad and Tobago, the Authority is required from time to time, to determine various cost-based prices. Further, the Authority upholds Section 29 of the Telecommunications Act which relies on the free market enterprise in determining market prices. However, in the instance of

Document Sub-Section	Submission Made By: Stakeholder Category ²²	Comments Received	Recommendations Made	TATT’s Decisions
		TSTT expressly states that failure to address any issue raised in this Consultation does not necessarily signify its agreement in whole or in part with any position taken on the matter by the Authority or any respondents. TSTT reserves the right to comment on any issue raised in this Consultation at a later date.		market distortions, market failure, monopoly or a dominant provider in a given market, and where there is anticompetitive pricing or cross-subsidization, the Authority will be required to implement a price regulation regime, as deemed necessary, which can include cost-based determinations. The Authority maintains its commitment to consult on this document in accordance with the Authority’s established Consultation Procedures.
General	TSTT	Contained in the DOR’s for the 2010 document, a concessionaire did advocate the Authority provide training in this area since the area was new. At present the training process has not occurred, had the Authority acquiesced concessionaires would have more familiar and the need for categorization of assets would have been dealt with comprehensively. As it stands now, TSTT, and we suppose other concessionaires, are forced to review international benchmarks in an attempt to reverse engineer what the Authority seems to be attempting. As referenced above, the FCC has a standard coding system http://www.gpo.gov/fdsys/pkg/CFR-2009-title47-vol2/pdf/CFR-2009-title47-vol2-part32.pdf Further, the AUSTPI is developed around the FCC part 32	Given the significant failings in the Methodology, CCA and Model, the Authority should cease its command and control approach in this regard, and seek to collaborate with concessionaires so that lacunas can be closed. TSTT reiterates the call for the Authority to provide some training in this area so that these areas of contention can be resolved.	There has not been a “command and control” approach employed by the Authority, but rather, a detailed and extensive collaborative approach, evidenced by several rounds of consultation on all the Costing documents including the Costing Methodology, LRAIC Specification Paper, CCA Reference Paper, the Methodology for an Efficiency Study, and the Weighted Average Cost of Capital. The Authority also reminds TSTT that all concessionaires received insights into the full workings on the model, having been invited by the Authority to meet with its consultants

Document Sub-Section	Submission Made By: Stakeholder Category ²²	Comments Received	Recommendations Made	TATT’s Decisions
		coding system http://ausconsultants.com/utility-insights/ TSTT believes that concerted, collaborative work between the Authority’s and concessionaires should be pursued with a view to ensuring there is comprehensive consideration of issues in the Authority’s documents, consistency across its regulatory framework and understanding among concessionaires. TSTT believes that the Authority’s command and control approach on this matter in particular has not borne fruit, after nearly a decade of stop and start activity.		for this purpose during the model building period of 2009-2010. Further to the extensive consultations on each level in model development, the Authority also provided operators with model documentation which provided details on the main modelling flows, the model structure and the contents of each worksheet within the spreadsheet. This is also published on the Authority’s website since 2012. The Authority has adopted a collaborative and consultative approach, in the development of the model. There is therefore no need for concessionaires to reverse engineer the model. As it stands, the Authority has provided the concessionaires with open access to the fully functional model over a significant number of access sessions. Where there is a specific request for any clarification on any area of the model, the Authority would immediately respond and seek to provide relevant clarification.

Document Sub-Section	Submission Made By: Stakeholder Category ²²	Comments Received	Recommendations Made	TATT’s Decisions
General	TSTT	TSTT would further like clarification as to whether the Authority has recognised the association between the FCC accounting system and the AUSTPI? Given the protracted nature of this discussion, TSTT firmly believes that before another decade is lost seeking to implement a system that is too cumbersome to be workable, the Authority must do the necessary research on the inter-linkages between indices so as to ease the work of the operators in their review of their assets for revaluation. If affirmative, the Authority should have been transparent and inform the industry of same. This information would have saved the industry time when mapping these assets by facilitating: 1. A simplified Revaluation 2. Simple comparison of assets 3. Asset to network element mapping 4. Reduce the amounts of network elements considered. If not affirmative, this consideration should be taken on board in assessing the appropriateness of AUSTPI et al. as the default indices for these revaluations, given the adjustments that would have to be made considering the difference in network authorization approaches in the US and T&T.	The Authority should consider whether the adoption of the FCC Part 32 Coding Standard for assets, amended <i>mutatis mutandis</i>, would better achieve its objectives, as this Standard is compatible with the AUSTPI.	The Authority is proposing to use the AUSTPI, which were developed to support the FCC Part 32 Costing Standard because these set of indices are readily available and are, in the Authority’s judgment, appropriate to use in Trinidad and Tobago as price movements in internationally traded goods should be similar in the US and Trinidad and Tobago. The Authority has not identified any more appropriate indices or revaluation approaches but if concessionaries are able to produce or provide indices or alternative revaluation methods which demonstrably provide better answers then the Authority would consider these approaches. The AUSTPI were initially developed as an input to FCC Part 32 and therefore the Authority believes that the AUS TPI is a robust and appropriate, neutral standard suitable for all parties. According to the CCA Reference Paper, these indices are prepared by independent consultants and are used widely by operators for regulatory and

Document Sub-Section	Submission Made By: Stakeholder Category ²²	Comments Received	Recommendations Made	TATT’s Decisions
				statutory accounting purposes.
Section 1				
1.0 Overview 1.1 Review Cycle <i>“This Paper is a subset of the Costing Methodology and can be considered the parent document on Current necessary, supplementary documents will be produced and be appended to this CCA Reference Paper via the Authority’s consultation process.”</i>	TSTT	TSTT has expressed previously, both in consultation on these issues and in correspondence, that there are significant philosophical challenges with the Costing Methodology which compromises: • the LRAIC Model it seeks to underpin; • the costing approach necessary to contextualise data to be used in the model; and • the Authority’s proposed use of the Model. TSTT believes that these significant weaknesses begin to become more and more evident as the review of the CCA Reference Paper. To facilitate a successful Model implementation programme, TSTT again implores that the Authority seeks to rationalize the weaknesses in the Costing Methodology, as outlined below. Even with the weakness and inconsistencies within the Costing Methodology, TSTT is challenged to see how the Authority could make the claim that it has been successful in following the guidelines of the principles put forward therein in the compilation of the CCA Reference Paper. In this response TSTT provides a critical analysis of global best practice from which the Authority chose to implement what it considers suitable in Trinidad and Tobago. An overview of some weaknesses in the Costing	The Authority should seek to ensure that the Costing Methodology’s weaknesses are rationalized before proceeding with any development of subsidiary documents. The Authority should abort this consultation, and seek to ensure that the CCA Reference Paper adheres to the principles put forward in its rationalised “parent document.” The Authority must revise the Costing Methodology which is dated make the necessary adjustments to suit the local market and progress thereafter. The Authority must review the	The Costing Methodology was fully consulted upon with stakeholders who were in agreement with the concluding Methodology. The Authority notes that the Costing Methodology provides a balanced and thoughtful weighing of approaches to costing. In fact, during the consultation period for the Costing Methodology, operators were advised that the document was intended to outline the general principles that will be adopted in the establishment of cost models. The Authority further advised that subsequent consultations would be undertaken on the specific cost modes which would involve the implementation of these principles. The respective Decisions on Recommendations refer. The specific cost modes are set out in the LRAIC Specification and CCA Reference Papers. The CCA Reference Paper does not depart from the principles identified in the Costing Methodology and therefore would

Document Sub-Section	Submission Made By: Stakeholder Category ²²	Comments Received	Recommendations Made	TATT’s Decisions
		Methodology. As an example, according to Section 1.4 “Purpose and Applicability” of the Costing Methodology: <i>“This Costing Methodology shall be used by the Authority in developing the appropriate cost models for fixed and mobile networks, in subsequent consultations, that will be used for the purposes of determining cost-based rates in the telecommunications sector. It is expected that the development of these models in consultation with stakeholders should take approximately 36 months...”²³</i> In the first instance, after almost eight (8) years, the Authority’s implementation process has long surpassed the 36 months timeframe, and the myriad challenges that arose remain, largely, open questions. This period includes long periods, sometimes over a year at a time, where the Authority failed to respond to key questions of concessionaires: some of which remain outstanding to this day. Of critical philosophical import is the question as to whether this foundation document is now antiquated in its considerations, conceptualizations and assumptions of the contemporary telecommunications network.	Costing Methodology to ensure its continued relevance in the context of a telecommunications market which has changed significantly since its first development. The Authority needs to define and demark the Core and Access Network Types and properly define the specific services associated with each. The Authority should begin consultation on the “Costing Methodology for the Telecommunications Sector” which encompasses: Current Cost Accounting (CCA) Long Run Average Incremental Costing (LRAIC) Top-down methodology.	not require an amended or “rationalized” Costing Methodology.

²³ TATT’s Costing Methodology

Document Sub-Section	Submission Made By: Stakeholder Category ²²	Comments Received	Recommendations Made	TATT's Decisions
		Secondly, the concern identified immediately above raises further questions as to whether the foundation document not adequately addresses issues critical to the development of a LRAIC model that is fit for purpose in the converged telecommunications and broadcasting sector of Trinidad and Tobago. As an example, it is clear from the deliberations in that document, and indeed in the CCA Reference Paper, that network modeled is presumed to be either a circuit switched telecommunications network or an HFC Cable Network. Further, there are considerable assumptions on the functionality of that network elements and the relationship between their operation, the topology of these networks and the partition of costs of shared elements associated with a variety of services. These assumptions challenge the relevance of the Cost Allocation principles of the Methodology when one considers the operation of the horizontally integrated fixed and mobile service provider, and the emergence of a variety of Next Generation Network solutions, in both the telecommunication and broadcasting spaces. Thirdly, despite the claim on page 3 that the Methodology provides for: <i>“[a] model... [which] will be used for a range of regulatory purposes, which may include but are not limited to:</i> <i>• the determination of interconnection rates for all concessionaires when required;</i> <i>• the determination of rates for accessing to facilities</i>		The Authority notes, but disagrees with TSTT's position on the need to redefine the access and core networks in the Costing Methodology and LRAIC Specification Paper. Section 5.2.1 of the latter clearly defines the fixed access network as a network element which contains all subscriber driven assets. It then sets out in Table 3 what that means for fixed wire line, HFC and fixed wireless technologies. In case of the fixed wire line networks, this means all network assets from the customer premises to the local switch/exchange/MDF.

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		<i>of any concessionaire where applicable”,</i> the Costing Methodology fails to define and make the necessary demarcation of the distinct Core and Access networks: a demarcation that is necessary for the uses identified. TSTT again reminds the Authority that if that distinction is not properly defined, it would not be possible to systematically and consistently properly categorize equipment of the various networks for proper application of CCA and then LRAIC. For further clarification, the Authority <u>must</u> recognise that the investment profiles and payback periods of Access and Core Networks vary significantly. These differences impact the appropriate depreciations, cost allocations, and other processes which either are or impact key inputs in the CCA and LRAIC processes. This key point has not been addressed in either the Costing Methodology, or the CCA Reference Paper. Indeed, the functional demarcation of Access and Core Networks is not adequately established anywhere in the Authority’s wider regulatory and policy framework. In comparison, a scan of international environment finds that in other jurisdictions the basis for the models are clearly articulated and conducted in a transparent environment amongst all stakeholders. In comparison, the “one-stop-shop” or “one size-fits-all” methodology proposed by the Authority has created a difficult situation which became dormant for one year from May 2014 to the present consultation, and remains unaddressed herein.		

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		As an example, the following is an extract from the DORs of the Costing Methodology where the Authority was asked to confirm the <u>type of services</u> to which the Methodology would be applied. In response, the Authority on pages 56 and 57 advised that: <i>“The Authority has modified the Costing Methodology to explicitly state which services the methodology applies to. This costing methodology applies to all <u>providers of access services</u>.”</i> Here the Authority has not answered the issue raised with respect to <u>specific services</u>, but deviated to a response which identified types of providers/ concessionaires are to apply the Methodology. In this way the relevant concern of the concessionaire remains unclear: and the confusion translates into incoherence in the CCA Reference Paper, making it functionally impossible for a concessionaire to implement. For this process to advance, it is essential that these fundamental weaknesses in the Costing Methodology are resolved before proceeding with further elaboration or consultation of the flawed CCA Reference Paper.		
1.2 General concerns with the Consultation Process	TSTT	Procedural Challenges with the present CCA Consultation: Troublingly, the document issued by the Authority does not reflect the details as per the Table of Contents and Overview included therein. Notably, and contrary to the standard practice for Consultative Documents, whilst the Table of Contents speak to the existence of Decision on Recommendations (DORs), same was not	The Authority is called upon to practice due care in the documents issued to stakeholders for review and input. The Authority must ensure that it provides complete documents when issuing consultations to the	The Authority takes note of TSTT’s recommendation and clarifies that it did not surreptitiously change the document, but as TSTT pointed out, the Authority provided the clarification note to the table of contents and transparently dated the note so that all stakeholders would be fully apprised. This change was also maintained with strike

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		included therein for review by stakeholders. An excerpt of the Table of Contents is provided below: <i>“Annexe 4: Decisions on recommendations – First RoundError! Bookmark not defined.</i> <i>Annexe 5: Decisions on recommendations – second roundError! Bookmark not defined.”</i> Additionally, whilst the Overview of the document speaks to the existence of: <i>“a summary of the recommendations received from concessionaires in response to the first and second rounds of consultation and the Authority’s decisions on these recommendations,”</i> same was, as outlined above, not available for review with the document when it was initially published on July 6th 2015. To further complicate the matter rather than correcting and transparently producing a complete document, the Authority sought to surreptitiously re-issue the document on 7th August (without a change in date) with the following advice to all who wish to comment on the document: <i>“Note to Table of Contents: Decisions on Recommendations arising from the previous rounds of consultations are contained in the CCA Reference Paper dated 2010 and repeated in the CCA</i>	public.	through marking for full transparency. The Authority will exercise due care in the documents issued for second round of consultation. Furthermore, the Authority provides its commitment to continue to consult in accordance with its established procedures for public consultation.

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		<i>Reference Paper dated 2012.</i> <i>This clarification note was provided by TATT on 7th August 2015”</i> Further, the DoRs referenced in the advice quoted above, reflected comments made in response to a prior consultation process that ended in 2010. Further still, there is no evidence of responses to any consultation that resulted in the 2012 version of the CCA Reference Paper. For responders on this document to appreciate what preceded this version, they must first find the DoRs from previous documents that led to this particular round. While there is a trail of consultation up to the completion of the 2010 version, there is no trail of any legitimate process which led to the publication of the 2012 document. TSTT is led to believe that these anomalies seem to suggest that there has been some breach in the Authority’s procedures with respect to public consultation in the production of the 2012 version of the document. If it is indeed that the 2012 version of the document was not subject to consultation, the document is not legitimate according to the Authority’s own procedures. In that context, anything derivative of that document would also be similarly illegitimate. If TSTT’s deductions prove accurate, the Authority should withdraw this document and reconvene a legitimate first round of	. The Authority should abort this consultation process and only reinitiate when any anomalies with respect to the progress of the document are rationalised. The Authority having reviewed the Costing Methodology must be transparent and put all documents developed and applied in CCA revaluation out for two rounds of consultation. Inclusive of “Price Indices for CCA Revaluation” dated August 10th 2010. In any instance, the Authority	The Authority informs that all perceived anomalies have been rationalized by virtue of this current consultation process, which shall include two (2) rounds of consultation, at a minimum, and therefore there is no need to abort same. The Authority agrees with TSTT’s recommendation on ensuring there is public consultation on the price Indices for CCA Revaluation and will issue same for consultation by updating the CCA Reference Paper accordingly and issuing the document for Public Consultation.

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		consultation. Further, TSTT points the Authority to the document titled: “Price Indices for CCA Revaluation,” dated August 10th 2010, which was provided to TSTT only during the Model Alpha Testing sessions in 2014. While this document has <u>never</u> been subject to consultation, its findings have been applied in the modeling exercise. This cited document is thus a first draft which has not been ratified in accordance with the Authority’s own procedures, however it is imposed on the market through its impacts on the CCA revaluation exercise. This is inappropriate. The Authority must put the document out for consultation in the spirit of transparency, and in accordance with its statutory obligations to function in a transparent manner in accordance with its published rules.	should refrain from referencing documents not consulted on and/ or incomplete.	
The Consultation Period 2012 to 2015 <i>“Following the course of initial model development and data gathering in 2010- 2011, revisions were proposed in 2012 to ensure that the LRAIC model best captures the operational and financial situation of</i>	TSTT	TSTT challenges the Authority’s description of the process undertaken in the period between 2012 and 2015. During that period TSTT only participated in the “Alpha Testing” of the LRAIC model and reported on same, in writing on July 4 2014. The Authority would recall that TSTT highlighted significant deficiencies in the Model, which are yet to be addressed in any way, and the propriety of some of the inputs imputed into that Model by the Authority. Indeed, much of TSTT’s comments reflected our continued disagreement with key aspects of the Methodology, and thus the CCA and LRAIC processes.	The Authority is asked to provide evidentiary support of these alleged meetings. In the absence of this, the Authority must adjust the chronology of events as stated in this consultation document and present factual information.	The Authority takes note of TSTT’s recommendation. Meetings were held with TSTT and other operators on the main amendments which informed the revised Papers, for example, meeting of 17th March 2011 to discuss the production of detailed CVR information. This note was subsequently finalised and provided to TSTT in July 2011. Furthermore, such updates were also communicated with operators, for example, by correspondence

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<i>service providers. Meetings were also held with stakeholders to discuss the revisions. Further revisions have been incorporated into the 2015 document for consultation and are aimed at providing more guidelines to concessionaires in the submission of data required for the LRAIC model.”</i>		During said period, the Authority held no meetings with TSTT to discuss the revisions associated with the publication of this consultation document. The Authority must be aware that the contents of these consultation documents are visible to the world via the worldwide web. Although the viewers of these documents may not be the parties with the right to respond however when viewed in global academia untrue statements may impinge on the reliability and integrity of the institution.		dated 18th November 2010, Re; Submission of Further LRAIC and CCA Guidance- Notes on Treatment of "Impairment of Assets" and "Foreign Exchange Adjustments". All, the same, the Authority notes TSTT’s request and will update the CCA Reference Paper accordingly, prior to issuing the document for the second round of consultation.
“The main revisions over this period include: • Updated categorization of assets for different types of networks (fixed, mobile, wireless broadband and HFC) _and descriptions of the fixed wireless and HFC costs and network equipment in the LRAIC model.	TSTT	Despite the ambitions of the Authority, the methodology employed does <u>not</u> allow for the development of a single industry model to be used by various concessionaires. The updated categorisation of assets will not solve the fundamental challenges which were previously identified as the categories established are not robust enough to allow for standardization of the model across different technologies, and different network topologies. To overcome this, the Authority should first undertake an exercise where it defines general categories of assets based on equivalent functionality, before seeking to categorise those assets as being associated with types of network, such as fixed, mobile,etc. This exercise of	The Authority needs to consult on the Costing Methodology complete this process and then issue CCA for consultation. The Authority should apply the concept of technology neutrality in establishing a framework to allow concessionaires to map their	The Costing Methodology was fully consulted upon with stakeholders who were in agreement with the concluding Methodology. The Authority notes that the Costing Methodology provides a balanced and thoughtful weighing of approaches to costing. Contrary to TSTT’s proclamation, the Model is designed to model the existing networks of all operators on a top down basis. There is therefore no need to consult on the Costing Methodology to complete this process.

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(Page 11) ”		defining assets based on equivalent functionality, should accompany the general review of the Costing Methodology advocated for earlier. Indeed, the Authority needs to clarify why, despite no distinction in its Authorisation Framework, “wireless broadband” is deemed a different category of network from “fixed.” The Authority’s own Authorisation Framework, based on the principle of technological neutrality, defines the former as a subset of the latter. Accordingly, TSTT remains perplexed as to the relevance of the sub categorization proposed. Further, the Authority’s delinking of various aspects of its source’s standards and indices creates arbitrariness and inconsistency throughout the system it proposes to create. As an example, which will be touched upon later, there seems to be a misunderstanding by the Authority of the linkages that may exist between the AUS TPI, and the FCC accounting system. The Authority’s proposals do not seem to recognize these linkages/ connections and thus is recommending the mixing and matching of standards and indices leading to possible confusion in the appropriate application of aspects the proposed framework by operators, and ultimately inconsistency in costing frameworks across the market. The Authority should also consider whether it is appropriate to use AUSTPI to index assets which can be purchased/ acquired in the domestic market (such as cars, labour, building and land, etc). The Authority must	assets to common network element functionalities For consistency with the Authority’s Authorisation Framework, any delineation in network categories associated with “fixed” and “wireless broadband” should be revisited Even in this regard, the Authority should consider whether it is appropriate to use AUSTPI to index particular assets which can be acquired in the domestic market (such as cars, labour, building and land etc). The Authority must clarify as to why foreign indices would be used to model inputs which are available for the T&T CSO’s RPI among others reports.	The Authority has adopted a technology neutral approach in the development of the cost model. The Model will therefore be able to accommodate for any evolution in technology as markets progress. It is necessary for the Authority to consider all network types currently deployed i.e. fixed wired, HFC networks and fixed wireless in its consideration of operators’ actual network costs. It should be noted that these types of networks are covered in the Authorisation Framework as subsets of fixed (wired and wireless) network concession type. The feedback from concessionaires was duly considered by the Authority when finalizing the indices to be used for the CCA revaluation exercise. The Authority further reminds TSTT that all concessionaires were invited to provide alternative indices as part of the information collection process. The Authority assessed the merits of any alternative indices suggested, but concluded

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Tables 7 through 10		clarify as to why foreign indices would be used to model inputs which are available for the T&T CSO’s RPI among others reports. Indeed, TSTT would suggest as a general principle, for indexation: Local manufactured products - revalued by local index. Foreign turnkey - revalued through use of external indices AUS/USBLs.		that none of them were adequate for the CCA revaluation exercise. The Authority is not aware of any indices currently available which are superior. The current Indices will be included in the CCA Reference Paper when issued for the second round of consultation and concessionaires would therefore be given an opportunity to suggest a replacement index, with justification, that is considered more suitable for Trinidad and Tobago.
	TSTT	Further, the specific asset categorizations as referenced in the de-linked indices may lead to inconsistency with the optimal classification of that asset in a holistic context given the specific approach to network authorization pursued by the Authority. When the Authority copies international standards and indices then seeks to apply same unmodified in the local context, the Authority must appreciate that where the source overarching frameworks differ significantly from the Authority’s Authorisation framework this will create incongruencies within the regulatory system which makes it functionally unworkable. As an example, the categorization of assets across different networks in AUS TPI differ significantly from TATT’s classification and treatment of Fixed, Mobile and	Such discourse should be subject to transparent, documented discourse with stakeholders in the recognized process for such consultation and deliberation. The Authority needs to consult on the costing Methodology complete this process and	There has been no piecemeal approach to Costing but rather a detailed, transparent and consultative approach in all stages including the Costing Methodology, the specifications for CCA revaluation and LRAIC model implementation.

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		International Networks. These conceptual failures, of • delinking these international standards and indices; • the lack of recognition of domestic equivalents to the international indices proposed; and • inconsistency of the classification system used in the international indices with the prevailing Authorisation Framework; all have their origin in the piecemeal approach of aggregating ideas and concepts in the Costing Methodology.	then issue CCA for consultation.	
• <i>An update to data sources for revaluation of mobile network assets, in Table 7 (Page 40)</i>	TSTT	The blended index developed by TATT was not necessary. The Authority and its consultants seek to create a historic index when such is not required, and there has not been robust public discussion with stakeholders that justify this approach.	The blended index proposed by the Authority should be abandoned. If the Authority seeks to establish a new blended index, such should be discussed specifically and transparently. It should not be imposed unilaterally in any framework without prior consultation.	The Authority notes TSTT’s feedback on the blended index developed for mobile assets. The need for and approach to developing this index was detailed and shared with concessionaires in August 2010.²⁴ The feedback from concessionaires to this approach was duly considered by the Authority when finalizing the indices to be used for the CCA revaluation exercise. This included, for example, making adjustments to the US based PPI mobile equipment indices to reflect past movements in

²⁴ Available at: [https://tatt.org.tt/Portals/0/Documents/Price%20Indices%20for%20CCA%20For%20Long%20Run%20Average%20Incremental%20Cost%20\(LRAIC\)%20Modelling.PDF](https://tatt.org.tt/Portals/0/Documents/Price%20Indices%20for%20CCA%20For%20Long%20Run%20Average%20Incremental%20Cost%20(LRAIC)%20Modelling.PDF)

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				exchange rates and import tariffs. The Authority further reminds TSTT that all concessionaires were invited to provide alternative indices as part of the information collection process. The Authority assessed the merits of any alternative indices suggested, but concluded that none of them were adequate for the CCA revaluation exercise. We are not aware of any indices currently available which are superior. The current Indices will be included in the CCA Reference Paper when issued for the second round of consultation and concessionaires would therefore be given an opportunity to suggest a replacement index, with justification that is considered more suitable for Trinidad and Tobago.
<i>An update to the revaluation approach and asset lives for network infrastructure and non –network assets in Tables 9 and 10 (Pages 44 and 45</i>	TSTT	There are many instances in the Tables cited where the Authority should consider using a local index rather than AUSTPI for items which are ether existing, manufactured or otherwise readily available in the local sector. Indeed, in accordance with TSTT’s suggested general principle for indexation: Local manufactured products - revalued by local index. Foreign turnkey - revalued through use of	Tables 9 & 10 should be reviewed to rationalize the application of AUS TPI as an index only for those items where it is appropriate.	The Authority confirms that it will undertake an assessment of the CCA revaluation approaches in the revised CCA Reference paper to be issued for second round of consultation. The Authority welcomes any suggested replacement index, with justification that is

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		external indices AUS/USBLs. there needs to be considerable review of Tables 9 and 10 so as to rationalize the application of AUS TPI to only those elements that are necessary. This review should not be unilaterally determined by the Authority but should be subject to a robust, transparent conversation so as to avoid continued excessive delays in this regard.		considered more suitable for Trinidad and Tobago.
1.3	Digicel	TATT says “Concessionaires are required to submit up-to-date input data for each update. Within each revision the Authority will firstly update the CCA studies for each concessionaire”	Digicel requests TATT to confirm whether Concessionaires are required to perform the CCA revaluation or whether TATT will undertake this activity? This is because it implies a substantial additional resource in the case that Digicel is required to undertake its own revaluation study.	The Authority confirms that it will be conducting the CCA revaluations of operators’ data, upon submission of same by operators, for use in the model.
1.3 Approach to LRAIC modelling <i>“The LRAIC model produces a range of outputs including costs for individual services and network infrastructure costs ...”</i>	TSTT	The Authority should correct this statement as the Model produces an <u>estimate</u> of the rationalized costs for services. TSTT reaffirms its discomfort with this statement and its proposed implications for the Authority’s proposed administration of the sector. Here, the Authority seems to proposing to impose an information submission/	The Authority should always be precise about the intent and a framework such as this. The Authority to confirm the annual frequency of submission alluded to in the term “up-to-date.”	The intent and purpose of the Framework are set out in the Costing Methodology, CCA Reference and LRAIC Specification Paper. As the model is top down, it provides the actual modelled cost of the operator. The Authority disagrees with TSTT’s

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“...the LRAIC modelling process, and thus the CCA studies, will require regular updating going forward. Concessionaires are required to submit up-to-date input data for each update. Within each revision, the Authority will firstly update the CCA studies for each concessionaire which will then form an input to the LRAIC modelling process.”		reporting requirement which is not ratified in the Act, or any regulation. Further, this reporting requirement seems extremely unwieldy as it seems to request the constant repetition of a lengthy process regularly (which could mean as often as annually), even where there has been no material change on the network. This is impractical. As it stands, operators’ interconnection and access agreements (among the matters the output of this model is to guide) have multi-year terms. Accordingly any cost estimate for the life of the Agreement is presumed to be normalized. This is industry best practice. Why would the Authority seek to require the allocation of concessionaire resources to this exercise? Instead of driving efficiency, this will impose an obligation on concessionaires which is inherently inefficient. It would be more practical for the Authority to undertake this exercise: (i) periodically to coincide with the renewal of the parties obliged to prepare an IRIO; and (ii) utilizing information readily available pursuant to existing data submission requirements – including regulatory defined Accounting Separation submissions, as well as the submission of Annual Audited Statements pursuant to the Fees Regulatory requirement. If the Authority insists upon establishing a distinct	In any instance, that frequency should conform to the renewal period of associated regulatory instruments such as the IRIO, i.e. a period of not less than five (5) years, but not more than ten (10) years. The Authority should abandon the requirement to establish a distinct reporting requirement in this regard, and should undertake information collection in accordance with established information reporting regulations, including: - Accounting Separation Regulations; and - Fees Regulations.	recommendation for less frequent submissions. The Authority believes that annual data collection gives the model strength and validity for the following reasons: • The Authority will not be changing the model yearly but rather inputting annual data so that the Model will generate reliable and relevant current costs. • The Model is not static as it is made up of manipulative variables as well as constant variables. This allows for the reflection of real market conditions and the realities faced by the operator. This is further necessitated by the fact that the model is top down, thereby utilising actual operator annual costs and not hypothetical costs. Cost and financial reporting processes are also annual reporting requirements of operators. • Where rates are required for regulatory intervention, the Authority may easily be considered short-sighted in its assessment where, for example, trended costs over years are not considered to normalise for any

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		reporting framework, TSTT would require the Authority to outline the specific statutory authority from which such powers are derived.		sudden increases or decreases in any particular year’s costs. Given the foregoing, the Authority believes that annual updates would assist in reliably reflecting variations evident in the real market. Furthermore, the requirements for the cost model are independently set out in the regulatory framework including Section 25 (2) (m) of the Act, Interconnections Regulations 15(1) and Access to Facilities Regulations 18(1). The Authority is within its remit to request data for the purpose of cost modelling in accordance with the regulatory mandate for doing so, set out in the Act and subsidiary regulations. Furthermore, the Concession Agreement, Condition A28 also sets out this requirement.
1.4	Digicel	TATT says “interconnection and access charges determined using CCA asset values provide new entrants with appropriate ‘build or buy’ signals as to whether to deploy competing network infrastructure or purchase interconnection and access services from existing operators”	Digicel requests TATT to review and reconsider its principles for applying CCA charges based on partly depreciated accounts. Digicel requests TATT to take into account the explanation here,	The CCA costing approach to be used for the LRAIC model was clearly defined in, “ <i>The Costing Methodology for the Telecommunications Sector</i> ” May 29, 2008. Digicel mis-understands the approach taken by Ofcom in setting the RAV. Duct and

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		The preferred cost basis used for LRAIC modelling varies between countries, although some countries have stated a preference for CCA rather than HCA. For example, the EC Recommendation of 8 April 1998 proposed the use of a CCA methodology as part of the AS exercise. Subsequently, the EC Recommendation of 19 September 2005 reinforced the previous Recommendation, following the application of the regulatory framework for electronic communications of 25 July 2003. We agree with TATT that CCA is more relevant for LRAIC modelling purposes than HCA. However, some issues should be kept in mind, as explained below: Due to the lack of competition in the fixed market in Trinidad and the age and complexity of the fixed network, it is necessary to present the LRAIC model in HCA and CCA terms. However, a distinction should be made when calculating CCA between the access and the non-access network of the fixed incumbent. All the assets that are not included in the access network should be calculated on both an HCA and CCA basis, whilst access network assets should be valued on an HCA basis only. The reasons for this are outlined below:	and in particular to revise its approach for the fixed access network to only take into account HCA-based costs.	copper cable assets are not valued at historic costs. Instead assets purchased prior to 1997 were valued at historic cost as at 2005 and since then have been revalued based on an indexation approach. Duct assets purchased since 1997 are valued on an indexation approach similar to the approach adopted by TATT. Copper cable assets purchased since 1997 (effectively the whole asset base given an asset life of 18 years) are valued on a CCA basis²⁵

²⁵ See Ofcom Fixed access market reviews: wholesale local access, wholesale fixed analogue exchange lines, ISDN2 and ISDN30 – Annexes Non-confidential version Statement Publication date: 26 June 2014 Table A6.1

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		• copper assets (e.g. the sub-loop in FTTC deployments), while being long-lived assets, have been heavily depreciated over time; TSTT's copper access is not effectively competitive and so valuing these assets at CCA could potentially enable excessive profits • fibre assets (e.g. new FTTP, backhaul from cabinets), while also being long-lived assets, have only very recently been deployed, and so HCA and CCA will yield similar results • active fibre equipment, which has very short lifetimes, were also only very recently deployed and so HCA and CCA will yield similar results Using the HCA method for asset valuation in the access network is considered to be international best practice: • Since accounting separation was implemented in 2004/2005 in the UK, parts of BT's access network assets are only expressed in historical terms. Ofcom decided to create a regulatory asset value (RAV) to represent the remaining value of the pre-1997 copper access network, rather than continuing to value them at CCA. Ofcom has also changed the accounting lifetimes that BT uses for its copper and duct access assets to align them with international benchmarks. • In Spain, the annualisation method used is an annuity. However, the annuity is not applicable to existing assets in the access network, only to new investment. Existing assets are annualised using straight		

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		line depreciation without including fully depreciated assets.		
1.5	Digicel	In our alpha testing we identified negative CCA depreciation for ‘masts and towers’. While ‘supplementary depreciation may be positive or negative, we are concerned that overall negative depreciation does not make sense in a CCA calculation. This seems to imply some strange situation where an operator does not need to depreciate an asset because it is appreciating faster than its cost to replace – this is unlikely to apply to masts and towers (physical structures which degrade over time).	Digicel requests TATT to investigate instances where CCA depreciation is calculating as negative in the current model, and confirm or explain whether the model is correct (and the circumstances leading to negative CCA depreciation) or to explain the corrections needed for the model and/or input data prior to finalizing the alpha phase.	The aim of the CCA costing methodology is to produce depreciation charges that reflect changes in input prices and which are consistent with the principle of Financial Capital Maintenance (FCM). In certain circumstances, for example where there is a large upwards revaluation of assets in a given accounting period, this can result in a negative overall depreciation charge. However, such a negative charge is exceptional and is unlikely to occur in the normal course of events. The Authority confirms that Digicel’s file has no instances of negative depreciation.
1.6.2	Digicel	TATT says “The Authority requires that all concessionaires categorize their financial systems (general ledger) into the required cost categories established by the Authority”	Digicel recommends that TATT takes into account that it is necessary to check that it is possible to align these cost categories with Digicel accounts. TATT should be flexible with the appropriate cost categories set.	The Authority notes and agrees with Digicel’s comments. The Model allows for the introduction of new cost categories. The Authority will update the CCA Reference Paper to reflect this reality.

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			Digicel requests that TATT should accept that every year operators have some different general ledger accounts and there can be changes to the structure of the company accounting every few years.	
1.7 Overview of the LRAIC modelling process and the CCA revaluation study “1. ...the LRAIC modelling process, and thus the CCA studies, will require regular and annual updating....” “2. These current versions of the LRAIC Specification Paper and CCA Reference Paper reflect the Authority’s position. However, if required, the Authority may publish revised versions of either of	TSTT	The Authority should not attempt to usurp the commercial responsibility of concessionaires. TSTT reminds the Authority that, conceptually LRAIC is a forward looking tool used to estimate costs for a regulatory purpose. In this regard, while the Authority may seek to revalue <u>its estimates</u> from time to time, it cannot impose the valuation on the concessionaire as the absolute value of the asset. Indeed, TSTT is fairly confident that the valuation of its assets provided by its creditors would have greater recognition in financial markets than any estimate the Authority’s Model can generate. TSTT also refers the Authority to our comments on section 1.3 above, regarding the impracticality of requiring operators to undertake this burdensome activity annually, especially where there may have not been any material changes in their network. TSTT reaffirms its position that this would be an inefficient burden imposed on the sector by the Authority.	The statement should be modified to reaffirm that the Authority’s CCA estimates cannot be imposed upon operators and only act as the Authority’s internal estimates for the purpose of specific regulatory determinations. TSTT reaffirms the position that frequency of information submission should conform to the renewal period of associated regulatory instruments such as the IRIO, i.e. a period of not less than five (5) years, but not more than ten (10) years. The Authority should review this statement to reaffirm that	The Authority is not making any determinations on TSTT’s cost estimation by its creditors in financial markets. Rather, the cost model is a regulatory tool used for the determination of costs for regulated services in accordance with the legislative mandate of the Authority for doing so. This is consistent with the initial and initiated public consultation on the costing methodology and CCA reference paper in which TSTT participated. The legislative basis and regulatory use of the cost model outputs are set out in the CCA Reference Paper and are independently set out in the regulatory framework including Section 25 (2) (m) of the Act, Interconnections Regulations 15(1) and Access to Facilities Regulations 18(1).

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these document(s), in line with any changes to the overall market environment or other developments.”		By this statement, the Authority seems to have prejudiced the comments from concessionaires pursuant to this consultation framework. If the Authority, by this statement, is suggesting that it already has a position, then the inherent bias of the statement compromises the consultative process.	it is undertaking this consultative process in good faith and diminish the taint of bias that it has already left on the process.	The Authority’s position on the frequency of submissions for the development of reliable and relevant cost-estimates is also set out above. This statement does not in any way compromise or taints the consultation process. The documents will be updated based on comments fielded from the consultation process and there is therefore, no bias from the Authority. Section 1.7 has been updated to provide this clarification.
1.9	Digicel	TATT sets four steps for the CCA calculation: 1. Review asset register and categorise assets 2. Calculate the GRC for each asset category 3. Calculate CCA depreciation charges and net replacement costs 4. Reconciliation of outputs to inputs and statutory accounts The four steps set by TATT are correct however Digicel requests that TATT reconsiders the order in which the steps should be done. Digicel believes that the step number four should be done in second position since it is much more	Digicel requests TATT’s explanation of the best way to reconcile the accounts.	The Authority notes Digicel’s suggested re-ordering of the process steps within the CCA valuation exercise. The reconciliation step involves several types of cross-checks: • Reconciling the HCA based input data to the concessionaire’s statutory accounts • Checking CCA revaluation results (outputs) for asset categories against their HCA based inputs • Checking CCA revaluation results (outputs) across different asset categories

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		complicated to do the reconciliation when the assets are already revalued.		Whilst the first form of cross-checks is undertaken prior to the CCA revaluation exercise, the other cross-checks require undertaking the CCA analysis. Further, as set out in Section 5.1 of the CCA Reference Paper and the CCA data request, concessionaires are required to submit to the Authority specific information as part of their data submission to facilitate the reconciliation of the provided input data to their statutory accounts. As such, the Authority considers the current sequencing of the four step process to remain adequate.
Section 2				
2.0 Step one: categorise assets and choose valuation method <i>“In order to be able to revalue network assets and determine CCA depreciation, it is important that the asset classes are relatively homogeneous in terms of:</i>	TSTT	It is quizzical that, despite this statement the Authority persists with its approach of grouping Core and Access Network elements together in the Costing Methodology. It is further strange that in the light of this statement, the Authority would persist in an approach which treats the costing of forward looking incremental consumption the same as it treats with leases of non-network facilities. To be clear, the Core and Access Network elements are distinct classifications of assets. That the Costing Methodology quizzically bundles these together to come	TSTT endorses this statement if only as it represents an acknowledgment of core principles to which the Costing Methodology and CCA process should adhere. The Costing Methodology should be reviewed to: (i) Clearly identify the functional distinction between the Core and	The LRAIC Model makes the distinction between core and access networks and core and access network elements are captured in the LRAIC Specification Paper under Table 7. There is therefore no supported rationale for reviewing the Costing Methodology. Under CCA, charges related to fixed assets are based on the capital expenditure that would be incurred if an operator were to roll out a network today. This is applicable for all network assets and a fair approach for all

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• <i>asset life; and</i> • <i>rate of price and technological change.”</i>		with a single incremental cost suggests that the cost drivers are misaligned. Similarly, the Costing Methodology’s intrinsic flaw is also exposed in its attempt to use the same CCA method for revaluation of assets associated with both the incremental delivery of a transient service (such as voice minutes, the value of which reduces to a terminal value in time) and the lease of a non-transient product (space on a tower, pole or in a building, the value of which would increase in time).	Access Networks; (ii) Clearly identify an approach for costing non-transient products such as non-network facilities	network classes. TSTT should provide examples for what it refers to as misaligned cost drivers.
2.1	Digicel	TATT adds that “Concessionaires will need to categorise fixed assets into one of four main discrete headings: mobile network assets; fixed network assets; network infrastructure assets; and non-network – (support assets).” TATT sets 4 categorizations of assets; one of them is <i>network infrastructure assets</i>. In Digicel’s opinion, access to network infrastructure is crucial for deployment of fibre networks and therefore it is important that TATT obtain relevant cost information. As stated in The European Commission Recommendation of 20 September 2010 on regulated access to NGA “NRAs should regulate access prices to civil engineering infrastructure consistently with the methodology used for pricing access to the unbundled local copper loop”.	Digicel requests that TATT’s categories should be increased to five categories, and network infrastructure divided into <i>fixed access network infrastructure</i>, distinct from <i>fixed core network infrastructure</i>.	The Authority disagrees with Digicel’s recommendation. Infrastructure such as duct may be common to both the core network and the access network and as such it is not possible to directly attribute costs of infrastructure between core and access. The LRAIC Model makes the distinction between core and access networks and core and access network elements are captured in the LRAIC Specification Paper under Table 7. Furthermore, the Authority has not mandated unbundled copper local loop in Trinidad and Tobago and moreover, has not made any determinations on the unbundling of fibre.

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2.2	Digicel	TATT says “The Costing methodology provided by the Authority states that the indexation method is the required approach” In Digicel’s opinion, the usage of indexation as a preference approach is not in line with international best practices since there are different methodologies and each one should be used under a specific scenario: • Absolute valuation – this method should be used when the technology of the asset is still considered modern and the quantity is known. • Indexation – this method should be used when the technology of the asset is still considered modern and the quantity is not known. • MEA – this method should be used when the assets would be replaced by more modern technology. • Historical costs – This method should be used for assets with a short life or low value, or those for which re-valuation is not appropriate. TATT doesn’t provide enough supportive evidence of the reasons why indexation should be the default approach. In fact, as all methods, it has advantages and disadvantages. Therefore for each asset type, TATT (or the Concessionaires) should assess the revaluation method to be used. For example TATT mention that a direct valuation approach may not be feasible because it needs a quantity of assets which it may be “difficult to have or require excessive additional resources to	Digicel requests that TATT broadens its recommendations for CCA revaluation to allow alternative (e.g. better, more accurate) approaches.	The Authority notes Digicel’s position on the relative merits of the different CCA valuation approaches set out in the CCA Reference Paper and the stated need to consider moving away from adopting the indexation approach as the main approach. As recognized by Digicel in its submission, the Authority’s current approach has been guided by the Costing Methodology which specifies indexation to be the required approach. Further, as stated in Section 2.3 of the CCA Reference Paper there are specific circumstances under which alternative approaches may be required (and have been adopted by the Authority, as evidenced in Annex 3 and the CCA revaluation files). The Authority further notes that the indexation approach provides flexibility as it allows informing indices based on concessionaire-provided data (where provided) or using third party generated indices (such as the AUS TPI indices). As such, the indexation approach is particularly helpful during initial CCA valuation exercises since potentially reducing the data requirements from concessionaires.

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		implement” however in the case of base stations TATT states “operating cellular networks could expect to have reliable information on the number of base stations in the network and the configuration of each of these base stations.” In fact one of the highest network costs for mobile operators are the base stations. As mentioned by TATT, if a mobile operator has sufficient information for this asset regarding number of base stations and configuration why not use a direct approach as the revaluation methodology? As mentioned by TATT “Despite the disadvantages in some cases a direct valuation may result in a more robust valuation than applying an indexation approach.”		For example, the then regulator in Guernsey noted that “the use of appropriate indexation methods greatly reduces the cost and effort required to prepare CCA.”²⁶ However, as part of future CCA valuation exercises, the Authority may reconsider the choice of CCA revaluation approaches, taking into account of the availability of data required for the alternative approaches.
2.2.1	Digicel	TATT says “Although an indexation approach does not require detailed quantity and price information, it does require information from the FAR on: the age profile of all assets within a given asset class and a split between individual cost elements (labour and materials) of the GBV of additions for each year.” Digicel highlights that the outlined process is theoretical in nature. From the data included in the FAR it is often difficult to split between labour and materials.	Digicel requests that TATT broadens its recommendations for CCA revaluation to recognize the drawbacks of potential information unavailability.	Whilst the Authority remains of the view that it is important to split out (and treat differently as part of the indexation approach) the labour and material costs of asset classes, it recognizes that this information is often not available in the FAR and thus difficult to provide by concessionaires. Section 2.2.1 of the CCA Reference Paper will be adjusted accordingly.
2.2.1 Indexation	TSTT	Only additions that have not been fully depreciated are	The TATT must not place	There is no requirement for concessionaires

²⁶ Office of Utility Regulation Review of Cable & Wireless Guernsey’s Regulatory Accounts Report and Decision Notice Document No: OUR 04/12 July 2004

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		included in the calculation of GRC under indexation. The Authority should be reminded that the day/year that it chooses for CCA conversion is the date a new asset ledger is created and the concessionaire now has the challenge of operating two separate asset registers. In this regard, the Authority must reflect on whether this course of action is prudent, and whether such an undue burden on the market is warranted, especially in the context of its proposal (rejected earlier) for this process to be repeated annually.	unnecessary burdens on concessionaires.	to create and maintain another ledger or to operate two separate asset registers. Concessionaires are only required to maintain their fixed asset registers in accordance with its normal course of doing business. The information from its FAR is then aggregated or converted into the format/data template for CCA revaluation on an expected annual basis. In this regard, Concessionaires will also be required to provide data on the costs excluded, on an HCA basis, to allow for the reconciliation of the CCA outputs with the statutory accounts.
2.2.4 Proxying CCA with HCA “... revaluations of every single asset category will not be required and HCA valuations may provide a suitable proxy..”	TSTT	The Authority should include impaired assets in the exemption category since the economic value is reflected in the impaired asset valuation. Please see TSTT’s comments on the treatment of impaired assets below.	The Authority should include impaired assets in the exemption category	The Authority considers that impairments should be treated in the CCA results in a similar way to the treatment of impairments in operators’ statutory accounts. This requires making a series of adjustments to the outputs of the CCA model: • net asset valuations should reflect any impairments made; • depreciation and other charges after impairments have been applied should reflect the adjusted asset values; and • where the carrying value of an asset is reduced in the closing balance sheet there should be a corresponding

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				impairment charge. This approach is consistent with the principle of Financial Capital Maintenance, adopted in the LRAIC model.
Section 3				
3 Step two: calculate gross replacement cost <i>“For the indexation approach, the inputs are a time series of the GBV of the asset class by period (year) of acquisition and time series of the level of the price index over the same time period.”</i>	TSTT	While in principle this may seem reasonable, as the Authority has, either by omission or design, decided to bundle assets of different economic lives, consumption drivers and other modalities it creates the improper opportunity or scenario that the summarised asset classes may contain a blend of different asset lives etc. The indexing of the blended asset class will cause more variations within the outputs of the CCA exercise.	As long as the Authority does not rectify the situation where assets of different economic lives and economic drivers are grouped together, (e.g. elements of the Core and Access Networks) indexation should take place at the asset level.	There has been no blending of assets but rather a clear mapping of appropriate indices to individual asset categories which include core and access network assets, separately.
Section 4				
4.0	Digicel	TATT adds that “WIP relating to assets in the course of construction will need to be funded and as such should be included in the concessionaire’s asset base for the purpose of estimating the mean capital employed and hence the cost of capital”	Digicel agrees that Work In Progress will need to be funded and therefore should be included	The Authority takes note of Digicel’s support for the approach undertaken with respect to Work in Progress.
4.2.1 Work in progress “To ensure that concessionaires are allowed to earn a reasonable return on all	TSTT	This offensive statement is the one of many instances where, throughout this document, the Authority presumes to usurp the ability of a concessionaire to determine how best to invest its capital. This attempt is <i>ultra vires</i> the Act, and counter Trinidad and Tobago’s	This statement should be struck in all instances where it, or variations of it, appear. The Authority must recognize	The Authority is not making general statements on the applicability of rates of return on usual commercial activities, but sets out the rate of return (profit) to be afforded to operators in the context of the

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their investments...”		obligations pursuant to the GATS Reference Paper on Telecommunications. To be clear, the exercise of which this consultation is a part, facilitates the Authority establishing a Cost Model for <u>its own use in making regulatory decisions</u>. At no point, not even in the ruling of the Arbitration Panel, is the Authority given the statutory authority to impose this Cost Model on the operations of concessionaires. Concessionaires are obliged by the regulation to establish their own Cost Models as long as they adhere to the principles of the Costing Methodology. For this reason, flaws in the Costing Methodology should be amended there, and not surreptitiously inserted in this subsidiary document which has little regulatory standing. In that regard, the Authority is mindful to be prudent in its utterances with regard to the application of the Model, and its precursor Methodology and CCA and LRAIC processes. At no point can the CCA approach ever impact the ability for a concessionaire to make a return on all of its investments.	the limits of its powers, and appreciate the specific, limited context in which this CCA exercise, and the Modeling exercise overall, is relevant. The Costing Methodology should be reviewed for its continued relevance or accurate reflection of the current marketplace.	application of the cost model only. For example, the Cost Model is a regulatory tool and a specific requirement set out in the Telecommunications <i>(Interconnection)</i> Regulations, the Telecommunications <i>(Access to Facilities)</i> Regulations, and Section 25 of the Telecommunications Act. International cost modelling regulatory practice indicate that cost-based regulatory pricing must provide investors with an expectation of earning a return that is commensurate with the cost of capital. The correct valuation of the cost of capital requires suitable valuation both of the weighted average cost of the operator's debt and of the cost of equity (the return that the shareholders expect in consideration for their decision to invest in the network), as well as the base values of the debt and of the equity. The Authority underwent two rounds of consultation on the Weighted Average Cost of Capital (WACC), with all stakeholders, including TSTT, which came to an end in 2010.

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4.2.2	Digicel	TATT adds that “The Authority considers that impairments should be treated within the CCA study in a similar way to the treatment of impairments in concessionaire’s statutory accounts”	Digicel agrees that impairments should be treated as in the statutory accounts.	Noted.
4.2.2 Treatment of impaired assets	TSTT	The Authority underwent an 8 month process of review so as to address the treatment of impaired assets only to arrive at the use of IAS 19 on the treatment of impaired assets ...Given the effort undertaken in that exercise, and the similarities to this exercise, the existence of other accounting standards become a real concern. The Authority stated previously the use of General Accepted Accounting Principles (GAAPs), and Operators provide the authority with audited financial statements using GAAPs. However in this context, International Accounting Standard 16 (IAS16) can be reviewed to aid the Authority with treatment of Fixed Assets and Working capital.	The Authority should undertake research to confirm that it is not “recreating the wheel” unnecessarily where existing methodologies and standards may exist to achieve its objectives.	For TSTT’s information, “IAS 19” does not relate to the impairment of assets but rather refers to “Employee Benefits.” The applicable IAS for impairment refers to IAS 36 (Impairment of Assets). The Authority agrees that IAS 16 (Property, Plant and Equipment) is the standard which outlines the accounting treatment for most types of property, plant and equipment. Property, plant and equipment is initially measured at its cost, subsequently measured either using a cost or revaluation model, or depreciated so that its depreciable amount is allocated on a systematic basis over its useful life. Furthermore, according to the Institute of Chartered Accountants of Trinidad and Tobago (ICAAT), GAAPs are acceptably used by multi-national companies in Trinidad and Tobago. However, SMEs in Trinidad and

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				Tobago normally prepare financial statements in accordance with International Financial Reporting Standards (IFRSs). The Authority therefore seeks clarification from TSTT on its reference to the Authority’s statements on using GAAPs.
4.3	Digicel	TATT says “In particular, the ratio method is more appropriate where volumes of equipment are relatively stable whereas the rollover method will be more appropriate where there have been significant ongoing additions or disposals” TATT presents the two approaches to calculating depreciation charges under a direct valuation of MEA and the advantages and disadvantages. However TATT doesn’t recommend any of the approaches.	Digicel requests TATT’s confirmation on whether it intends to recommend one approach over another (and why), or whether it considers a broader more flexible approach?	The Authority will apply the roll-forward and ratio methods on a case by case basis, based on the prevailing circumstance. As quoted by Digicel, the ratio method is more appropriate where volumes of equipment are relatively stable and the material impacts on GRC are from price fluctuations only. This is because high levels of recent additions can result in the estimated CCA values diverging from the true values. The rollover method on the other hand will be more appropriate where there have been significant ongoing additions or disposals. The ratio method treats the holding gains/losses as a balancing item under the implicit assumption that the number of assets has not changed over the year. In

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				contrast, the roll forward method calculates the holding gain / loss explicitly.
4.4	Digicel	In our alpha testing we noticed that the formula calculating 'NBV disposals' appeared to have its brackets in the wrong place.	TATT to investigate the disposals formulae and confirm any correctness or changes in the model prior to finalizing the alpha phase.	The Authority has reviewed the formula and agrees that there was a mistake in it and has updated the CCA template accordingly.
Section 5				
5.1 Cross-check with statutory accounts Statement on Reconciliation of CCA study with Statutory Accounts: <i>The Authority requires that all concessionaires demonstrate how the HCA input costs included in the CCA study reconcile with their statutory accounts.</i> <i>Concessionaires shall be required to provide information from their profit and loss statements in the</i>	TSTT	TSTT queries the procedure and methodology through which the Authority wishes to assess accuracy of cost data after possessing a copy of an operator's audited statutory accounts. That process should be clearly articulated in this document. Further TSTT queries the statutory legitimacy of the Authority seeking to usurp the role and responsibility of the independent auditor of concessionaires like TSTT. TSTT requests that the Authority provide its enabling statutory provision which gives it the broad discretion it seeks to abrogate upon itself. Further still, TSTT requests that the Authority clarify the term "total retail HCA cost" and explain how this would be used to facilitate reconciliation. This term is not within the convention of GAAP which guides the creation of the Statutory Accounts.	The Authority should review its proposals with a view to: - Outlining its proposed methodology for using audited statutory accounts as proposed; - Outlining its statutory authority to apparently usurp the responsibility of the independent auditor - Clarify the term "total retail HCA cost"; - Ensure that its proposals are in alignment with its wider framework, particularly with respect to the applicability of	The Authority will cross-check the submitted cost data for consistency, completeness and accuracy. The Authority is not usurping TSTT's role and responsibility but rather the CCA approach relies on TSTT's own audit and preparation of usual audited financial statements. As TSTT would appreciate, the cost model template does not require aggregate information as set out in financial statements but rather disaggregated in accordance with network cost categories and therefore a cross-check is important for sound regulatory decision making.

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<i>consolidated separated accounts on the main business areas.</i>		Finally, other procedural matters that arise on consideration of this proposed policy statement include: 1. Whether the reporting time period for audited statutory accounts, provides for the timely implementation of this process, particularly given the proposal to pursue this activity annually; and 2. According to “ <i>The Methodology for an Efficiency Study For the Long Run Average Incremental Cost (LRAIC) Model,</i> ” application of the efficiency study if comprehended correctly will be applied in the LRAIC model and <u>not</u> in the CCA study.	efficiency studies.	
Section 6				
Annex 3	Digicel	TATT says “The asset lives in the tables below are based on publicly available information on asset lives used for regulatory purposes for fixed and mobile operators form a number of different jurisdictions worldwide” Digicel is concerned why TATT should use public lifetimes from other countries and not Digicel’s current financial lifetimes in a CCA account. We believe that a more thorough investigation of asset lifetimes applying to Digicel and operators in Trinidad should be carried out by TATT, rather than referring to a small number of other regulators’ models in the absence of a fuller	Digicel believes that Concessionaires accounting lifetimes should be used in a CCA model, for the reasons set out here	The Authority reminds Digicel that the price indices for CCA revaluation was shared with operators in August 2010 (see the Authority’s response detailed earlier). This Paper will be included in the CCA Reference Paper to be issued for a second round of consultation. This, amongst others, explained how the ‘composite’ index applied to mobile network assets was derived. Based on responses to that Note, a decision was made to adjust the AUS TPI and the composite index for

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		comparative benchmarking analysis for asset lifetime. Furthermore, as the CCA depreciation method is by definition an accounting method, it is conventionally the case that accounting lifetimes are used. TATT’s reference to other jurisdictions not relying on accounts-based CCA-LRAIC introduces inconsistency. This is important because CCA depreciation does not include fully depreciated assets. On the other hand, economic depreciation methods, such as annuity depreciation, use the full replacement cost of the assets, along with an estimate of economic lifetime (which may be the same as financial lifetime, or another higher/lower value).		exchange rate movements and import duties (see page 39 of the CCA Reference Paper). As stated earlier, the Authority may reconsider the choice of CCA revaluation approaches or indices used as part of future CCA valuation exercises. As stated in response to item 7 above, there are specific circumstances under which alternative approaches to indexation may be required. This is set out in Section 2.3 of the CCA Reference Paper. For example, PDH assets, which the Authority considers to be legacy network equipment, have been revalued based on a MEA approach with SDH equipment being the relevant MEA. [Note: this has had no impact as TSTT’s FAR doesn’t include PDH assets] Lastly, the AUS TPI indices constitute a neutral and comprehensive source for price indices of telecommunications assets. This makes it a good source for revaluing internationally traded telecommunications assets (i.e. network equipment, etc.). The Authority reminds Digicel that all concessionaires were (repeatedly) invited to

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				provide alternative indices as part of the information collection process which did not result in any alternative indices being identified for the CCA revaluation exercise.
Annex 3	Digicel	TATT says that “The indices are prepared by independent consultants and are used widely by operators for regulatory and statutory purposes” and “The most appropriate US BLS price index is only available from 2009. Thus to ensure applying a consistent price index covering the entire period over which currently installed mobile network equipment may have been purchased the Authority has developed a composite index based on three US BLS export price indices”	Digicel has a number of questions on the indices, and requests TATT to provide further explanation as part of the consultation response: • please list the usage of the AUS TPI index in other countries, and therefore its relevance to application in fixed and mobile networks in Trinidad and Tobago? • please explain how the ‘composite’ index has been developed from US BLS indices? • please explain how the indices will be modified in future? • will the document “Price Indices for CCA Revaluation” will be updated and sent for	The Authority has updated the Price Indices to be used in the model in the CCA reference paper to provide more clarifications as requested.

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			comments? • why does TATT use other indices as a proxy, and in what circumstances is the expected or reasonable? e.g. TATT appears to revalue PDH assets by applying the AUS TPI for SDH assets	

