

TransCo

**Asset valuation guidelines for
transmission assets**

August 2005

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1 Introduction and Disclaimer

This document sets out the valuation principles that are to be adopted by the SKM/PricewaterhouseCoopers/Cuervo Valuation team in undertaking the External Asset Revaluation Project.

The terms of reference for this project require:

A recommendation of the suitable valuation methodology for:

- (a) accounting
- (b) regulatory purposes
- (c) as the basis for a transfer price of the assets to be privatised.

This document sets out the valuation principles to be adopted in establishing the Regulatory Asset Base (RAB) and then highlights any changes between the RAB valuation principles and those recommended for accounting and for the transfer of assets to be privatised.

These asset valuation guidelines have been prepared by PricewaterhouseCoopers for the sole use of TransCo and the Energy Regulatory Commission (ERC). The purpose of these guidelines is to assist ascertain the appropriate valuation of TransCo's assets, (as covered by the Terms of Reference).

These guidelines are not intended to be utilised or relied upon by any persons other than TransCo and the ERC, nor are they to be used for any purpose other than that articulated above. Accordingly, PricewaterhouseCoopers accepts no responsibility in any way whatsoever for the use of these guidelines by any other persons or for any other purpose.

These guidelines have been taken into account information provided by TransCo. PricewaterhouseCoopers has not carried out any form of verification of the information which has been relied upon. Accordingly, whilst the statements made in this report are made in good faith, PricewaterhouseCoopers accepts no responsibility for any errors in the information on which they are based, nor the effect of any such errors on our analysis

2 Framework for the valuation

Purpose

Regulatory Asset Base (RAB)

The terms of reference require the valuation to be based upon the Energy Regulatory Commission's (ERC) Guidelines on the Methodology for the Setting of Wheeling Rates for 2003 to around 2007 (TWRG) and the Regulatory Reset for the National Transmission Corporation (Issues Paper) for 2006 to 2010.

The RAB will be an integral and the most significant component for establishing the wheeling rates for the regulatory period.

The ERC published an Issues Paper dated September 10, 2004 which raised a number of matters in the area of asset valuation. While the ERC sought initial public feedback in October 2004, our current understanding is that the Issues Paper is yet to be finalised.

Accounting

The accounting values established by this project will be used as a basis for financial reporting. This project does not consider the impairment testing required to assess the fair value of assets required under International Accounting Standards (IAS). Neither is this project to be considered as an audit of the books of accounts of TransCo.

Transfer price of the assets to be privatised

To assess the price a potential purchaser of the assets may pay in the market place.

Legal framework for asset valuation

Regulatory

The basis of the asset valuation for the RAB is set out in Section 4 of the TWRG.

The key elements of this framework are:

- The imposition of the Regulatory Periods which are defined as fixed time frames under which the recommended formulas for the Maximum Annual Revenue Cap (MAR) will be applicable.
 - Each regulatory period will be five years in duration, except for the First Regulatory Period, which under the TWRG is supposed to end on December 31, 2005. The MAR computed under the First Regulatory Period (see Article III of the TWRG) will be part of the basis of computing the MAR of the Second Regulatory Period.

- The Second Regulatory Period is to commence on January 1, 2006. The methodology for the determination of the MAR for this period is detailed under Article IV of the TWRG. The framework for this valuation project will focus on the requirements for the Second Regulatory Period. Specifically the determination of a Regulatory Asset base as defined in Section 4.5.7 of the TWRG.

- Optimised replacement cost approach is to be adopted. The TWRG (Section 4.6.4) envisages three approaches to optimised replacement cost namely:
 - indexation - this method is appropriate for assets where there has been little technological change and most, if not all costs that have been incurred and capitalised in respect of these assets would have to be incurred if they were replaced. This method of valuation directly links to the historical value of the relevant assets thereby ensuring that all relevant costs are included in the valuation
 - absolute valuation by replacement cost analysis – this method of valuation involves valuing the relevant assets at their current unit prices multiplied by their volumes
 - absolute valuation using modern equivalent asset analysis – this method of valuation involves valuing the relevant assets at the cost of a modern equivalent asset with similar service potential

- The minimum disaggregation of the network by component is set out in Section 4 to 5 of the Terms of Reference.

- Assets are to be optimised adopting the following principles:
 - assets which are assessed to have an unreasonable degree of over capacity or excess redundancy will have their value split between the value of that capacity which is reasonably necessary to meet customer requirements for Regulated Transmission Services and the value of that capacity or redundancy which is in excess of that requirement

- the electricity transmission network planning horizon will be taken as 15 years (the terms of reference also require consideration of a 10 year planning horizon)
- the analysis of over capacity or excess redundancy will be based upon there being no changes to the location of supply and demand (i.e. take off points for generators and loads) transmission line or cable routes, easements or substation locations, but existing network elements can be re-rated or re-designed in a notional sense to assess their optimised value. (ERC will consider alternative optimisation principles proposed by the valuation consultant)
- Assets that are to be included in the RAB must include assets to the extent that such assets:
 - are necessary to meet customer service requirements for Regulated Transmission Services within the electricity transmission network planning horizon
 - except in the case of spares, the assets are in service
 - in the case of spares, are of reasonable quantities as determined by ERC
 - in the case of easements, are clearly documented as being owned by TransCo
- Regulatory depreciation is calculated on a straight line basis over the regulatory life of the asset category. The regulatory life of the asset category is equal to the weighted average economic life of the assets within the asset category. The economic life of an asset is taken to expire when the future costs of maintenance required to maintain service standards exceeds its efficient replacement cost using discounted cash flow analysis. It is recognised that this life may differ from the asset life used for financial reporting or taxation purposes.

Financial reporting

Philippine Accounting Standard (PAS) 16, which corresponds to International Accounting Standard (IAS) 16 – Property, Plant and Equipment, is the primary accounting standard governing the valuation basis adopted for financial reporting. A summary of the key valuation principles included in the Standard are as follows:

The cost of an item of property, plant and equipment shall be recognised as an asset if, and only if:

- a. it is probable that future economic benefits associated with the item will flow to the entity; and,
- b. the cost of the item can be measured reliably.

The Standard does not prescribe the unit of measure for recognition, that is, what constitutes an item of property, plant and equipment. Thus, judgement is required in applying the recognition criteria to an entity's specific circumstances.

An item of property, plant and equipment that qualifies for recognition as an asset shall be measured at its cost. The cost of an item of property, plant and equipment comprises:

- a. its purchase price, including import duties and non-refundable purchase taxes, after deducting trade discounts and rebates;
- b. any costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management; and
- c. the initial estimate of the costs of dismantling and removing the item and restoring the site on which it is located, the obligation for which an entity incurs either when the item is acquired or as a consequence of having used the item during a particular period for purposes other than to produce inventories during that period.

Examples of directly attributable costs are:

- a. costs of employee benefits (as defined in IAS 19, Employee Benefits) arising directly from the construction or acquisition of the item of property, plant and equipment;
- b. costs of site preparation;
- c. initial delivery and handling costs;
- d. installation and assembly costs;
- e. cost of testing whether the asset is functioning properly, after deducting the net proceeds from selling any items produced while bringing the asset to that location and condition (such as samples produced when testing equipment); and
- f. professional fees.

Examples of costs that are not costs of an item of property, plant and equipment are:

- a. costs of opening a new facility;

- b. costs of introducing a new product or service (including costs of advertising and promotional activities);
- c. costs of conducting business in a new location or with a new class of customer (including costs of staff training); and
- d. administration and other general overhead costs.

The cost of an item of property, plant and equipment is the cash price equivalent at the recognition date. If payment is deferred beyond normal credit terms, the difference between the cash price equivalent and the total payment is recognised as interest over the period of credit unless such interest is recognized in the carrying amount of the item in accordance with the allowed alternative treatment in IAS 23, Borrowing Costs.

An entity shall choose either the cost model or the revaluation model (see below) as its accounting policy as a basis for reporting the value of its tangible assets under IAS/PAS 16 and shall apply that policy to an entire class of property, plant and equipment.

Cost Model

After recognition as an asset, an item of property, plant and equipment shall be carried at its cost less any accumulated depreciation and any accumulated impairment losses. (Impairment loss is defined as the amount by which the carrying amount of an asset exceeds its recoverable amount. Recoverable amount is the higher of an asset's net selling price and its value in use.)

Revaluation Model

After recognition as an asset, an item of property, plant and equipment whose fair value (see below) can be measured reliably shall be carried at a revalued amount, being its fair value at the date of the revaluation less any subsequent accumulated depreciation and subsequent accumulated impairment losses. Revaluations shall be made with sufficient regularity to ensure that the carrying amount does not differ materially from that which would be determined using fair value at the balance sheet date.

The fair value of land and buildings is usually determined from market-based evidence by appraisal that is normally undertaken by professionally qualified valuers. The fair value of items of plant and equipment is usually their market value determined by appraisal. If there is no market-based evidence of fair value because of the specialised nature of the item of property, plant and equipment and the item is rarely sold, except as part of a continuing business, an entity may need to estimate fair value using an income or a depreciated replacement cost approach.

If an item of property, plant and equipment is revalued, the entire class of property, plant and equipment to which that asset belongs shall be revalued.

Each part of an item of property, plant and equipment with a cost that is significant in relation to the total cost of the item shall be depreciated separately. The *depreciable amount* of an asset shall be allocated on a systematic basis over its useful life. The *residual value* and the useful life of an asset shall be reviewed at least at each financial year-end and, if expectations differ from previous estimates, the change(s) shall be accounted for as a change in an accounting estimate in accordance with IAS 8 Accounting Policies, Changes in Accounting Estimates and Errors.

The future economic benefits embodied in an asset are consumed by an entity principally through its use. However, other factors, such as technical or commercial obsolescence and wear and tear while an asset remains idle, often result in the diminution of the economic benefits that might have been obtained from the asset.

The depreciation method used shall reflect the pattern in which the asset's future economic benefits are expected to be consumed by the entity.

Transfer price of the assets to be privatised

There is no legislation governing the basis of estimating the price of assets to be privatised. This price would be set by the market. A definition of market price is:

The price that would be negotiated in an open and unrestricted market between a knowledgeable, willing but not anxious buyer, and a knowledgeable, willing but not anxious seller acting at arm's length. (Australian Taxation Office Market Valuation Guidelines)

The Implementing Rules and Regulations (IRR) of the Electric Power Industry Reform Act (EPIRA or RA9136) provide that:

The privatization value to the National Government of the National Power Corporation's (NPC) generation assets, real estate, other disposable assets as well as Independent Power Producers' contracts shall be optimized. (Rule 23, Section 4a)

With respect to Subtransmission Assets, the IRR further states that:

TransCo shall determine the disposal value of the Subtransmission Assets based on the revenue potential of such assets. (Rule 23, Section 13b)

Specifically, there is no provision in the IRR with respect to the transfer price of the Transmission Assets to be privatised.

According to the World Bank, (*Technical Paper No 403: The Case-by-Case Approach to Privatization, Techniques and Examples*),

Valuation is of paramount importance because it establishes a market price range for the enterprise. Valuations based on market principles are essential to stifle criticisms that the state is not receiving a fair price and to ensure that there is sufficient investor interest. In Western market economies valuation is based on discounted cash-flow projections of future earnings and comparisons of similar firms' market prices (when sold through trade or negotiated sales) or stock market offer valuations (if publicly traded).

The discounted cash flow (DCF) approach estimates the value of the business based on the value of the cash flows that the business can be expected to generate in the future. Under the DCF Method, the valuation is comprised of two components:

- 1) Present value of estimated future cash flows for the projection period discounted at a rate of return that considers the relative risk of achieving the cash flows and the time value of money;
- 2) Present value of the estimated residual value, i.e. the value of cash flows subsequent to the discrete projection period.

The present value of the residual cash flows combined with the discrete projection period cash flows under different scenarios will result in a range estimate of the business value.

The same paper also adds that replacement value and book values may not be the best basis for a market valuation.

Replacement value and book value are not measures of market value. Book value may understate real value because it is based on historical costs, and replacement value may overstate value because firms are often sold below replacement cost. In addition to the valuation, financial advisers often prepare a sensitivity analysis that models the purchase price under changing conditions prior to the closure of the transaction.

Precedents – regulatory value

There are a number of precedents for the basis upon which regulators establish RABs for electricity transmission and distribution networks. We have drawn principally upon Australian and New Zealand precedents in establishing the valuation principles set out in this document. The specific documents considered are:

- NZ Commerce Commission Review of Assets Valuation Methodologies: Electricity Lines Businesses' System Fixed Assets

- Australian Competition and Consumer Commission Transmission Pricing Decisions of 2000
- Australian Competition and Consumer Commission (Draft) Statement of Principles for the Regulation of Transmission Revenues (May 1999)
- Independent Pricing and Regulatory Tribunal of New South Wales. Determinative Rules under the National Electricity Code (December 1999)
- NSW Treasury's (Draft) Valuation of Electricity Network Assets: A Policy Guideline for NSW DNSP's (Distribution Network Service Providers).

The precedents are based upon the specific jurisdictional legislation applicable to that area. In drawing upon these precedents we have taken account of the specific Philippine regulations.

The Terms of Reference require the use of an optimised replacement cost (ORC) methodology using the principles established under the TWRG.

3 Valuation principles

Introduction

Valuation is not an exact science but is an estimate based upon a range of facts. Our valuation will be an estimate of the value of the assets taking into account a range of factors including:

- principles established in Section 4.6 of the TWRG, and Chapter 2 of the Issues Paper.
- current market conditions in the Philippines including the impact of economic measures such as exchange rate, interest rates and inflation rate.
- any specific worldwide influence on the value of transmission assets.

Given the nature of the valuation process what is critical is that the valuation principles and processes adopted are both robust and transparent. This document considers the principles adopted and our valuation report will provide information relating to the processes adopted in establishing the values of TransCo's assets.

TransCo has a large number of assets and both the Terms of Reference and our proposal do not anticipate a separate unique valuation for each asset. We will rather undertake our valuation of groups of assets being assets of a similar physical nature, serving similar purposes and having a common anticipated economic life. The groups of assets to be valued are defined at the highest level in the Terms of Reference . Our valuation will consider:

- the general nature of the asset.
- any location specific factors that could result in the value of the assets differing from the industry norm e.g. locating steel structures close to a marine environment shortens their life or construction of assets in inaccessible or remote areas impacts the cost.

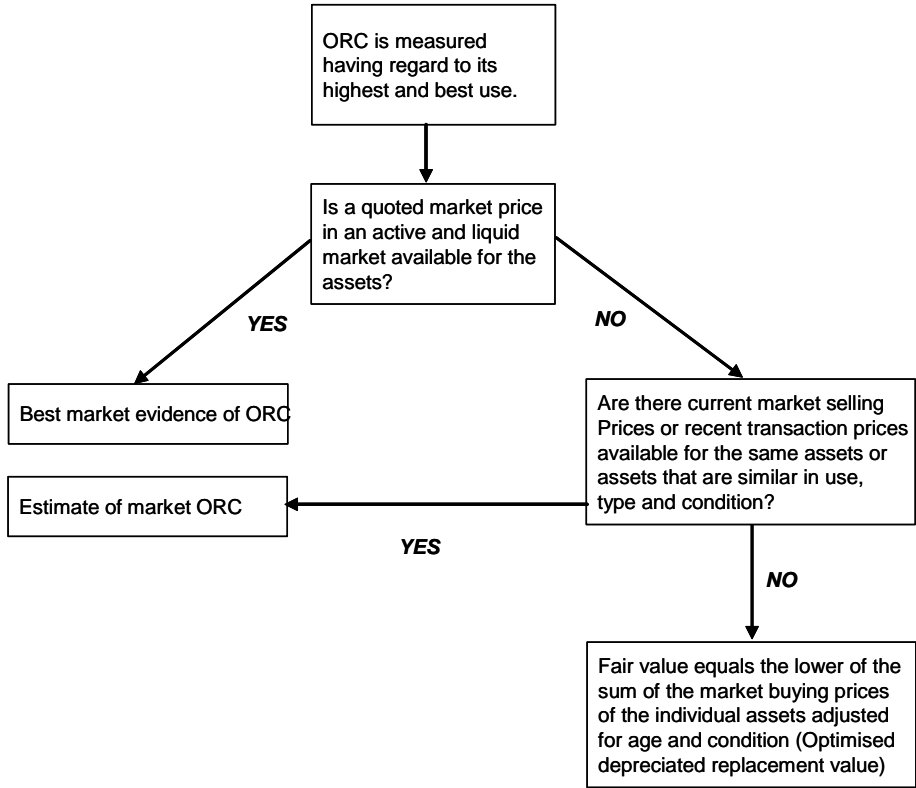
From a practical perspective we will, however, consider values of individual assets where their individual values are material (materiality being assessed at say > 1/10 of 1% of ORC for each identified network, or Php100 million).

The asset values will be assessed in pesos.

Optimised replacement cost

The first issue is to identify the basis of ORC for the classes of assets owned by TransCo. Some of the assets to be valued in this project will have a market value if there is an active market for the purchase and sale of used assets of the same nature e.g. land, motor vehicles and certain items of plant and machinery. However the majority of TransCo’s assets are transmission specific and either there is no market or the market is illiquid and therefore not appropriate for valuation.

To identify the basis of establishing ORC, the following decision tree will be followed:



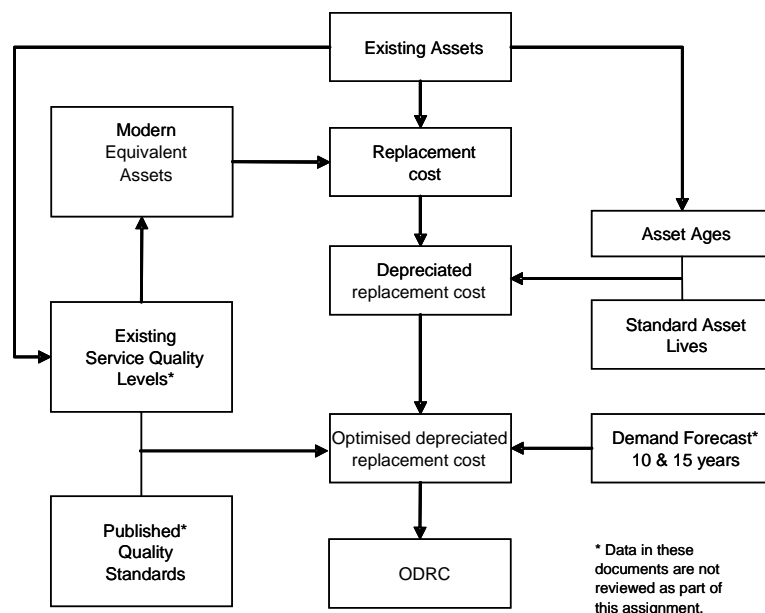
Market ORC

As noted above, there are a range of assets owned by TransCo for which there is a quoted price and/or an active and liquid market. The assets for which a market ORC is appropriate will be valued based upon market evidence of prices for similar assets i.e. market value.

Optimised depreciated replacement cost (ODRC) –

ODRC is used as proxy for ORC of the transmission specific assets for which there is no market value. The optimised depreciated replacement value “logically assumes that the maximum amount a potential purchaser would be prepared to pay for an asset is represented by the purchaser’s lowest alternative cost to replicate the asset (given its existing age and condition)” (NSW Treasury Guidelines). The ODRC of electricity transmission assets has been described as representing the minimum cost of replacing or replicating the service potential embodied in the network with modern equivalent assets in the most efficient way possible from an engineering perspective, given the service requirement, the age and condition of the assets and the replacement in the normal course of business (NSW Treasury Guidelines). Any application of ODRC embodies inherent assumptions, which include those on service standards (ACCC Statement of Principles for regulation of Transmission Revenues).

A diagrammatic representation for establishing ODRC is as follows:



Based upon: (Commerce Commission)

Modern equivalent asset (MEA)

A MEA is the asset that, in the normal course of a transmission entity’s business, would be used to replace an existing asset. The MEA may differ from an existing asset as a result of a combination of:

- changes in technology e.g. switches
- changes in the life-cycle cost of alternative assets
- the asset is no longer available
- combination of unnecessary small and immaterial graduations between asset types and sizes

Establishment of MEA Replacement Cost

The MEA replacement cost is determined by reference to the current market buying price, current reproduction cost or replacement cost of the MEA.

In respect of specialised assets such as most network infrastructures, the appropriate cost is the lower of the current replacement cost and the current reproduction cost of the gross service potential of the existing asset.

The MEA cost can be established:

- by comparison with recent costs of similar assets
- by reference to historical costs, adjusted for inflationary increases since construction
- by contacting suppliers, manufacturers or their agents; or
- by reference to recently published prices.

Where the modern equivalent asset has a materially differing capacity than the existing asset, a pro-rata adjustment is necessary to value the expected capacity in use of the existing asset. This determination of the modern equivalent asset that would replace existing individual components of the network should not be confused with the process of optimisation, see below.

Expected Capacity in Use

The replacement costs of the individual assets should be based on the “expected capacity in use” of the existing assets. “Expected capacity in use” is the required level of service potential or output consistent with both the future growth in demand and the objective of minimising the whole of life cost of assets under “total asset management” concepts and business planning horizons. As systems expand and change, a degree of sub-optimality at any one time is inevitable and is part of the total cost of output. (See notes below on optimisation.)

Greenfields / Brownfields

Current costs can be determined on a “greenfields” or “brownfields” basis. The “greenfield” cost basis assumes construction occurs in an area free of development and that the most efficient network, given current usage, is established. The “brownfields” cost basis assumes construction occurs around all existing infrastructure and development (other than the asset being valued) and that the assets are fundamentally replaced in the same location. Accordingly, preliminary costs such as route planning for the network are not included.

The “brownfields” cost basis methodology is considered appropriate because it is consistent with the concept of establishing the potential purchaser’s lowest alternative cost to replicate the network (i.e. a duplicate network would need to be built in the existing environment) in the ordinary course of business (as opposed to complete system re-design). The current cost estimates should reflect the current state of land use development. (NSW Treasury Guidelines)

The “brownfields” cost structure is widely used for ODRC valuations including electricity, gas and water infrastructure assets in most regulated jurisdictions.

Optimisation

The Terms of Reference require that optimisation be considered based upon there being no changes to the location of supply and demand, transmission lines or cable routes, easements or sub-station location.

The Regulatory Reset Issues Paper issued by ERC requires the optimisation exercise to consider:

- (a) TransCo’s network planning criteria to determine whether they are in accordance with good industry practice
- (b) TransCo’s design criteria for the primary existing network to determine if they are in accordance with good practice as to the location and application of those assets
- (c) Review of the operating criteria, practice and performance as required to ensure that operating constraints are considered as part of the optimisation process
- (d) Review of the forecast load, generation and interconnector power flows for the nominated planning horizon (10 & 15 years)
- (e) Review of asset ratings

- (f) Carry out network studies of optimised networks to ensure the optimised network and its configuration meets the required levels of service and quality and good practice.

Optimisation, in general, considers three aspects.

Over capacity

The optimisation should be based on the reasonably expected level of use of the asset. The reasonably expected level of use will be determined by reference to the required level of service potential or output consistent with both the reasonably foreseeable future demand and the objective of minimising the whole of life costs of assets.

Whilst reliably projecting load growth has its own problems, the issue of what represents a reasonable timeframe is also problematic. This is because both elements have a degree of subjectivity in their determination. The Terms of Reference provide guidance on this matter by requiring a planning horizon of 10 and 15 years to be adopted.

Given the fact that many infrastructure assets are long lived and have a high capital cost, adopting an artificially short timeframe can have a distorting effect on the valuation. Furthermore, the incremental cost of providing additional capacity at initial construction rather than on an incremental basis in response to actual demand growth often makes good commercial sense when considered over the longer term.

Over engineering

Whether an asset is over-engineered is, to some extent, subjective and changes over time. Over-engineered assets (based upon today's standards) may have either a longer life or lower life cycle costs than the MEA. To determine any level of over-engineering consideration will be given to the basic principles of this valuation namely "the minimum cost of replicating the service potential embodied in the network with a modern equivalent asset".

Redundant assets

These are assets that are in situ but are currently providing no service capacity.

Over time assets that are originally optimised out of a valuation may be later brought back into the asset values reflecting changes in service demands.

4 Specific valuation issues

This section establishes the valuation principles to be adopted for a range of issues specific to this valuation. This section is premised on the RAB valuation and any differing principles that are applicable to either the accounting valuation or the transfer prices of assets to be privatised are detailed at the end of each issue. It is noted that there is an overriding principle set out in the Terms of Reference that the value of assets cannot be below their historical cost. The result of this is that the accounting value and the transfer price of assets to be transferred will need to be adjusted downward in the cases where the RAB has adopted historical cost.

4.1 Service Capacity of MEA assets

The MEA asset may contain service capacity not found in the existing asset e.g. environmental protection capacity. Where the value of such additional service capacity not found in the existing asset can be established and is material the value should be excluded from the valuation.

The capacity of the existing asset may no longer be available in the market and it has essentially been replaced by an asset with a higher capacity. Adopting the basic principles that the valuation is assessing the cost a purchaser would pay to replicate the service potential of the existing asset any resulting excess capacity in a MEA asset where the capacity of the existing asset cannot be replicated should not be discounted.

There are situations where the cost of the service capacity of the existing asset is greater than that of an asset with greater capacity (this is usually caused because the demand for the existing asset is small). Again adopting the basic principles, the larger capacity asset should be used as the basis for the MEA asset.

Accounting valuation: All the above is applicable.

Transfer price of assets to be privatised: All the above is applicable

4.2 Purchasing power

TransCo, currently being a large, government owned monopoly, has a significant purchasing power and it is therefore probable that through these two features, discounts that may not be available to other future players can be leveraged. Our basis of valuation will be to consider purchasing in the normal course of business. Transmission companies are, in general, large businesses and therefore we will

assume that any discounts available through TransCo's purchasing power will be available to other (future) transmission businesses.

Accounting valuation: All the above is applicable.

Transfer price of assets to be privatised: All the above is applicable.

4.3 Brownfields

Brownfields principles are to be adopted. Brownfields principles assume that the assets will be constructed within their existing environment assuming that the existing transmission assets are not in place. The current costs should consider the current state of land use development (NSW Treasury). This therefore makes the key assumption that the costs of providing continuing supply are not to be included but other costs such as traffic control restitution etc should be considered.

An area of debate is how to value buried assets, ie should the value assume an absence of existing trenching or that the value should represent the re-opening of the existing trench. In areas where rock is the predominant land form the potential difference in asset valuations of these alternative approaches is material.

Precedents in Australia are that where information can be provided by the utility as to the locations where underground cables have been installed in a rock environment then the replacement value includes the costs of excavating rock. We propose to adopt similar principles for TransCo.

Accounting valuation: All the above is applicable.

Transfer price of assets to be privatised: A purchaser could take account of the costs of maintaining supply in the event that an existing transmission line needs to be replaced in the period after acquisition. This would be factored into the valuation through the net present value of asset replacements based upon the age profile of the existing assets.

Example

If the replacement cost of the MEA asset is Php1,000,000 (excluding the costs of providing continued supply) and the asset has 5 years of a 50 year life remaining – that is an ODRC of Php100,000 a purchaser would reduce the purchase price (ODRC) by the NPV of the additional costs of maintaining supply during the anticipated replacement in 5 years time.

4.4 Costs to be included

All costs incurred in bringing an asset into operation should be included (refer to section 2 above under “Financial Reporting” for related discussion).

Some operations occur in connection with the construction or development of an item of property, plant and equipment, but are not necessary to bring the item to the location and condition necessary for it to be capable of operating in the manner intended by management. These incidental operations may occur before or during the construction or development activities. For example, income may be earned through using a building site as a car park until construction starts. Because incidental operations are not necessary to bring an item to the location and condition necessary for it to be capable of operating in the manner intended by management, the income and related expenses of incidental operations are recognised in the profit or loss statement and included in their respective classifications of income and expense.

The cost of a self-constructed asset is determined using the same principles as for an acquired asset. Therefore, any internal profits and/or the costs of abnormal amounts of wasted material, labour, or other resources incurred in self-constructing an asset should not be included in the cost of the asset. IAS 23, *Borrowing Costs* establishes criteria for the recognition of interest as a component of the carrying amount of a self-constructed item of property, plant and equipment.

In the case of TransCo’s assets, there is a range of what are identified as preliminary costs, e.g.:

- route selection and associated consultation and investigation costs
- various environmental impact assessment costs
- tendering and procurement costs

The question is whether, and to what extent, should these costs be included in the valuation. We have considered this under two headings.

Use of existing cable routes

The terms of reference require that the valuation assumes there are no changes to the location of supply and demand, transmission line and cable routes, easements or substation locations, hence these preliminary costs will be excluded.

Measurement of costs

The extent to which these preliminary costs are incurred vary materially based upon a wide range of factors and there would be a high level of unreliability of any estimate of such costs for MEA based network.

For both of these reasons it is proposed that the costs to be included in the valuation will exclude all costs up to the preliminary design.

Decommissioning costs will only be included in the valuation where TransCo identify that the capital expenditure program includes projects that require site restoration. The cost will then include the net present value of the estimated decommissioning costs and the resulting value would then be depreciated over the life of the asset.

Accounting valuation: All the above is applicable.

Transfer price of assets to be privatised: A purchaser would recognise that by acquiring existing assets, the preliminary costs and the associated cost risks involved in undertaking such work if the purchaser constructs the assets are eliminated and hence would be prepared to pay a premium, however, it would be impossible to reliably estimate the quantum of any such premium and therefore this will not be included in the valuation. A purchaser could recognise the costs of imminent decommissioning by reducing the value of the asset

4.5 Contract cost versus own build costs

TransCo currently undertakes construction predominantly via external contractors and internal labour.

Assets can be constructed using either external contractors or internal labour. The valuation principles require the most efficient cost of construction to be adopted. Our estimates can only draw on independent market evidence and will therefore be based upon third party contract construction. Adopting a contract basis also addresses the question of efficient cost.

Construction contract costs can be established in two ways:

- **From the bottom up**

In this case estimates are established based upon potential costs. Where the contract is essentially a fixed cost contract it is commercially appropriate to add a contingency to cover uncertainties. (If the contract is a more of an alliance approach then the burden of those potential contingencies could be shared.)

- **Complete contracts**

Where the costs are based upon completed contracts contingencies are inappropriate.

Contingencies will only be included where the “bottom up” approach of establishing ODV is adopted.

Accounting valuation: All the above is applicable.

Transfer price of assets to be privatised: All the above is applicable.

4.6 Scale and nature of replacement

In assessing replacement on a part by part basis, it is open to interpretation as to how large or small each part should be when calculating a replacement value. The relative size of the replacement project for infrastructure components adopted as a basis for ODV has the potential to materially impact the value of the asset base. For example, a large scale replacement project which involves a significant component of the network will often have lower unit labour and materials costs than replacement by smaller sections (due to the contract discounts and bulk material purchases that are likely to occur with a larger scale project as well as the impact of mobilisation costs). Additionally, large scale replacement may infer some reconfiguration of the network, rather than replacing assets according to the current network configuration and actual component ages.

Efficient network businesses will aim to minimise the overall cost of asset management (comprising operations, maintenance and replacement), therefore replacement in “the ordinary course of business” is considered by most regulators and industry participants to be the appropriate, cost-effective replacement project size for asset valuation purposes. We consider that this “ordinary course of business” approach is consistent with accounting fair value principles.

Accounting valuation: All the above is applicable.

Transfer price of assets to be privatised: All the above is applicable

4.7 Capitalisation of Overheads

In assessing current replacement cost, it is normal practice to allow for all costs which would be incurred by the business in replacing its assets. In this regard, allowance is usually made for the various overhead costs incurred by the business in relation to asset replacement capital expenditure. Such overheads are normally incurred in three areas:

- overhead costs incurred by the engineering function (engineering, procurement and construction management costs, or EPCM costs) and the associated asset management functions;
- overhead costs incurred by the finance and administration function including the costs of administering the financial aspects of the capital expenditure programme, costing and budgeting, project financing and general administration, and;
- corporate costs such as management salaries and information technology costs.

These are representative costs, which would be incurred in bringing the assets to their current location and state. From a regulatory perspective, the treatment of such costs must be consistent with the manner in which the expenditure is treated for revenue purposes in the underlying access regime. EPCM costs for each project are usually capitalised as they can be readily and directly attributable to the establishment of the asset. Regulators generally adopt the view that “reasonable” or “efficient” overhead costs should be included in the regulatory asset base. In practice TransCo will need to clearly and quantitatively demonstrate the nexus between any of the overhead costs incurred by the business and a level of overhead costs capitalised into the value of the assets. This view is consistent with the access pricing regime.

Therefore, in our view, the capitalisation of overheads including some allowance, that can be quantitatively substantiated e.g. via activity based costing, for administrative and corporate costs is justified for regulatory purposes. These costs are generally captured in the replacement cost of each asset by applying an overhead rate to the material and labour cost of each asset. The rate adopted must be a commercially acceptable level of overhead to apply to the unit material and labour costs to ensure that overhead costs capitalised within the regulatory asset base are reasonable to attribute to the asset.

Accounting valuation: The International Accounting Standard specifically excludes “administrative and other general overhead costs” from the cost of assets to be used for financial reporting. We will therefore provide a different overhead recovery factor for the accounting valuation.

Transfer price of assets to be privatised: The regulatory principles espoused above are appropriate.

4.8 Construction Work in Progress Factor (CWIP Factor)

From an accounting perspective the TWRG term Construction Work in Progress factor is more generally termed interest during construction. From a valuation viewpoint, such costs will be included within the initial recognition of the asset. These costs are those that would be incurred in bringing the assets to their current location and state.

From a regulatory perspective, the treatment of such costs should be consistent with the manner in which the expenditure is treated for revenue purposes in the underlying access regime. Finance charges are generally recovered in regulated revenues through the application of the weighted average cost of capital (WACC) to the RAB. No separate allowance is made in the pricing regime for assets under construction.

On this basis, we consider that the RAB should include the CWIP Factor prior to commissioning as the access regime does not provide a return on expenditure incurred until the asset has been commissioned.

The factor included for CWIP should reflect:

- normal course of business; and,
- efficient cost.

To reflect this, we will assess:

- the normal course of business payment terms for a contract for the relevant type of transmission asset;
- the efficient construction period for the type of transmission asset; and,
- the weighted average cost of capital for an efficient transmission business operating in the Philippines and the valuation is to be undertaken in pesos.

(We will adopt the WACC established by the regulator as being the efficient WACC.)

The CWIP will be allocated across the assets in the ratio of their gross replacement cost.

Accounting valuation: While the benchmark treatment is to record interest expenses as financing charges, the International Accounting Standard allows for interest to be capitalised during the period of construction of the asset. While the New Government Accounting Standards (NGAS) issued by the Commission on Audit (COA) provide that interest during construction should be treated as financing charges, TransCo has requested exemption from this. Should the exemption be granted for accounting purposes, CWIP shall be recognized as part of the cost of the asset.

Transfer price of assets to be privatised: All the RAB principles above are applicable.

4.9 Asset lives

The effective working life of an asset is the estimated life of the asset assuming continued use in its present function as part of a continuing business. An asset is considered to be at the end of its economic life when either:

- the value of future operating and maintenance costs exceeds its replacement cost;
- the asset presents an unacceptable risk of service failure; or
- the asset has become unserviceable or obsolete.

It is critical that depreciation and asset lives equate to the true economic life of the asset so that as far as possible the asset is fully written down to its salvage value (if any) at the time that it is physically replaced or decommissioned (within practical planning constraints).

In general, average asset lives will be applied for classes of assets based on generally accepted industry estimates of economic life. Where the circumstances of individual assets or groups of assets with a material value lead to reassessment of the lives applied, then lives will be adjusted as appropriate.

We anticipate cases where assets currently in service have already exceeded their anticipated economic life. This results primarily from:

- 1 refurbishment or renewal of the asset which has not been appropriately recorded
- 2 the specific asset, or group of assets, having a longer economic life than the average life of that asset class, or
- 3 the assessed economic life for the class of the assets being inaccurate (this will be apparent where significant proportions of an asset of this class are found to exceed their anticipated economic life).

In cases 1 and 2, we will either:

- re-assess, where information is available, the life based on a planned replacement date, and
- make a nominal estimate for each relevant asset group of future life having regard to the current capital planning timeframe (this will assume a minimum residual life of 5 years). (Note: if there are material levels of these assets further information will be sought from TransCo.)

For case 3 the life of the class of assets will be re-assessed based upon available information.

Accounting valuation: The TWRG do not provide for considering any individual asset. However, from an accounting perspective the issue of materiality needs to be considered. For any specific asset of a material value (>0.1%) additional information will be sought as to whether the current condition of the asset requires any adjustment to the depreciation calculated based upon the estimated life of that class of assets.

Transfer price of assets to be privatised: The accounting valuation principles would be applicable.

4.10 Contributed assets

Contributed assets comprise:

- those assets are constructed by third parties (primarily developers) which are handed to TransCo on completion

- assets constructed by TransCo that have been financed through developer contributions or aid funds

Precedents in other jurisdictions are that the regulatory treatment for any such assets differs from those assets whose construction is totally funded by the utility. TransCo key personnel have confirmed that there are no records showing that TransCo has contributed assets or assets funded by grants. For purposes of the valuation, all assets listed in the fixed assets register are assumed to be owned by TransCo unless evidence to the contrary exists.

4.11 Valuation of buildings

TransCo's buildings fall into three categories:

- (a) Building of a specialised nature relevant specifically to the transmission business, e.g. substation switchrooms.
- (b) Buildings of a general commercial nature on land not zoned for electricity use which, if put to the market, would be sold e.g. workshop.
- (c) Category (b) buildings that, because of their location or land zoning, eg within a switchyard, could not be put to the market.

From a valuation perspective buildings that are part of TransCo's operation for the business of power transmission will be valued only as specialised property.

Accounting valuation: All the above is applicable.

Transfer price of assets to be privatised: A purchaser would adopt optimised depreciated replacement value as the basis for a transfer price of the assets.

4.12 Land holdings

Land will be valued based upon its current use which is for power transmission or land for public utility.

TransCo owns a significant number of small land holdings, each of which will have a minor value. It is not necessary to inspect each small land holding in order to establish a value.

For purposes of the RAB, all costs, including social costs involved in the development of the power transmission infrastructure, will be the basis of value.

Values will take into account the existing land use and will be based upon indexed historical cost. In cases where TransCo's landholdings do not have any records of historical costs, the Direct Sales Comparison Approach will be used. In which case, where sufficient information is available, the unit value of the closest comparable is determined. The comparables that will be used will be those derived from indexing the historical costs of similar assets. These comparables are limited to similar properties within the district, such as substations and land underlying transmission lines.

Accounting valuation: All the above is applicable.

Transfer price of assets to be privatised: A potential purchaser would consider options of rezoning the land to its highest and best use as a basis of valuation.

4.13 Future land sites

It is normal course of business for electricity transmission businesses to acquire land sites, particularly in the CBD and/or heavily populated urban areas, well in advance of their formal planning horizon. This is done on the basis that to acquire such sites in the future becomes exceptionally difficult and costly, i.e. the business takes a commercial decision in order to mitigate its long term risk. Should these land holdings eventually not be required they would be disposed of. The TWRG excludes from the RAB land that falls outside of the planning horizon.

Land sites that are acquired for use outside of the proposed planning horizons (10 or 15 years) will be valued based upon the principles noted above i.e. based on the actual costs paid brought to current terms or Direct Sales Comparison Approach.

Accounting valuation: These assets should be included at their fair value under IFRS 5, Non-current assets Held for Sale and Discontinued Operations.

Transfer price of assets to be privatised: Assuming that TransCo has acted prudently a potential purchaser would be prepared to pay market value for these sites.

4.14 Refurbished assets

A range of TransCo's assets are, in the normal course of business, refurbished. If the asset records record this refurbishment the remaining life of such assets will be appropriately estimated.

If such refurbishments are not identified on the asset records then the only indication of the presence of such assets would be a high level of assets where their economic life has apparently expired.

The basis of valuation of such assets is covered above.

Accounting valuation: All the above is applicable.

Transfer price of assets to be privatised: All the above is applicable.

4.15 Residual value

Assets should only be depreciated down to their residual value (being an estimate of the value receivable at the end of their economic lives). In the case of specialised transmission assets the costs of decommissioning generally exceed their value at this point, we have therefore assumed a zero residual value. This is also in line with TransCo's current practice.

However, the NGAS/COA rules require TransCo to include an estimate of 10% residual value for all its assets. TransCo advised that they have requested COA to exempt them from this provision.

Accounting valuation: On the basis that the requested exemption is granted all the above is applicable.

Transfer price of assets to be privatised: All the above is applicable for the value of assets but a purchaser will take account of any future potential decommissioning costs that occur in the near future.

4.16 Intangible assets

Our scope of work, in general, does not include the valuation of intangible assets. The exception will be software specifically used in the monitoring, control and operation of the transmission system. This will be included in the valuation at its depreciated historical cost being considered materially representative of ODRC.

Accounting valuation: All the above is applicable.

Transfer price of assets to be privatised: All the above is applicable.

4.17 Capital/Emergency spares

The level of capital/emergency spares held by TransCo will be subject to reasonableness/optimisation tests, i.e. the appropriate industry practice in TransCo's operating environment.

The lives of spares adopted for depreciation purposes will not exceed the maximum life of the assets they are designed to replace, e.g. a brand new transformer included in capital spares may have an anticipated economic life of 60 years but if the transformers it is designed to replace only have a maximum life of 20 years (and would be replaced by different assets at that stage) then the capital spare will be written off over 20 years with appropriate consideration as to whether, in the market place, there is a residual value of such an asset.

Accounting valuation: All the above is applicable.

Transfer price of assets to be privatised: All the above is applicable.

4.18 Exchange rate

A significant proportion of TransCo's assets are imported and therefore their cost is linked to the exchange rate. There are a number of issues in respect of this.

Source of supply

We will assume the normal course of business principle, i.e. TransCo's historical sources of such assets.

Exchange rate to be adopted

Our valuation is required as at 31 December 2004. We will therefore adopt the 31 December 2004 closing exchange rate for the relevant currency. In rolling the asset base to 31 December 2005, consideration will need to be given to changes in exchange rates.

Accounting valuation: The basis of valuation (31 December 2004 or 2005) will need to be set out in the notes to the accounts. Effective January 1, 2005, PAS 21 no longer permits capitalization of foreign exchange losses; any undepreciated capitalized foreign exchange losses will be adjusted against retained earnings and prior year's financial statements presented will be accordingly restated.

Transfer price of assets to be privatised: The assumption is that this value will be as at 31 December 2004.

4.19 Capital expenditures

From an accounting perspective capital expenditures are more generally referred to as capital work in progress. This will represent the costs of construction projects which have commenced but the assets of which have not been commissioned. The capital expenditures represent the costs of asset construction, the majority of which is outsourced under competitive tender and therefore represents the efficient and effective cost of construction. We will therefore adopt the actual cost as recorded in TransCo's books (less any adjustment required to remove the preliminary costs and capitalized overhead and replace it with EPCM) as the market value

Accounting valuation: All the above is applicable.

Transfer price of assets to be privatised: All the above is applicable.

4.20 Easements

Easements are essentially access corridors which have been granted to the utility, however once granted there is an issue as to how they should be valued. In obtaining these corridors compensation has in some circumstances been paid to

land owners or there are lease arrangements on the land acquired for the easement.

Another issue is whether it should be assumed that the network is built instantaneously to a configuration that is optimal for existing and projected demand, or whether it should be assumed that the network has grown incrementally – as it would in the normal course of business to meet current and prospective demand. For consistency it would seem appropriate to value the optimised portfolio of easements as an integral part of the broader optimisation assessment.

To the extent that the acquisition of easements requires expenditure by the utility, it would be improper for the regulator to ignore their existence or deny a reasonable return on the funds employed. However, such assets do not deteriorate in the same way as mechanical assets and it would not seem to be appropriate to write-off the assets over time.

The normal ODRC methodology would assign values to such assets reflective of their market value. Given the strong link with real estate values there is a likelihood that the value of easements will escalate continuously over time. The question is how to introduce such assets into the regulatory framework in a consistent way. One consistent approach would require:

- The contribution to the RAB be based on the actual cost to the utility of obtaining the easement rights updated periodically in line with what would be the ODRC based valuation of easements. On the basis of legislated mechanisms for purchase of easements, both of these valuations would normally be in line with what was considered the loss of amenity to the previous owner for conceding the easement right (that is its social cost). To the extent that the easement valuations are judged to vary over time, the variations in value should be reflected in depreciation allowances linked with the asset in precisely the same way as other assets. If the easement appreciates in value over time, then the allocated depreciation would be negative in nominal terms and serve to offset the higher capital returns associated with an appreciating asset value.
- If the easement right is resold, the RAB value should be close to the sale price given the basis for valuation updates. Hence, the issue of return associated with possible capital gain, and its effect on overall regulatory return, disappears. Should there be a residual capital gain or loss it will be hopefully small enough in magnitude to be accommodated by depreciation adjustments to the regulatory asset base at the start of the next review period in a way similar to that used to account for errors in depreciation associated with forecast capital expenditure that does not take place as planned. The advantage of this approach is that the valuation remains comparable to costs faced by a potential entrant while maintaining cost of service pricing which takes full account of the social cost of the resources employed. Inclusion of the easement value within the RAB provides the

incentive for the utility to acquire easement rights to expand the network as required. If the value in the alternative use of the easement (its social value) exceeds the cost of alternatives such as underground cabling – the utility has an incentive to realise its market value and adopt the lower cost alternative since the ODRC basis for the RAB means that it will only reflect the lower cost alternative.

There is a deal of complexity in the valuation of easements. The most reliable and justifiable basis is to use the historical cost of acquisition as a basis and to reflect the change in prices through a CPI uplift. Since the actual payment for the easement rights vary depending on the negotiating power of the land owner, the basis of the valuation will be TransCo's disbursement vouchers which should include all costs including social costs.

Accounting valuation: The guidelines of the Commission on Audit (COA) require easement rights to be acquired at 10% of fair market value of the land. Using the historical cost adjusted for CPI will provide an appropriate proxy for this.

Transfer price of assets to be privatised: The principles espoused above are applicable.

4.21 Taxes, duties and other fees

The asset valuation is based upon “normal course of business” for a transmission business. Such taxes, duties and other fees fall into two categories:

- a. Taxes e.g. Value Added Tax (VAT), where the business both pays tax on inputs and receives tax on outputs (i.e. collects tax on behalf of the Government).

This is on the assumption that the tax-exempt privileges of the National Power Corporation (NPC) are not transferred to TransCo and/or the Temporary Restraining Order (TRO) on the implementation of Republic Act (RA) 9337 is lifted. Since Republic Act No. 9337 expressly repealed the National Power Corporation's (NPC) exemption from the payment of VAT (from both purchases and sales) and TransCo is merely deriving its tax incidents from the franchise of NPC, then the revenues and purchases of TransCo will now be subject to the 10% VAT.

The input tax pertaining to the purchases of TransCo can be used as an offset against any output VAT, and therefore, there will be no impact on the asset valuation.

b. Tax which result in an impost of net cost on the business

This is on the assumption that the tax-exempt privileges of NPC are transferred to TransCo and/or the implementation of RA 9337 is deferred.

In establishing the RAB assets, an estimate of the net cost of such duties and taxes will be factored into the asset values based upon a “normal course of business approach”; e.g. if it is normal course of business for a transmission business (not specifically TransCo) to acquire asset components which would be subject to import duty/VAT, then the asset values will be estimated inclusive of those relevant tax/duty levels as at valuation date.

Under FIRB 17-87, commercially-funded importations are not covered by the tax exemption privileges of NPC (which serves as the basis for the tax exemption privileges of TransCo). As such, the VAT and other taxes and duties from such importation form part of the net cost on the business of TransCo. For all other transactions, however, TransCo should still be exempt from the payment of VAT and other taxes and duties pursuant to FIRB 17-87.

As discussed above, however, VAT will not anymore form part of the capitalized cost of the asset under Republic Act No. 9337 since the VAT becomes a “pass-through” item i.e. as an input VAT credit of TransCo which can be used as an offset against its output VAT liability. Our valuation has included an estimate of the duties payable on imported components at the current rates where applicable.

Accounting valuation: All the above is applicable.

Transfer price of assets to be privatised: All the above is applicable.

5 Implications of TransCo's specific issues

The asset valuation principles set out in this document differ from the accounting principles that historically have been used by TransCo to record the value of their assets. This difference (along with price changes) will impact the reconciliation between the accounting values and the valuation resulting from this work. Our assessment of TransCo's policies has assumed:

- TransCo took up in their accounting records the last 1996 valuation
- TransCo's practice has consistently complied with the policies as provided from the date of the last valuation

This section of the paper also highlights some accounting and regulatory policy issues that need to be considered from an ongoing perspective.

When it comes to the accounting treatment of fixed assets, TransCo refers to different manuals (i.e. accounting, fixed assets, work order, job order, NGAS and Old Government Accounting Standards – OGAS). We highlight below the key differences between TransCo's:

- current capitalisation policies with respect to the fixed assets vis-à-vis the NGAS and PAS/IAS.
- Differences between the identified historical accounting capitalisation policies and the asset valuation principles included in this document.
- Matters that need to be considered for future accounting and regulatory practices.

Capitalisation of costs during the construction period

TransCo's current accounting practice is to capitalize any related expenses incurred during the construction of the project, such as taxes, interest, license fees, permit fees, clearance fee, etc. Expenses incurred after the construction shall form part of operating cost.

Interest during construction

The NGAS specifically excludes IDC as part of the capitalisable cost. The suggested treatment is to record IDC as financing charges. The benchmark treatment for borrowing costs is they shall be recognized as an expense in the period in which they are incurred. An alternative treatment is that borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset shall be capitalised as part of the cost of that asset.

There seems to be a difference between the suggested treatment of IDC as per NGAS and that contained in PAS/IAS. This divergence will need to be addressed as future costs forming part of RAB will be affected.

Foreign exchange (forex) gains and losses

Current accounting practice of TransCo suggests that translation effects of foreign loans used to fund capital projects form part of the projects' cost. This is contrary to IAS 21 – (paragraph 28) which provides that exchange differences arising on the settlement of monetary items or on translating monetary items at rates different from those at which they were translated on initial recognition during the period or in previous financial statements shall be recognized in the profit or loss statement in the period in which they arise.

The NGAS is not very clear on the treatment of translation effects. In most cases though, the NGAS mimics the provisions contained in the IAS.

Hence, while the valuation will consider current exchange rates, for accounting purposes, forex gains and losses are recognized in the profit and loss in the period in which they arise, consistent with the provisions of PAS/IAS.

Summary

1. PAS/IAS recommends that interest during construction to be expensed yet allow capitalisation as an alternative treatment
2. TransCo's current accounting treatment of exchange rate variations does not comply with PAS/IAS
3. The valuation principles propose that optimised replacement cost should only include taxes in the asset valuation where they result in a net impost on a business, not where taxes are a "pass through".

Depreciation policies

Current depreciation policy of TransCo permits the use of both sum-of-the-years' digits and straight-line methods. The NGAS provides that the straight line method of depreciation shall be used. Depreciation shall start on the second month after purchase of the Property Plant and Equipment, and residual value equivalent to 10% of the total purchase cost shall be established.

The PAS/IAS does not recommend a specific depreciation method as long as the depreciable amount of the asset is allocated on a systematic basis over the asset's useful life. It further provides that the residual value and useful life estimates of the assets be reviewed at least every financial year end.

Estimated useful lives

Transmission plant is depreciated over 30 years. General Plant Equipment are depreciated using the following rate: Head office – 4.94%; Metro Manila – 4.94%;

Northern Luzon – 6.20%; Southern Luzon – 7.98%; Visayas – 8.09%; Mindanao – 4.48%.

The NGAS suggest a new schedule of depreciable lives depending on the type of asset, while the IAS leaves the determination of the estimated useful lives to management judgment.

The choice of depreciation method and estimated useful lives might significantly impact on the accounting valuation of the assets. A longer useful life will distribute the cost of the asset to future periods resulting in higher asset values in the earlier years.

Summary

1. The asset lives adopted for the valuation may vary from the accounting and regulatory lives
2. Where identified, assets that have been refurbished will be re-lifed based upon their remaining life as at valuation date
3. TransCo's current methodology for calculating depreciation varies from that proposed for regulatory purposes.

Appendix A Glossary of abbreviations

Abbreviation	Meaning
COA	Commission on Audit
EPIRA	Electricity Power Industry Reform Act
ERC	Energy Regulatory Commission
IAS	International Accounting Standards
IRR	Implementing Rules and Regulations of Electric Power Industry Reform Act
MAR	Maximum Allowable Revenue
MEA	Modern equivalent asset
NGAS	New Government Accounting Standards
NPC	National Power Corporation
ODRC	Optimised depreciated replacement cost
OGAS	Old Government Accounting Standards
ORC	Optimised replacement cost
PAS	Philippine Accounting Standard
RAB	Regulatory asset base
TDP	Transmission Development Plan
TWRG	Transmission Wheeling Rate Guidelines

Appendix B Asset categories

For *transmission lines*⁷, the relevant Asset Categories are as follows:

- (1) buildings, civil works and establishment;
- (2) towers and associated lines;
- (3) poles and associated lines;
- (4) easements owned by the Regulated Entity;
- (5) spares;
- (6) land used and land rights
- (7) test instruments, tools and equipment
- (8) Emergency generators
- (9) other; and
- (10) CWIP.

For *interconnection submarine cables and facilities*, the relevant Asset Categories are as follows:

- (1) buildings, civil works and establishment;
- (2) submarine cables, towers and associated lines;
- (3) underground cables;
- (4) spares;
- (5) easements owned by the Regulated Entity;
- (6) land used and land rights;
- (7) other; and
- (8) CWIP.

For *underground transmission lines and facilities*, the relevant Asset Categories are as follows:

- (1) buildings, civil works and establishment;
- (2) submarine cables, towers and associated lines;
- (3) underground cables;
- (4) spares;
- (5) easements owned by the Regulated Entity;
- (6) land used and land rights;
- (7) other; and
- (8) CWIP.

For *transmission substation components*, the relevant Asset Categories are as follows:

- (1) buildings, civil works and establishment;
- (2) transformers;
- (3) circuit breakers;
- (4) instrument transformers;
- (5) statistical meters and protection;
- (6) capacitors and reactors;
- (7) buswork;
- (8) spares;
- (9) land used and land rights;
- (10) other; and
- (11) CWIP.

For *sub-transmission lines*, the relevant Asset Categories are as follows:

- (1) buildings, civil works and establishment;
- (2) towers and associated lines;
- (3) poles and associated lines;
- (4) underground cables;
- (5) easements owned by the Regulated Entity;
- (6) spares;
- (7) land used and land rights;
- (8) other; and
- (9) CWIP.

For *sub-transmission substation*, the relevant Asset Categories are as follows:

- (1) buildings, civil works and establishment;
- (2) transformers;
- (3) circuit breakers;
- (4) instrument transformers;
- (5) statistical meters and protection;
- (6) capacitors and reactors;
- (7) buswork;
- (8) spares;
- (9) land used and land rights;
- (10) other; and
- (11) CWIP.

For *metering equipment and instruments*, the relevant Asset Categories are as follows:

- (1) revenue meters and facilities;
- (2) current transformer;
- (3) potential transformer;
- (4) lightning arresters;
- (5) test and calibration instruments and standards;
- (6) server;
- (7) spares;
- (8) other; and
- (9) CWIP.

For *communications plant*, the relevant Asset Categories are as follows:

- (1) buildings, civil works and establishment;
- (2) communications plant and infrastructure;
- (3) ancillary infrastructure;
- (4) fiber optic facility (OPGW);
- (5) land used and land rights;
- (6) spares;
- (7) generating sets;
- (8) communication auxiliaries
- (9) other; and
- (9) CWIP.

For *system operations*, the relevant Asset Categories are as follows:

- (1) buildings, civil works and establishment;
- (2) control room and control infrastructure;
- (3) ancillary infrastructure;
- (4) SCADA system;
- (5) signaling and protection equipment;
- (6) land used and land rights;
- (7) spares;
- (8) generating sets;
- (9) test instruments, tools and equipment
- (10) other; and
- (11) CWIP.

For *non-network assets*, the relevant Asset Categories are as follows:

- (1) servers, computers, and office equipment;
- (2) plant, tools, and equipment;
- (3) transportation (land, sea, and air vehicles);
- (4) furniture, fixtures, and fittings;
- (5) commercial buildings;
- (6) land (includes land value not attributable to other asset categories);
- (7) generating sets;
- (8) other; and
- (9) CWIP.