Review of costs to implement accounting separation and regulatory reporting requirements

Contents

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1. Introduction

We have been appointed by Telecom New Zealand (TCNZ) to prepare an independent review of the likely range of costs which may be incurred by TCNZ in implementing the accounting separation and cost accounting requirements set out by the Commerce Commission in its document entitled “Draft Notification of Information Disclosure Requirements on Telecom New Zealand under Part 2B of the Telecommunications Act” dated 23 October 2008 (the “Draft Notification”).

On 23 October 2008 the Commerce Commission (the “Commission”) issued a draft notification on information disclosure requirements to Telecom New Zealand (TCNZ) which included proposals for the introduction of accounting separation and other cost accounting requirements. This draft notification represents the Commission’s revised proposals following an earlier consultation process. TCNZ responded to the Commission on 7 November 2008 and included in their response certain estimates of the costs that would be incurred in complying with the Commission’s proposals. We have been appointed by TCNZ to prepare an independent review of the likely range of costs which may be incurred by TCNZ in implementing the proposed requirements.

Our review considers the categories of cost which TCNZ may incur in the development of the systems, data and processes required to comply with the Commerce Commission’s proposals. We have also estimated the potential range of incremental external costs (e.g. consulting and audit) costs in each category. The scope of our review was limited by the time available for preparation with research being limited to the period from 26 November 2008 to 4 December 2008. Also, given the limited availability of published information on costs incurred by other operators our analysis is based largely on our experience and observations of costs incurred by other operators with a particular focus on the experience of European operators with requirements similar to those proposed in New Zealand (e.g. BT and eircom).

Based on these proposed requirements we have considered the categories and quantum of cost which TCNZ may incur in the development of the systems, data and processes to comply with the Commission’s proposals. We have also estimated the potential range of incremental external costs (e.g. consulting and audit) costs in each category.

1.1. Our prior involvement with TCNZ

PricewaterhouseCoopers LLP UK has assisted and advised TCNZ for a number of years on a wide range of matters including various taxation matters, cost estimation of the Telecommunications Service Obligation (“TSO”), the incremental costs of interconnection services and more recently assisting TCNZ to help meet its operational separation requirements as laid out in the Separation Undertakings. This work has included assisting TCNZ in the preparation of an Activity Based Costing model to facilitate the generation of the internal charges required to be raised between business units as part of operational separation and assisting in the development of asset revaluation processes.

1.2. Our qualifications in regulatory reporting

Our experience in the area of regulatory accounts is substantial. We have been the auditors of all of BT’s regulatory accounts since their inception in 1995. We assisted eircom in the implementation of their regulatory reporting capability including HCA and CCA separated accounts incorporating LRIC. We have been the auditors of these separated accounts since their inception in 1999. We have led accounting separation implementations and audits for a number of other Incumbent operators including Brasil Telecom, Romtelecom, Jersey Telecom, Batelco, etc.

This report has been prepared by PricewaterhouseCoopers LLP United Kingdom (“PwC”) for TCNZ in connection with TCNZ’s discussions with the Commission relating to the Draft Notification under the terms of Telecom New Zealand Limited’s Statement of Work with PwC dated 25 November 2008(the “Engagement”).

The remainder of this report is set out as follows:

- section 2. Executive Summary;
- section 3. Implications of proposed requirements: In this section we analyse the Commissions proposed requirements and identify what TCNZ will need to do to comply; and
- section 4. Analysis of potential incremental costs of compliance: In this section we comment on the costs and resources that are likely to be required to achieve each requirement.

2. Executive Summary

Our review, which has been performed during the period 26 November to 4 December 2008 is based primarily on our experience of working with operators subject to similar obligations particularly in Europe and includes information obtained or derived from a variety of sources as indicated within the report. PwC has not sought to establish the reliability of those sources or verified the information so provided.

Based on our experience and the evidence set out in the report we estimate that the total external costs for implementation of the regulatory accounts, given a "properly prepared" audit opinion, would be in the range NZ$6 million to NZ$11.5 million in year 1 and NZ$5.5 million to NZ$9.75 million in year 2. Given a "fairly presents" audit opinion this would rise to between NZ$7 million to NZ$13 million in year 1 and NZ$7 million to NZ$11.75 million in year 2. These costs consist of both development costs and audit costs. Additionally we estimate that TCNZ would incur further external costs of between NZ$1.5 million and NZ$2.0 million developing the capability to estimate standalone and variable costs of products in year 2.

	Properly prepared audit opinion		Fairly presents audit opinion	
	Low NZ$	High NZ$	Low NZ$	High NZ$
Year 1	6.00	11.50	7.00	13.00
Year 2	7.00	11.75	8.50	13.75
Total	**13.00**	**23.25**	**15.50**	**26.75**

Table 1: Summary of quantified external cost estimates

The total development costs to ensure compliance with the Commissions core accounting separation and cost accounting proposals would be in the range NZ$4 million to NZ$8.5 million in year 1 and NZ$2.5 million to NZ$5.75 million in year 2. These costs are set out in table 2. We have assumed that the approach, methodologies and data used in the current ABM model developed by TCNZ to support operational separation can be used in the regulatory reporting model. If this is not the case substantial extra costs would be incurred.

The level of TCNZ resource required for development and ongoing operation is more difficult to predict but we estimate that a core team of at least 8-25 FTE would be required during the development phase along with input from a much wider pool of resource. After the initial set up we estimate TCNZ will have an ongoing requirement for 10-20 FTE in the core delivery team which will require ongoing input from a much wider pool of resources from across the business amounting to between 25 – 50 people.

The cost of auditing the regulatory financial statements is also difficult to predict as it is critically dependent on the form and granularity of audit opinions required and there is significant uncertainty over the scope of the Commissions proposals. We have explained above the key assumptions made in determining our estimated audit fees of between NZ$2 million and NZ$3 million in year 1 and between NZ$3 million and NZ$4 million in year 2. However, more onerous audit requirements could lead to significantly increased fees.

In addition, it is likely that a substantial number of additional operational systems (including records of network equipment) will be utilised in the development of valuation and accounting separation models. As we have noted in section 4.1.2, many of these systems will not have been designed to meet regulatory reporting requirements and the relevant data may not be core to the underlying purpose of the system. In our experience it is likely that these new requirements being placed on these systems will identify issues with the quality of data and design of processes and controls that require rectification which will incur substantial cost.

Table 2 below provides a summary of these cost and resource estimates against each of the identified cost categories. The ranges given are large given the level of uncertainty surrounding the Commission's requirements:

Regulatory Financial Statements	Estimated cost		
	Initial set up		Ongoing
	2009	2010	
	NZ$m/*FTE*	NZ$m/*FTE*	NZ$m/*FTE*
Economic valuation	1.0 - 2.5 *3-5 FTE*	0.5 - 1.25 *3-5 FTE*	*Core team 10-20 FTE* *In the field 25-50 FTE*
Accounting separation model	2.0 – 4.0 *5-20 FTE*	1.0 – 2.5 *5-20 FTE*	
Supporting documentation – development	1.0 – 2.0	1.0 – 2.0	n/a
Supporting documentation – maintenance	n/a	*1 FTE*	*1 FTE (included above)*
Audit – "properly prepared in accordance with..."	2.0 – 3.0	3.0 – 4.0	One-off costs of up to 25% would not be expected to recur
Total costs including properly prepared audit opinion	**6.0 – 11.5** ***8-25 FTE***	**5.5 – 9.75** ***8-25 FTE***	***Core team 10-20 FTE*** ***In the field 25-50 FTE***
Additional audit to achieve – "fairly presents in accordance with..."	Up to a total of 1.0 - 1.5	Up to a total of 1.5 - 2.0	Incremental costs reduced given stable reporting requirements
Total costs including fairly presents audit opinion	**7.0 – 13** **Additional FTE would be required to support data and control rectification in operational systems**	**7.0 – 11.75** **Additional FTE would be required to support data and control rectification in operational systems**	

Table 2: Summary of external and internal costs of regulatory reporting implementation

In addition TCNZ will face further requirements to deliver the Commission's proposed compliance monitoring activities most of which are not possible to quantify at this stage but we believe are likely to be substantial. In our experience, when coupled with the potential costs associated with improvements to systems and source data such as physical asset verification these costs could easily exceed NZ$10 million.

Compliance Monitoring	Estimated cost		
	Initial set up		Ongoing
	2009	2010	
	NZ$m/*FTE*	NZ$m/*FTE*	NZ$m/*FTE*
Standalone and variable costing	n/a	1.5 – 2.0 *3-4 FTE*	*2 FTE*
Detailed Statement of Assets	Substantial	Substantial	Not assessed
Statement of Capital Investment	Substantial	Substantial	Not assessed
Schedule of Network Components	Substantial	Substantial	Not assessed
Network Activity Statement	Costs included within Accounting Separation model costs	Costs included within Accounting Separation model costs	Not assessed

Table 3: Summary of external and internal costs of Compliance Monitoring

3. Implications of proposed requirements

In this section we analyse the key elements of the Commerce Commission's proposals and the impact that these will have in relation to both initial development and ongoing compliance.

3.1. Financial reporting requirements

TCNZ is required to prepare regulatory financial statements incorporating:

- A consolidated statement of financial performance and statement of mean capital employed on both historic and economic bases for each of the Access, Wholesale, Retail and Corporate and International service groups;
- An opening and closing statement of assets for each of the Access and Wholesale service groups;
- From 2010, product statements (which include statements of Financial Performance and Mean Capital Employed on both historic cost and economic basis) for each regulated service. We understand from discussions with TCNZ that the list of "regulated services" is yet to be determined. It is unclear at this stage how many product statements will be required and whether the Commission is referring to individual products or product groupings and whether the requirement is focused on access services provided mainly by Chorus or all regulated services. Potentially the number of separate regulated products (at the most detailed level) could easily exceed 4,000. However, for the purposes of this review we have assumed that reporting will be required for around 80 aggregated products. This is based on the assumption that TCNZ's current internally traded product groupings (14) are augmented by additional regulated product groupings; and
- Reconciliation statements analysing differences between these regulatory statements and the group's consolidated statutory financial statements for both historic cost and economic regulatory reporting.

The regulatory financial statements are required to be published and will not only be used by the Commission but also potentially subject to scrutiny by investors, analysts and competitors. This can be expected to place additional demands on data quality, systems and supporting processes.

These reporting requirements will require TCNZ to develop and maintain regulatory costing and reporting systems and processes as follows:

- Initial determination of valuation methodologies;
- Initial determination of cost attribution methodologies;
- Initial determination of transfer charging methodologies;
- Identification of appropriate data sources to support costing methodologies;
- Development of economic valuation models for all assets along with associated processes and controls; and
- Development of accounting separation and costing systems along with associated processes.

Given the reporting timetable it is likely that TCNZ would need to initially prepare costing models in two stages. Firstly, to address the limited separation into service groups for 2009 and then, secondly, to amend and enhance the models, processes and supporting data in order to meet the more detailed product level reporting requirements for the 2010 year.

In our assessment the proposed level of reporting is most closely aligned with the reporting requirements imposed on BT Group plc ("BT") in the years ending 31 March 2003 and 2004 during which time financial statements were published at the level of 14 regulatory businesses with additional detailed product level information for approximately 100 wholesale services and additional statements for certain regulated retail services provided privately to the regulator, Ofcom. Whilst this information is not in the public domain we understand that the number of services reported privately was less than 100. This compares to the 4 service groups and around 80 regulated products included in the Commission's proposals (as noted above the total number of disaggregated regulated product could exceed 4,000 but we have assumed that the Commission will accept reporting on a more aggregated basis).

The models designed to meet these accounting separation requirements are likely to rely heavily on data extracted from existing operational systems. Unlike management information systems designed to provide data in support of external financial accounts, these systems, which are designed to support the day to day management of the business, may have less stringent controls over the completeness and accuracy of the data, which will now be used for regulatory reporting purposes. Indeed in some instances it is possible that the data being used is not "core" to the normal use of the system and has received little prior management attention. Therefore, it is likely that in order to support audited, published regulatory financial statements these systems will need to be subject to management review, process and control improvement and potentially detailed data rectification and improvement in the initial periods.

3.2. Supporting documentation

TCNZ is required to prepare an Attribution Methodologies Manual describing the systems and processes as well as a detailed Network Component Schedule, an Asset Valuation Manual and an Accounting Policies Manual. These documents are required to provide "transparency" of the valuation and cost attribution processes.

The Commerce Commission has not defined what is meant by transparent documentation. However, given the detailed level of reporting requirements outlined above and the implications for audit requirements discussed below we have assumed that the Commerce Commission's interpretation of the transparency requirement will be similar to that adopted by Ofcom in the UK (the requirement imposed in the UK is set out in Appendix I to this report). This requires BT to prepare documentation detailing the methodology applied and source data used for each cost attribution that is potentially material to any of the reported financial statements. BT's Primary and Secondary accounting documentation includes the following:

- Primary Accounting Documents (189 pages);
- Detailed Attribution Method (1,255 pages);
- Detailed Valuation Methodology (58 pages);
- Long Run Incremental Cost: Relationship and Parameters (402 pages));
- BT Retail Catalogue (12); and
- BT Wholesale Catalogue (127).

Of these the Primary Accounting Documents, Detailed Attribution Method and Detailed Valuation Methodology equate broadly to the scope of the documentation proposed by the Commission.

As noted above, and given the proposed reporting timetable, it is likely that TCNZ would need to initially develop models designed to provide reporting at the level of Service Groups with later enhancement to deliver the more onerous 2010 reporting requirements. This approach will clearly lead to a significant level of update and amendment to the supporting documentation in year 2. However, if the number of separate regulatory products requiring separated reporting in 2010 is relatively small a single development phase may be practical.

These documentation requirements will require TCNZ to develop and maintain the following processes:

- Initial document preparation, review and approval to meet transparency requirements; and
- Robust documentation maintenance and update processes to take account of changes in general ledger structure and usage, regulatory costing methodologies and regulatory reporting requirements.

3.3. Audit requirements

TCNZ is required to procure an audit of the regulatory financial statements each year. The audit requirements for the 2008/09 year include the following:

- An opinion as to the completeness of the supporting documentation.
- An opinion as to whether the methodologies described in the supporting documentation meet the Commission's written requirements.
- An opinion as to whether the pro-forma financial statements (presumably included as part of the supporting documentation) are consistent with the Commission's written requirements.
- An audit opinion on whether each regulatory financial statement complies with the Commission's requirements and has been properly prepared in accordance with the relevant regulatory manuals; and
- An audit opinion on whether anything has come to the auditors' attention that leads them to conclude that the regulatory manuals have not been properly applied in the preparation of the relevant regulatory financial statement.

We have assumed that the Commission does not propose that items prepared under the banner of Compliance Monitoring Requirements, namely detailed statements of assets, statements of capital investment, network component statements and standalone and variable unit cost statements are subject to audit. If these items were to be subject to audit we would expect there to be significant additional costs in conducting the audit and in development of auditable processes and data.

3.3.1. Form of audit opinion

The scope of audits of regulatory financial statements can differ radically, with two typical forms of reporting being common in other jurisdictions.

- An opinion as to whether the regulatory financial statements have been properly prepared in accordance with a detailed methodology document. Typically this form of opinion would not consider the appropriateness of the methodologies or the reliability of the non-financial source data used to drive cost attributions. The form of assurance is often described as "Properly prepared in accordance with…".
- An opinion as to whether the regulatory financial statements are fairly presented in accordance with a methodology. In this case the key elements of the methodology are the costing principles such as "cost causality" and "objectivity". This form of assurance would include consideration of the appropriateness of the detailed costing methodologies and robustness of data sources to implement these principles (note: the distinction between these two scopes is most significant where detailed methodology documentation is prepared. In the absence of a very detailed methodology document a "Properly prepared in accordance with…" audit opinion would need to apply judgement in considering the appropriateness of the actual methodologies employed).

The Commission's requirements in respect of financial statements above appear to fall into the first category ("Properly prepared in accordance with..."). The Commission also requires an audit opinion addressing the completeness of the supporting documentation and its compliance with the Commission's written requirements.

However, it is not clear what the Commission has in mind when defining the audit requirements as it appears to require both positive and negative assurance from the auditor in relation to the proper preparation of the regulatory financial statements in accordance with the detailed supporting documentation.

For the purposes of this review we have based our analysis on the assumption that the overall audit requirement is for a reasonable assurance (positive) opinion on the proper preparation of each of the regulatory financial statements in accordance with the documented methodologies. For 2009 this would apply to each of the four service groups.

In addition the Commission requires audit assurance over the completeness of the supporting documentation and includes “transparency” as one of its written requirements for the documentation. The Commission has not defined in detail what is meant by its requirements for the documentation to be “transparent”. We are aware of only one other jurisdiction (the UK) where specific audit requirements over the completeness and transparency of documentation supporting regulatory reporting are imposed and have assumed that a similar interpretation of the transparency requirement would be adopted by the Commission.

For the following year the audit requirements are similar in principle although the opinions required in respect of the supporting documentation are focused on the completeness and appropriateness of changes made to the documentation. More fundamentally though, the definition of the regulatory financial statements for 2009/10 changes from 4 service groups to 5 and additional statements are required for individual regulated products such that separate audit opinions would be required on both the service groups and each of the products.

The requirement to provide assurance over individual products will have a fundamental impact on the auditor’s assessment of materiality and on the overall cost of the audit. It will also impact the judgements made as to the completeness and transparency of the supporting documentation as the transparency requirement must be judged in the context of the form and content of the regulatory financial statements.

As noted above, for the purposes of this review we have assumed that separate reporting is required for around 80 products. However, the total number of detailed product statements could exceed 4,000 which would increase the level of audit testing required exponentially. Also it is possible that an auditor would deem it inappropriate to imply a level of accuracy in the reporting of results of products which is inconsistent with the level of judgement and estimation applied in the preparation of the general ledgers that are used to prepare the consolidated statutory financial statements on which the regulatory financial statements are based. Issues such as this were experienced in the UK when BT was required to obtain assurance over the results of certain economic markets that were small compared to the overall scale of the group. This resulted in multiple technical qualifications in the auditor’s report. The audit requirements in the UK have subsequently been amended to limit regular reporting to 3 groups of markets with more granular reporting only on an ad hoc basis taking into account issues of practicality.

As noted above it is possible that the Commission intends that the auditor should provide a different level of assurance resulting in “fairly presents in accordance with…” opinions. This interpretation of the Commission’s proposals would be consistent with their statement that “The audits of the regulatory financial statements will be undertaken to form an opinion at the highest level of assurance for each of the regulatory financial statements required by the Commission.”. Also the Commission’s requirements for supporting documentation to provide “A high quality mechanism for producing Regulatory Financial Statements” and “a sound basis for the derivation of efficient costs” could be interpreted as being equivalent to the regulatory accounting principles adopted in other jurisdictions which would also move the overall audit requirement to be more analogous to a “fairly presents in accordance with..” requirement.

In order to reach this form of opinion additional audit work would be required over the assessment of the detailed costing and valuation methodologies adopted and the completeness and accuracy of source data. In our view, it is likely that qualifications would be required to the audit opinion in at least the first year of reporting as it is unlikely that all source data would be of sufficient quality given that the initial review of source data systems would be taking place during the reporting period such that data or control improvements would not be in place for the entire period. It is also important to note that a “fairly presents in accordance with…” form of assurance is unlikely to be possible in respect of all regulated products. The level of materiality applied in the audit of individual products would be very small compared to the overall scale of the company. As a result the auditor is unlikely to be able to form a judgement over the reasonableness of methodologies in the context of a small individual product.

In addition to incurring external audit costs, these audit requirements will require TCNZ to develop and maintain the following processes:

Initial document preparation, review and approval to meet transparency requirements; and

Robust documentation maintenance and update processes to take account of changes in general ledger structure and usage, regulatory costing methodologies and regulatory reporting requirements.

3.4. Compliance monitoring requirements

In addition to the formal reporting requirements described above TCNZ is required to prepare the following key additional information for the Commission:

Separate closing Detailed Regulatory Statements of Assets for each of Wholesale Services and Access Services. These statements will list to the same level of detail as TCNZ's fixed asset register all of the assets for each service group. This statement will be prepared using the same asset classifications as used in the Regulatory Statement of Assets. For the reporting year ending 30 June 2010 Wholesale Services are required to be divided between regulated and commercial

A statement of capital investment detailing the investment made in the year in assets in the Wholesale and Access services groups stating not only the level of investment, the applicable service group but also the purpose of the investment.

Network component statements which include documentation of the following data for each defined network component:

- Description of function;
- Controlling Service Group;
- Element Count;
- Location in Network;
- Average Historic Cost Value;
- Average Current Cost Value;
- **Average Designed Maximum Capacity;**
- Metric of Volume; and
- **Average Capacity Utilisation (percentage).**

Standalone (ceiling) and variable (floor) unit costs for each regulated product

In our experience there is no precedent for formal reporting of the metrics highlighted above in respect of network components and this will require TCNZ to implement additional data gathering and processing processes.

The requirement to report standalone and variable costs for each regulated product is potentially a very significant undertaking. The Commission's proposals do not provide any guidance on the definition of standalone or variable costs or the approach that they would expect TCNZ to take in such calculations. In particular it is not clear whether the measurement of standalone and variable costs should be with reference to the short or long run. For the purposes of this review we have assumed that the Commission contemplates and would accept an approach similar to that adopted in the UK where defined "floors" and "ceilings" are determined for services based on calculations of long run incremental costs and long run standalone costs for network elements which are then attributed to services on the basis of usage. Alternative interpretations of these requirements could potentially result in significantly different implementation costs.

These reporting requirements will require TCNZ to develop and maintain the following regulatory costing and reporting systems and processes:

- Initial determination of cost volume relationships for all costs, assets and liabilities;

- Identification of appropriate data sources to support all methodologies; and

- Development of Long Run Incremental Cost models along with associated processes.

The timetables for implementation in years 1 and 2 as per the Commission's draft notification appear very challenging, particularly in year 2 when significant additional requirements are introduced within a tighter reporting timetable. In our view these timetables may ultimately prove to be unachievable but as a minimum will force TCNZ to rely heavily on the support of external consultants and to make available significant levels of dedicated internal resources.

4. Analysis of potential incremental costs of compliance

We have identified in the preceding section the nature of the systems, processes and data that TCNZ will be required to implement in order to meet the Commission's proposed requirements. In this section we analyse, the potential range of these costs based on our experience and observations of costs incurred by other operators subject to similar obligations with a particular focus on the experience of European operators with requirements similar to those proposed in New Zealand (e.g. BT, eircom and Brasil Telecom). Where possible we also comment on the likely impact on internal resource requirements for both the development and ongoing operation of regulatory reporting systems and processes.

The majority of the reference material noted in this section relates to BT and eircom. This is because these represent the only examples within the EU where an accounting separation regime with the level of detailed requirements, publication and audit similar to the Commission's proposals have been implemented. Table 4 below, which has been compiled from a number of sources, illustrates the level of implementation of accounting separation remedies across the EU and where information is in the public domain:

Country	Remedy	Methodology	Publication	Transfer charging
Austria	Yes	Yes	No	Yes
Belgium	Yes	No	No	No
Czech Rep.	Yes	Yes	No	No
Denmark	Yes	Yes	No	No
Finland	Yes	No	No	Yes
France	Yes	Yes	No	No
Germany	No	No	No	No
Greece	Yes	Yes	No	No
Hungary	Yes	Yes	No	Yes
Ireland	Yes	Yes	Yes	Yes
Italy	Yes	Yes	Yes	No
Netherlands	No	Yes	Yes	Yes
Poland	Yes	No	No	No
Portugal	Yes	Yes	No	No
Spain	Yes	Yes	No	No
Sweden	Yes	No	No	No
UK	Yes	Yes	Yes	Yes

Table 4: Level of implementation of accounting separation remedies across the EU

In addition to these EU references we have also considered evidence available from Brazil where Brasil Telecom and PwC have published an analysis of process and costs of meeting regulatory reporting requirements. The reporting and publication requirements imposed on Brasil Telecom are similar to the old style version of BT regulatory accounts which are more straightforward than the requirements of the commission.

4.1. Development of methodologies and models

The components of each of these tasks are discussed in the sub-sections below. In particular, we discuss below the nature of what is generally involved in undertaking each of these tasks. The typical costs of this exercise, based on information in public sources and our experience, are estimated in terms of both monetary cost, and headcount implications. We also compare these tasks to the Commission's requirements in order to form a view as to which aspects are more or less onerous than what is typically required. This analysis then forms the basis for forming a view on the range of costs likely to be incurred by TCNZ in complying with the Commission's AS requirements.

Compliance with the Commission's determination requires the development of a range of methodologies and models including:

- asset valuation;
- cost Attribution methodologies and accounting separation model; and
- standalone (ceiling) and variable (floor) costing methodologies.

4.1.1. Asset valuation

For the transitional year and going forward, regulatory financial reporting is to be prepared on the basis of both historic and economic costs. This will require not only the attribution of historic costs (recorded in the general ledgers and fixed asset registers) to defined network elements but also the gross and net replacement cost of all assets.

The adoption of economic valuation methodologies in telecommunications is complicated by the rate of technological change in the industry. This has implications in both identifying suitable replacement costs for old technology. Examples of technological issues for telecommunications operators include copper versus fibre cables and NGN versus legacy PSTN switching and transmission equipment.

The new technologies are usually far superior to the old technologies in terms of functionality and efficiency. However, since modern equivalent values are required to reflect assets of equivalent capacity and functionality, it is necessary to make adjustments to the current purchase price in deriving an appropriate economic value.

These valuation methodologies should be based on the operators actual capital investment plans and require substantial volumes of data in respect of asset volumes (typically from operational systems or surveys) and prices (typically from procurement contracts or indices). As an indication of the complexity of methodologies and the volume of data required to be gathered on an annual basis the methodology documentation published by BT includes over 60 pages dedicated to the valuation of assets.

The Commission's requirements go further than what is typically required of operators in our experience as the requirement to implement economic valuations in the first reporting year presents particular issues with the availability and quality of data to support an opening valuation.

Also TCNZ is required to re-value all assets within the group including assets dedicated to unregulated activities such as mobile and overseas businesses. This will require significant additional work. To date TCNZ has prepared a one-off valuation of elements of the PSTN network in support of the functional separation process. However, in order to meet the Commissions proposed requirements TCNZ would need to extend this opening valuation to all assets and ensure that the methodologies previously adopted remain robust and repeatable.

In our experience, having taken into account the work already undertaken by TCNZ, the preparation of the annual valuation and determination of economic depreciation costs is likely to require in the region of 3 - 5 full time equivalent employees and is also likely to require external consultancy support in the first 2 years of implementation in the region of NZ$1.0 million to NZ$2.5 million for year 1 and in the NZ$0.5 million to NZ$1.25 million in the subsequent year.

4.1.2. Cost Attribution methodologies and accounting separation model

The Commission's determination requires a detailed attribution of revenues, costs, assets and short term liabilities to products and services. As far as possible, this is to be done on the basis of cost causality.

In our experience the development of a fully allocated cost model capable of meeting the Commission's requirements is a complex task. The costs of the business will need to be broken down into support costs and their related activities, primary plant costs and their related activities and product costs. The network plant costs will need to be aggregated into network components which can then be allocated to products. Typically this process will require the identification of many hundreds of cost drivers, each of which will require source information to be collected.

We are aware that TCNZ is in the midst of developing an Activity Based Costing model which we believe only includes certain aspects of operating costs and limited attribution of non-network assets. We understand that it does not include any analysis of network assets or their allocation to network components and on to products. Our understanding is that this current activity based costing model is being developed to support internal management reporting and is unlikely to meet the granularity or data quality requirement of externally published regulatory financial statements. As such substantial further work will be required to ensure that, if this model is used as the basis of the development of the accounting separation solution, substantial extra development will be required. We have, however, assumed that the approach, methodologies and data used in the current ABM model can be used in the regulatory reporting model. If this is not the case substantial extra costs would be incurred.

Given the change in reporting requirements from year 1 to 2, i.e. the increase in the number of service groups from 4 to 5 and the inclusion of approximately 80 products, significant enhancements will need to be made particularly in relation to the level of granularity of allocations of costs and network elements to these products. There will be continuing investment in the maintenance of the model and data gathering processes to ensure the quality of the financial statements.

In our experience the level of detail to be published in TCNZ's regulatory accounts is broadly similar to that of BT in the UK but is significantly more than in most other jurisdictions. Given our experience in implementations around the world, the size of team to implement the required model can vary significantly from around 5 FTE's up to 20 FTEs in the core costing team supported by a significant investment of time of people in the business. The Commission's requirements are towards the more complex end of the spectrum and its timetable is extremely challenging and as such it is expected that TCNZ's core team size will be at the upper end of the range. In addition to the internal costs, TCNZ are likely to require external expertise in order to be able to produce statements to meet the Commission's requirements within the specified timeframes. In our view consultancy costs for this implementation would be of the order of NZ$2 million to NZ$4 million in year 1 and an additional NZ$1.0 million to NZ$2.5 million in year 2.

In addition to these core development requirements, in order to support the publication of the regulatory financial statements management will want to ensure that the data being used to support valuations and cost attributions is suitably reliable. Also the reliability of source data would be subject to audit testing, particularly if a "fairly presents in accordance with…" form of audit opinion were required.

We understand that TCNZ is well advanced in the development of its internal activity based costing models but that these models rely at least in part on management estimates and data from operational systems that have not previously been subject to audit. Also the proposed accounting separation requirements are both more detailed and more extensive than the activity based costing systems. Management information systems designed to provide data in support of external financial reporting are normally designed to include robust controls over the completeness, accuracy and validity of data. However, the accounting separation requirements are likely to rely heavily on data extracted from existing operational systems. These systems are designed to support the day to day management of the business and in our experience may have less stringent controls over the data used for regulatory reporting purposes. Indeed in some instances it is possible that the data being used is not "core" to the normal use of the system and has received little prior management attention.

Therefore it is likely that a substantial number of additional operational systems (including records of network equipment) will be utilised in the development of valuation and accounting separation models. Many of these systems will not have been designed to meet regulatory reporting requirements and the relevant data may not be core to the underlying purpose of the system. In our experience it is likely that these new requirements being placed on systems will identify issues with the quality of data and design of processes and controls that require rectification.

For example, in its response to the Commission's proposals dated 7 November 2008 TCNZ identified certain limitations in its fixed asset register. This is likely to cause significant issues with the attribution of assets and depreciation charges within the historic cost regulatory financial statements. Even where a economic valuation approach is taken to costing, data from the fixed asset register would be used within the accounting separation models. For example, any assets that are not required to be re-valued would be identified from the register, also the age profile of assets required to calculate depreciation on a economic basis is likely to be derived from the fixed asset registers.

The cost of additional cleansing of the data within the fixed asset registers and designing and implementing improved processes and controls to maintain the quality of data is difficult to estimate without a more detailed understanding of the nature and extent of issues. However, based on experience with other operators, if the exercise could be completed without the need to perform any physical inspection and count of assets we would anticipate a cost in the region of NZ$1 to NZ$3 million. The cost of a more fundamental reconstruction of asset records (financial or operational) including physical surveys cannot be reliably estimated although clearly it would be significantly more costly.

The cost of initial data rectification and process improvement in other systems, if required, cannot be reliably estimated but is likely to be substantial.

4.1.3. Summary - Development of methodologies and models

In the above sections we have identified external costs associated with the development of methodologies and models to satisfy the Commission's draft proposals. We also discuss below the likely cost and resource requirements in respect of meeting compliance monitoring requirements in respect of stand-alone and variable costs of products. We estimate the total external cost of meeting all of these accounting separation and service costing requirements to be NZ$4 million to NZ$8.5 million in year 1 and NZ$2.5 million to NZ$5.75 million in year 2 supported by a core team of staff of 8-25FTE as well as ongoing support on a part-time basis from many other staff within the organisation.

Whilst including total FTE rather than just the core team this scale of investment compares with the data below published by Brasil Telecom outlining the level of resource required in the development of their costing models:

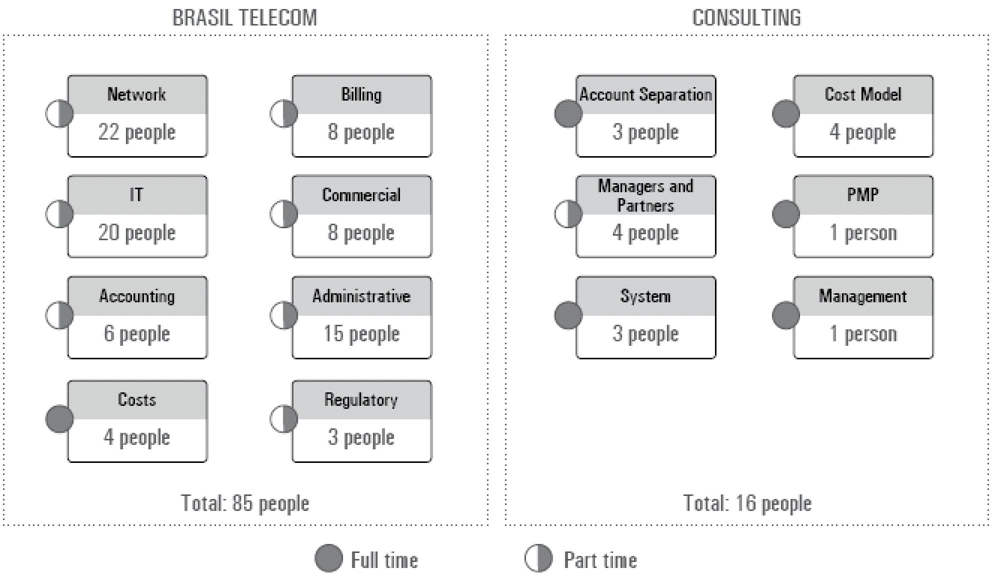

Figure 1: "Brasil Telecom: a Case on Telecom Regulation in Emerging Markets"

4.1.4. Ongoing Operation

The level of resource required to maintain the costing models (including stand-alone and variable cost models) and reporting processes on an ongoing basis is very difficult to estimate as it is critically dependent not only on the complexity of the initial models but also on other factors such as:

- The level of change in organisational structure and accounting processes and structures;
- The level of change in reporting requirements;
- The level of change in network technologies and associated operational systems; and
- The extent to which data gathering, costing and reporting processes are operationalised and automated.

For comparative purposes only we provide below some data published by BT relating to the resource requirements and costs incurred in the ongoing running of their regulatory costing and reporting functions.

"We note that: there are currently around 75 full-time equivalent employees (FTEs) engaged in BT's regulatory accounting processes; 10 FTEs have been engaged in enhancing the regulatory accounting documentation following Oftel's Direction of 27 November; and BT currently incurs in excess of £7 million annually, in running its regulatory accounting processes."[1]

In our view TCNZ will require a core team of 10-20 FTE calling on additional resources in the field of 25 – 50 FTE. It is expected that these will not be incremental FTEs, rather the core team will make use of a large number of people within the businesson a part time basis.

4.2. Supporting documentation

The preparation and maintenance of supporting documentation to meet a defined level of completeness and transparency is a potentially significant exercise.

As noted above the documentation maintained by BT extends to around 1,500 pages. BT stated in a response to an Oftel consultation in 2003 that it had employed 7 full time staff to undertake the initial preparation of documentation to the defined transparency standard.

Whilst there is no other information available publically we estimate, from observation of similar engagements that if the initial preparation of such documentation were outsourced for 2009 and 2010 the cost could be in the region of NZ$1 million to NZ$ 2 million.

The maintenance of such a detailed level of documentation has to be devolved to all those staff in the organisation responsible for the preparation of the individual costing methodologies and data and as such forms part of the overall cost of maintaining the reporting process. However, in our experience there is a need for centralised coordination and quality control which is likely to require 1 additional full time member of staff.

4.3. Audit

As described above there is some ambiguity in the meaning of the Commission's proposed audit requirements. For the purposes of this review we have assumed that the audit requirements will ultimately encompass the following:

2008/09

- Assurance over the proper preparation of the regulatory financial statements of each of the four service groups;
- Assurance over the completeness and transparency of the supporting documentation in the context of the regulatory financial statements of the four service groups;

[1] *BT Group plc – Response to Oftel consultation "*Financial reporting obligations in SMP markets, a consultation on accounting separation and cost accounting"

2009/10

- Assurance over the proper preparation of the regulatory financial statements of each of the five service groups (one of the 2009 groupings having been split);

- Assurance over the proper preparation of the regulatory financial statements of each of the regulatory products (assumed to be around 80 products); and

- Assurance over the completeness and transparency of changes made to the supporting documentation in the context of the regulatory financial statements of each of the four service groups and around 80 regulatory products.

As noted above there are likely to be a significant changes in the supporting documentation between 2009 and 2010 as a result of enhancements to the costing models to deliver reporting on individual services. Also the assurance required in 2010 must be judged in the context of these more granular reporting requirements. Therefore, in our view, it is likely that the review of the supporting documentation for 2010 would not be limited to consideration of changes but is likely to be more complex than the 2009 review.

The jurisdiction with the most similar audit requirements is the UK where over the past 6 year's many of the Commission's proposals have been incorporated into BT's reporting and assurance requirements. BT's statutory financial statements disclose the following fees paid to the auditors in respect of regulatory reporting:

	£'000	Comments on potential drivers of change in fees
31 March 2007	1,212	
31 March 2006	1,065	Removal of audit requirements in respect of LRIC reporting and reduction in the number of markets requiring separate audit opinions
31 March 2005	1,423	
31 March 2004	1,950	These 2 periods saw the Introduction of assurance requirements in respect of the transparency of supporting documentation and assurance over individual services.
31 March 2003	1,690	
31 March 2002	1,142	

Table 5: Extracts from Annual Report and 20-F of BT Group plc

It is important to note that BT has been preparing audited regulatory financial statements since the mid 1990's and therefore the above audit fees are in the context of a recurring and relatively stable platform. The significant changes in fees over the period can be attributed to known changes in audit requirements as discussed below.

The BT regulatory financial statements for the year ended 31 March 2007 included audit opinions in respect of the access, wholesale and retail market groups, separate opinions in respect of 9 individual markets and assurance over the completeness and transparency of supporting documentation.

Compared with this audit scope the requirements imposed on TCNZ will include the following for 2008/09:

- One-off costs associated with gaining an understanding and forming an overall assessment of costing methodologies;

- One off costs associated with the initial assessment of the completeness and transparency of supporting; documentation

- The fact that TNCZ reporting is for only 4 service groups rather than a total of 12 segments in the case of the BT statements;

- The fact that BT's reporting requirements are primarily at a "fairly presents in accordance with…" level. However, given the length of time that BT has been reporting results on this basis we would expect that the auditors were able to assess the appropriateness of methodologies on a rolling basis and also it is likely that significant reliance is placed on the work of internal audit in assessing the quality of non-financial source date;

- The likely impact of TCNZ models being less complex than those employed by BT; and

- The relative cost of audit between the UK and New Zealand.

In our experience the one-off costs associated with the first year audit can increase the audit effort by up to 25%. However, when compared to BT we believe that this potential cost would be mitigated by the requirement for only "properly prepared in accordance with." audit opinions and the impact of only reporting on 4 rather than 12 segments.

The introduction of assurance requirements in respect of supporting documentation in the UK appears to have been a key driver in the increase in audit costs of around £800k between 2002 and 2004 although there may well be other factors affecting the fees disclosed by BT. In our view the incremental cost associated with providing assurance over the completeness and transparency of supporting documentation in year 1 is likely to be in the range NZ$0.25m to NZ$0.75m.

The impact on audit costs of a smaller group with less complex accounting separation and cost accounting models is not straightforward to estimate. However, eircom (the incumbent operator in the Republic or Ireland) has reporting requirements that are similar to those imposed on BT in 2002. The audit cost disclosed in the most recent statutory financial statements of eircom is €1.3m (equivalent to approximately 90% of the disclosed BT audit cost in 2002). This is despite eircom being less than 10% the size of BT in terms of revenue and the fact that forward looking asset valuations are only required for eircom's core network business.

We estimate, based on a comparison of internal PwC data that the ratesfor audit services in New Zealand are approximately 30% less than in the UK.

On the basis of this evidence we estimate that the likely audit cost in respect of the 2008/9, including the audit of supporting documentation, is in the range NZ$2.0 million to NZ$3.0 million.

For 2009/10 there are likely to be significant additional audit costs including:

- the impact of decreased materiality as a result of the need to report on around 80 separate products; and

- the need for a significant increase in the depth and detail of supporting documentation to meet transparency requirements in the context of reporting on individual products.

In our experience the impact of an increase in detailed audit testing required in these circumstances is likely to be in the region of 50%-75% resulting in audit costs in the range NZ$ 3.0 million to NZ$ 4.0 million.

The level of audit costs will vary with the number and scale of products requiring separate audit opinions. The level of audit work is driven in part by the auditors assessment of materiality which is fundamentally affected by the number and scale of products being separately audited. Any separate product reporting is likely to increase the audit cost over and above the costs in year 1.

In addition if the Commission were to require audit opinions in the form of "fairly presents in accordance with…" in respect of the 4 service group's the auditor would be required to consider the appropriateness of all material costing methodologies and also assess the quality of controls in place over non-financial source data. In the first year we believe that it is unlikely that significant reliance could be placed on audit testing already performed by an internal audit function and therefore we estimate that the audit costs would be likely to increase by up to 50% in year 1 and 25% thereafter.

4.3.1. Compliance monitoring requirements

The Commissions proposals for information provision in respect of compliance monitoring include the following key elements:

- Standalone (ceiling) and variable (floor) costing of services;

- Network Components and Network Activity Statements;

- Detailed Regulatory Statements of Assets for Wholesale and Access; and

- Regulatory Statements of Capital Investment.

We consider the potential cost of each of these requirements below:

Standalone (ceiling) and variable only (floor) costing methodologies

In order to be able to develop ceiling and floors for each product separately disclosed in the regulatory statements the most common approach would be to build a Long Run Incremental Cost model. These models use as their primary input the output from the economic valuation based fully allocated cost model, showing the costs by cost category and network component. Typically one would then identify the relevant cost driver for each cost category and then develop a cost volume relationship (CVR) that shows how the costs for that cost category vary with changes in the cost driver volume, reflect the economies of scale and scope and identifying the level of fixed and common costs. These cost volume relationships are developed either using engineering models, statistics, or field surveys. In our experience a LRIC model may require 50-100 CVRs. The added complexity in a LRIC model is the attempt to capture the interdependence of costs i.e. the amount of building related costs is driven by the size of the building which is in turn driven by the size of network assets within the buildings; see illustrative example below in figure 2.

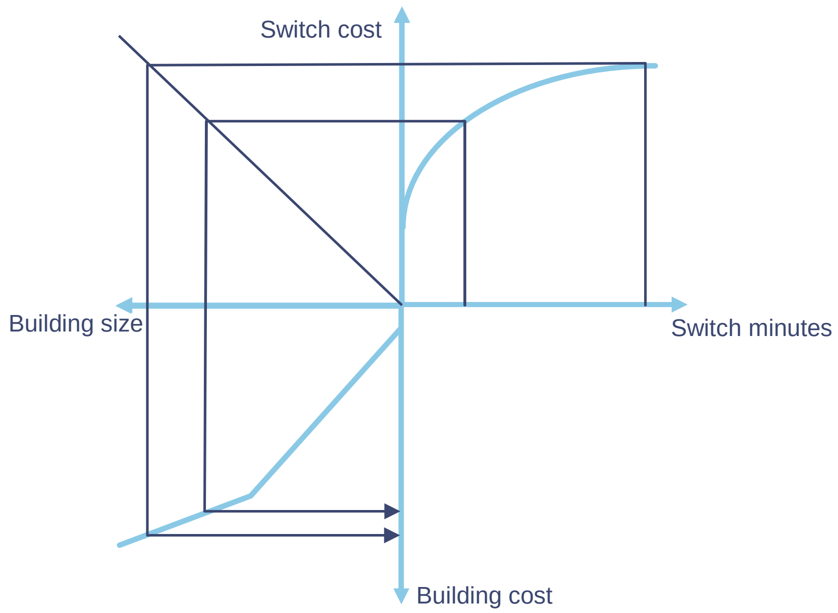

Figure 2: Example of interdependencies in LRIC costing model

This type of LRIC model will be able to calculate the incremental cost (floor) and standalone cost (ceiling) of the required product set.

There is very little detail included in the Commission's draft requirements in relation to the specifics of how floors and ceilings are to be calculated nor is their an explicit list of products to be modelled. In our experience, given the detail that is available in the requirements, the required LRIC model will be similar to the BT model in terms of scope and complexity given the need to model both the access and core networks.

In our experience, building this type of LRIC model will require an internal core team of 3-4 FTEs supported by input from TCNZ engineers and other staff. In addition external consultants will be required, the cost of which, is likely to be in the range NZ$1.5 million to NZ$2.0 million. We note, however, that because of the extent of economies of scope between products delivered on common network platforms the gap between variable costs and standalone costs may be so large as to add little meaningful additional information.

Network Components and Network Activity Statements

The Commission's proposals include the reporting of asset capacity and utilisation statistics for each network component. In our experience, the regular reporting of such information within an accounting separation requirement is unprecedented. We are not aware whether TCNZ's financial and operation systems retain reliable data of this nature for any or all network components and cannot therefore estimate the likely incremental cost of meeting this reporting requirement. However, the potential issues with the availability and quality of data in this area are similar in nature to issues experienced by most operators when first developing accounting separation and cost accounting models.

Detailed Regulatory Statements of Assets for Wholesale and Access

The requirement states that "these statements will list to the same level of detail as TCNZ's fixed asset register all of the assets for each service group". A statement of this nature could potentially represent a very significant burden for TCNZ in developing systems, data and documentation to report at the level of the 200,000+ individual assets in the fixed asset register. We do not believe that this could be the Commissions intention but it is unclear what is actually required. As such we have made no estimate of the cost involved in the production of these Statements, however it is likely to be substantial.

Regulatory Statements of Capital Investment

TCNZ has also been requested to produce a statement which lists all capital expenditure made during each reporting year relating to those assets covered by the Regulatory Statements of Assets. This Statement is to describe the investment, the purpose of the investment, the dollar amount invested, the asset type and the relevant service groups. From our experience it is unlikely that TCNZ is currently capturing the information necessary to produce this Statement and it is therefore quite likely that they would need to make system changes in order to achieve this. These requirements would be particularly difficult if not entirely impractical without the application of some sort of materiality threshold in respect of minor capital works. We are not in a position to estimate these costs, however it is likely to be substantial.

There is no explicit requirement in the draft notification for any of the information required under Compliance Monitoring to be audited. As such our costs estimates do not consider these costs. If an audit of this information was required, the audit costs could be considerable.

Appendices

I. Extract from BT Group plc Primary Accounting Documents

Principle 7 - Transparency

The Attribution Methods used should be transparent. Costs and revenues which are allocated to Markets, Technical Areas (as applicable) or disaggregated activities shall be separately distinguished from those which are apportioned. The framework documentation consisting of this and the other Accounting Documents, the Detailed Attribution Methodologies, the Detailed Valuation Methodologies and the Long Run Incremental Cost: Relationship and Parameters should provide a transparent description of the accounting and other methods used in the preparation of the Regulatory Financial Statements such that a suitably informed reader can easily:

Gain a clear understanding of the overall structure of BT's financial and information systems from which regulatory accounting data is derived and in particular the sequence of the processing and 'cascade' effect of the intermediate cost centres.

Gain a detailed understanding of all the material, methodologies and drivers (e.g. systems, processes and procedures) applied in the preparation of regulatory accounting data.

Make their own judgement as to the reasonableness of these methodologies and driver data and any changes to them.

II. Summary of public information sources

BT Group plc - Annual reports2002 to 2007:
http://www.btplc.com/Sharesandperformance/Annualreportandreview/Annualreports/Annualreportsarchive.htm

BT Group plc - Primary Accounting Documents:
http://www.btplc.com/Thegroup/RegulatoryandPublicaffairs/Financialstatements/2008/PrimaryAccountingDocuments2008.pdf

Eircom (BCM Ireland Preferred Equity Limited

Financial Statements – 30 June 2008):

http://investorrelations.eircom.net/pdf/2008_BCM_Ireland_Preferred_Equity_Ltd.pdf

*BT Group plc – Response to Oftel consultation “*Financial reporting obligations in SMP markets, a consultation on accounting separation and cost accounting”*:*

http://www.btplc.com/Thegroup/RegulatoryandPublicaffairs/Consultativeresponses/Oftel/2003/SMPmarkets/response.pdf

Brasil Telecom – “Brasil Telecom: a Case on Telecom Regulation in Emerging Markets” www.pwc.com/uk