



TELSTRA CORPORATION LIMITED

**Transmission Cost Model
Telstra Submission on Final Model**

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Introduction

Telstra is providing this submission in response to the Commission's call for feedback on the final version of the telecommunications transmission cost model released in April 2008, and developed by Gibson Quai-AAS (**Gibson Quai-AAS Model**).

Telstra, and a number of Telstra's competitors, provided detailed submissions to the draft model and discussion paper released by the Commission in May 2007. The Commission also engaged an independent consultant, Frontier Economics, to conduct a peer review of the draft model. Those submissions and the Frontier Economics review identified serious shortcomings in the model, which have not been addressed in the final version. Accordingly, in Telstra's view the Gibson Quai-AAS Model is not an appropriate tool for costing transmission services, and should not be relied on to give guidance to access seekers or for determining access disputes.

Further, Telstra believes that the model should not have been released in its current form, and that its release is likely to lead to incorrect assumptions about transmission network costing that will stifle investment and generate unnecessary access disputes. To avoid sending the wrong cost signals to industry, the Commission should withdraw the model.

This submission is provided in two sections. The first section outlines the general concerns Telstra continues to have with the Commission's decision to release the model. Those concerns include:

- the absence of any demonstrated need to release the model at this time;
- inadequate industry consultation and failure to take account of industry submissions and the views of Frontier Economics; and
- the unsuitability of the model as a costing tool due to structural flaws, incorrect values and omitted costs;

The second section outlines some of the specific flaws in the final version of the model. In Telstra's view, the numerous flaws point to the general inadequacy of the model, inappropriate underlying assumptions, and the problems associated with applying an overly simplistic 'one size fits all' approach to costing transmission services.

A General Concerns

A.1 Overview

The Commission's website contains the following statement:

Transmission or backhaul costing is highly route dependent and thus does not easily lend itself to simple pricing structures or models....The model has been developed over

a period of time to take this complexity into account to provide cost-based pricing for individual routes.¹

Telstra agrees with the Commission's comment that transmission does not easily lend itself to simple pricing structures or models, as the costs associated with any particular route are highly dependent on that route's particular circumstances.

However, for the reasons set out in this submission, Telstra strongly disagrees with the Commission's assertion that route specific costing based on the Gibson Quai-AAS Model, is able to take these difficulties into account.

In addition to differing circumstances between specific routes, the complexities are further exacerbated by differing circumstances across underlying transmission rings, the nature of the transmission network topology, and the fact that this could vary based on the actual productised service offered by the service provider. In Telstra's case, the 'Wholesale Transmission Service' encompasses a number of distinct product types. Those product types include specified capital city to regional routes, inter-exchange transmission, tail end transmission, and bundled inter-exchange and tail end transmission. These different product types are also reflective of the broader market's approach to transmission services, which conceives transmission services as comprising particular product types with specific commercial applications.

By contrast, the Gibson Quai-AAS Model appears to be primarily directed to the costing of capital city to regional routes and would have limited application across the range of transmission services. A number of specific shortcomings of the model are described in section B of this submission. The shortcomings are serious enough to undermine the accuracy of any cost estimates derived from the Gibson Quai-AAS Model. In particular:

- the failure to take account of connections from local transmission hubs and end user premises in regional areas (section B.5);
- the incorrect assumption in the model for trench sharing(section B.2);
- the use of incorrect assumptions about connection costs (section B.2);
- the inability of the model to properly account for actual demand as opposed to theoretical capacity variations (section B.1); and
- the costing of transmission rings individually, when most routes are served by more than one ring and the costs of each ring differ.

Telstra considers the model's flaws demonstrate the difficulties inherent in a 'one size fits all' approach to transmission cost modelling. Those flaws have been previously identified by not only Telstra, but also by other industry participants and the Commission's own independent consultant, Frontier Economics. However, they were not addressed by the Commission prior to the release of the final model.

Telstra is particularly concerned that access seekers will be able to exploit the model to trigger access disputes by selectively constructing particular rings without having

¹ <http://www.accc.gov.au/content/index.phtml/itemId/823855>

regard for efficient system planning of the broader transmission network and to derive unrealistically low costs. The ability of access seekers to exploit the model in this way will create unnecessary industry disputes and favour the short term interests of access seekers while discouraging further medium to long term investment in transmission services, which in turn will harm the long term interests of end users.

The use of the model to price individual routes also ignores the efficacy of Telstra's existing pricing structure for transmission services. Telstra's pricing is generally based on price bands that set prices for particular routes according to corresponding distance ranges. Each price band may cover a large number of individual routes, which are each served by a number of rings. Telstra's approach to band pricing recognises a commercial reality that requires a simple pricing structure that can be applied to the thousands of transmission routes within Telstra's nationally-based network. The workability of that pricing structure requires a degree of cost recovery across multiple routes within similar distance bands. There are simply too many routes that could be demanded by access seekers or end users within Telstra's national transmission network for it to be commercially practical to set a menu of prices for each and every route separately.

The fact that the cost, as calculated by the model, of any one ring within a pricing band is above or below the price for routes within that band is unlikely to have any relevance to the question of whether the band price is reasonable. The Commission's approach, focussed as it is on individual routes, is of no use in assessing the reasonableness of band pricing.

In Telstra's view, the use of the Gibson Quai-AAS model to cost individual rings will be counter-productive, and could result in the undermining of the transmission network to the detriment of all users.

Telstra is also concerned that there will be serious problems associated with the very high level of expertise and data that is required to use the model. This is likely to exacerbate problems inherent in the model itself, as access seekers and others are likely to form expectations about prices based on incorrect use of the model.

All of these problems point to the likelihood that access seekers will form unrealistic expectations about pricing for transmission services. This will, in turn, lead to increased disputes with access providers, stifle access providers' investment in new infrastructure, and ultimately reduce competition in the medium to long term and harming the long term interests of end-users.

A.2 No need for model to have been released

Telstra believes that there was no need for the Commission to have released the final version of the cost model. In particular, Telstra notes that:

- There have been historically few access disputes concerning the Domestic Transmission Capacity Service;
- All access disputes have been commercially resolved, and there are currently no access disputes on foot; and
- The increasing levels of competition and reduction in number of declared routes likely to result from the granting of Telstra's exemptions applications currently

before the Commission, points to a further reduction in the need for cost modelling.

Further, Telstra notes that the Commission has not provided any information on how the Gibson Quai-AAS model would actually be used in the context of the arbitration of all access disputes.

Historically few access disputes

In the period since the Domestic Transmission Capacity Service has been a declared service, there have only been a small number of access disputes (only 5 in 12 years). This is in stark contrast to the high level of disputation that has existed in relation to other declared services.

All access disputes have been commercially resolved and none currently on foot

The Commission has not been required to make a determination in any access dispute in relation to the domestic transmission capacity service, and there are currently no disputes on foot. Where such disputes have been notified, all cases have been resolved commercially, without the need for an arbitrated decision by the Commission.

The low number of access disputes, and the absence of any need for the Commission to have made a determination, suggests that it is unlikely that the Commission will need to make a determination in respect of a declared transmission service in the near future. (Although, as noted above, the release of the Gibson Quai-AAS model may, in fact, encourage groundless disputes – contrary to the objective of Part XIC to promote commercial outcomes over regulated ones).

Increasing levels of competition

From the time the service was first declared pursuant to Part XIC of the Trade Practices Act, there has been a recognition that competition exists in the market for transmission capacity on a number of routes. As the Commission is aware, the declaration has never included routes between Sydney, Canberra and Melbourne, and all major inter capital city routes were removed in 2001. In 2004, a further 14 capital-regional routes were removed from the access declaration.

As the Commission is also aware, Telstra currently has two exemption applications before the Commission for consideration (lodged in August and December 2007), which seek to further reduce the number of routes which are subject to the declaration. The potential reduction in declared routes that may be covered by the exemption applications (which Telstra believes understate the extent of competition that exists for transmission services) point to increased competition and the reduced significance of the declared service.

As part of those applications, Telstra has provided extensive evidence of increasing levels of competition in the markets for transmission services. The Commission should have at least waited until it had considered Telstra's exemption applications before releasing the Gibson Quai-AAS Model.

A.3 Procedural irregularities

Telstra considers that not only was it inappropriate for the Commission to have released the final version of the Transmission Cost Model, in doing so it has failed to

properly discharge its regulatory obligations. In particular, Telstra remains concerned about:

- Apprehended bias of the consultant engaged to build the model;
- Insufficient regard for the views of the independent expert consultant appointed by the Commission; and
- Insufficient consultation and attention paid to the few industry comments received, and insufficient modifications made to the model to address industry concerns.

Apprehended bias of consultant

Telstra informed the Commission of its opposition to the appointment of Gibson Quai-AAS in direct correspondence and in its submission to the Commission's discussion paper. In particular, Telstra noted that immediately prior to the appointment, Gibson Quai had been acting for a Telstra competitor in relation to the Transmission Capacity Service. Gibson Quai is also known to act for a number of other access seekers.

Telstra believes that the absence of transparency around the briefing to the consultant and the apprehended bias calls into question the validity of the model that has been prepared by Gibson Quai-AAS. Telstra has not seen any documentation about the appointment process and the alternative consultants that the Commission considered. We request the Commission now provide that information to industry.

Furthermore, Telstra is greatly concerned that the Commission's failure to take account of the views of Frontier Economics means that the opportunity for the independent consultant to address any issues arising out of bias on the part of Gibson Quai-AAS has not been realised. Consequently, Telstra remains concerned about the suitability of the consultant.

As the Commission would understand, for a cost model to be effective as a tool for resolving access disputes, both access seekers and access providers must be able to have confidence in the model. The failure to address Telstra's concerns means that Telstra can not have confidence in the Gibson Quai-AAS model, and nor should the industry, the public or the Commission.

Failure to take account of Frontier Economics' views

As part of the process of developing the Gibson-Quai-AAS Cost Model, the Commission engaged a specialist consultant, Frontier Economics, to undertake a 'peer review' of the draft model.

Frontier Economics made a number of serious criticisms of the model. Those criticisms included:

- The model's failure to properly cost the differences between direct and redundant links in a ring;
- The model's capacity-based rather than demand-based approach;
- The model's failure to take account of demand over a number of years; and

- Failure to properly account for network sharing across different routes.

As part of its review, Frontier Economics advised the Commission of a number of steps that could be taken to address its criticisms. These steps have not been taken by the Commission.

Telstra supported the peer review process, although Telstra stated that it did not think it would necessarily cure the concerns Telstra had initially raised about the appointment of Gibson Quai to undertake the cost model. Nevertheless, Telstra expected that the Commission's appointment of an independent consultant meant that any serious structural problems the consultant identified would be resolved prior to release of the final version. The failure of the Commission to take account of the views of its own independent consultant points to a serious deficiency in the process the Commission has applied to developing the model.

Insufficient consultation

In addition to the apparent lack of regard for the input of Frontier Economics, Telstra has been concerned from the outset at the low level of consultation afforded to Telstra and presumably other parties during the development of the model.

Telstra had specifically sought information from the Commission, and opportunities to have input, at various stages throughout the process that led to the release of the final model. In particular, Telstra sought:

- information about the appointment process for the consultant;
- an opportunity to view the briefs the Commission provided Gibson Quai and Frontier Economics; and
- a meeting with the Commission to explain its substantive concerns with the model.

Each of these requests were denied by the Commission. Given the significance of the model to Telstra's business, and the industry generally, Telstra cannot understand why the Commission was unable to afford a greater level of input. Not only would this input have been appropriate, it would have potentially allowed many of the serious flaws that are now present in the model to have been addressed.

B Specific shortcomings in the Model

Telstra has identified serious flaws which were noted by both Telstra and Frontier Economics in the draft model, but which still remain in the final version of the Gibson Quai-AAS model. The flaws include both structural issues which go to the heart of the model's approach to cost calculation, and incorrect assumptions on the part of the cost modeller that will result in the model producing distorted results. Telstra believes these issues cannot be easily resolved within the framework of the Gibson Quai-AAS model.

A short summary of some of those flaws (which have already been extensively canvassed by Frontier Economics and/or Telstra previously) is set out below.

B.1 Structural Flaws

The model contains a number of fundamental design flaws which have been previously pointed out to the Commission by both Telstra and Frontier Economics, which will result in incorrect costing of transmission services. Those flaws include the following.

Capacity-based approach

The model continues to use a capacity-based rather than demand-based approach, and frequently uses default values that over-estimate utilisation of network components. This capacity-based approach does not allow network owners to fully recover costs, and will unfairly favour access seekers and discourage further investment.

The model operates by dividing total costs by the amount of utilised capacity in the transmission network. The better approach would be to cost out a network that is built to satisfy forecast demand taking into account appropriate provisioning rules and divide total costs by the demand for the transmission service. The specific problem with capacity-based modelling as in the Gibson Quai-AAS Model, is that it incorrectly assumes that exchanges are equipped for full capacity and uses incorrect utilisation factors to calculate per unit bandwidth costs. Given that transmission services are very heterogeneous (even within routes) a homogeneous utilisation factor such as that used in the Commission's cost model is unlikely to reflect the true utilisation of various parts of the network and, even if it does, this does not necessarily mean that it will result in the correct costs or prices being calculated (see also section B.3).²

This capacity-approach was also criticised by Frontier Economics, who considered it 'unusual' and recommended that the model should be augmented with specific linking of the demand with the costing sheets to ensure that it transparently produces results that would be consistent with a demand-based approach to TSLRIC estimation.³ This recommendation has not been taken up in the final model.

² For example the cost of two links at 50% capacity is not the same as the cost of one link at 75% capacity plus the cost of another link at 25% capacity. As another example, the utilisation of a 2 Mbit/s service is not 1/77th of a 155 Mbit/s service.

³ See Frontier Economics report at page 9

Calculation of costs between different points on a ring

The Gibson Quai-AAS model continues to inaccurately allocate the same costs to different points on a ring and assumes that every route on the ring contributes the same amount to the cost of the network irrespective of the characteristics of the route, and regardless of whether the routes are different distances. The model operates by simply dividing the total cost of the loop by the capacity (with a utilisation factor that is far too broadly applied) to calculate the per-unit bandwidth cost between any two points on the loop.

This criticism was also made by Frontier Economics, which noted that for a ring that goes through Perth, Karratha, Broome, Darwin and Adelaide, “the model appears to cost the same amount for any two points on the loop whether it is Perth to Darwin or Karratha to Broome”.

Telstra first raised this issue in its response to the Commission’s discussion paper⁴, and strongly agrees with parts of Frontier Economics’ criticism. The cost of the Perth to Darwin route is obviously vastly different from that of the Karratha to Broome cost. The same can be said about the Melbourne to Geelong, and Melbourne to Mildura routes, which would also be similarly incorrectly costed using the Gibson Quai-AAS model.

The inability of the model to be used to properly cost different points on a loop is a clear indication that the model is unsuitable for use as a tool for costing transmission routes. In simple terms, the use of the model will result in short routes being costed too low, and the costs for long routes being un-recovered.

Frontier Economics recommended that further granularity be incorporated into the model to address these issues.⁵ This recommendation has not been taken up in the final version of the model.

Incorrect per-unit bandwidth calculation

The final model continues to assume that different bandwidth rates can be costed on a pro-rata linear basis. For example, as Frontier Economics noted, the model costs a 2 mbps service at 1/17th of the cost of a 34 mbps service. As has been previously demonstrated by Telstra, this pro-rata approach is simplistic and does not accurately represent the costs for different bandwidths. Frontier Economics discussed options for non-linear pricing structures and their relative merits, and recommended ways to adapt the model for non-linear pricing.⁶ Again, these suggestions have not been reflected in the final model.

⁴ See paragraph 2(c). See also June 2007 submission at page 4.

⁵ See Frontier Economics report at page 6

⁶ see Frontier Economics report at page 18

Reliance on fixed costs components

The model fails to include any variable costs components. In reality, the amount of equipment installed at a location is very much dependent on the demand capacity and the demand profile. For example, the investment required to satisfy a demand for seventeen 2 Mbit/s services is different from that of a single 34 Mbit/s service.

This issue was also raised by Frontier Economics but has not been addressed by the Commission. Examples of incorrect fixed costs components are set out below.

B.2 Incorrect default values

Trench costs

The final version of the model fails to take account of Telstra's criticism of the fact that the model assumes that the trenches along which the optical fibre cables used to provide the transmission service are laid will be shared with other telecommunications and utility providers. In reality, it is far more likely that the trench will not be shared in the inter-exchange network on declared routes. Further, according to the approach taken to costing based on TSLRIC methodology, efficient deployment of optical fibre cable would mean a single cable could satisfy all demand, which further highlights the extent to which the model's assumptions in relation to trench sharing is flawed.

Connection charges

In Telstra's June 2007 submission, Telstra pointed out to the Commission that the model failed to correctly quantify connection charges, and simply relied on an assumption that these were generally less than \$100 in each instance. Telstra further pointed out that it was not appropriate for the calculation of connection charges to be predicated on connection costs of ULLS and LSS. Rather, each transmission connection task is significantly more involved than that of ULL or LSS. This is because transmission is an end-to-end service which can span several Telstra exchanges and therefore requires elaborate service ordering, design, activation, work coordination, service qualification testing and cross-connection, testing and updating database of records. Again, the model has not corrected this.

B.3 Incorrect utilisation rates

Telstra's review of the final version of the model has also identified further errors concerning the model's assumptions in relation to utilisation rates for particular network components. Those errors include the following.

Utilisation rates for interface cards

The final model includes incorrect default values in respect of the routing factor and utilisation of interface cards on transmission routes. Further, the model fails to include the cost of interface cards at MTH and repeater locations.

Utilisation and capacity rates for links and nodes

The final model contains the same capacity and utilisation default values for both links and nodes on a ring. (Those values are set at 2.5Gbit/s for capacity and 60% for utilisation). In reality, the utilisation rate of a node is normally only a fraction of that for a link.

Utilisation and capacity rates for customer premises equipment

The final model continues to seriously miscalculate the costs of a transmission tail from the local exchange to the customer premises. This is because it incorrectly assumes that equipment at the local exchange and the customer premises have the same capacity and utilisation rates. This incorrect assumption has serious implications for the accuracy of the model because of the importance of tails in the transmission network and in some cases tails are a high cost element of the service.

B.4 CAPEX

Telstra identified serious problems with the model's approach to the annualisation of capex in Telstra's June 2007 submission, including:

- the use of the tilted annuity for year one as the annualised cost;
- an incorrect derivation of the post-tax WACC; and
- the use of a post-tax WACC in the annualisation without grossing up the capital change factor to allow for tax.

Those problems have not been addressed in the final model.

B.5 Omitted costs

The final model continues to fail to account for certain values and costs which are integral to transmission services. Those failures have been previously pointed out to the Commission, and include the following.

Tail transmission on regional routes

In Telstra's December 2007 submission, the Commission was made aware that the cost model assumes that all tail transmission services terminate at the local transmission hub (LTH), when this is, in fact, not the case.⁷

For regional transmission, all transmission services are assumed to terminate at the TEBA space within the local exchange. However, for Telstra's tail-end transmission product there is a further connection from the local exchange to the end users premises, which is not costed in the model. The failure of the model to properly take this into account means that the tail-end transmission product would be considerably under costed if the model were used as a basis for a pricing determination.

Tail transmission on metro routes

The model excludes the cost of transmission from a local transmission hub (LTH) to a local exchange. Irrespective of the relative location of the local exchange to a CBD area, an additional ring is involved if the local exchange is not an LTH.

⁷ See page 5

Design and feasibility study

Network design and engineering costs (for example, site surveys, council permits, design, material procurement, planning, logistics) have been excluded. Costs to assess feasibility and prepare detailed design at end-user premises are also excluded.

Other omitted costs

The costs of tributary cards, where input/output ports reside, are excluded. The costs of network management hardware and software are excluded. The costs to terminate a street cable and join it to the exchange tie cable are also excluded.

Conclusion

The serious shortcomings outlined in this submission demonstrate that the costs estimated by the Gibson Quai-AAS model will be unrealistically low, and will not reflect the true costs of transmission services. Accordingly, Telstra considers that the model is not an appropriate tool for costing transmission services, and should not be relied on to give guidance to access seekers or for determining access disputes. To avoid sending the wrong cost signals to industry, the Commission should immediately withdraw the model from its website.