TELSTRA CORPORATION LIMITED

DTCS: Submission on Further Consultation

Public version

12 February 2016

[C-i-C begins] = information not to be released without a confidentiality undertaking

[C-i-C begins] = information not to be released even with a confidentiality undertaking

CONTENTS

Executive summary

This submission is made in response to the ACCC's further consultation paper dated 17 December 2015 (**Further Consultation**) undertaken as part of the Domestic Transmission Capacity Service (**DTCS**) Final Access Determination (**FAD**) public inquiry.

Telstra supports the benchmarking approach as an effective means of setting DTCS prices for the broader benefit of the telecommunications market, and in particular, for meeting consumer needs. The market for, and role of, telecommunications services in Australia's economy and society is continuing to grow at a substantial rate. Customer demands for data are increasing and diversifying, the rollout of the NBN is enabling faster speeds and policy frameworks are focussed on developing innovative services that can deliver substantial social and economic benefits. The backbone of this ecosystem is transmission infrastructure. As such, the ACCC's price decisions must be attuned to the importance of promoting ongoing and efficient investment in transmission infrastructure. In this context, statistical integrity within the benchmarking exercise is critically important. This is not just for accuracy, but to promote certainty and consistency of decision making and to ensure that, to the maximum extent possible, the objective of adopting the benchmarking approach in the first place — to replicate competitive prices and thereby promote competitive investment — is achieved.

This consultation is unusual, as it follows the issuance of a Draft FAD, and the ACCC stops short of endorsing a preferred model within its Further Consultation. The Further Consultation also presents both substantive dataset changes — some warranted (due to initial error) and some for which a case has not been made — and a range of alternative models, which means the specific effect of a single change cannot be understood. Notably absent from the Further Consultation is an affirmation of the importance of statistical principles in guiding FAD decision making. This creates a risk of attempts to cherry pick the benchmarking process, which could undermine the integrity of the benchmarking process. Furthermore, substantive concerns raised by Telstra in response to the Draft FAD have been left unanswered.

Statistical principles must underpin FAD decision making

Economic Insight's (EI's) "*Domestic Transmission Capacity Services Benchmarking Model: Testing Further Specifications"* dated 18 January 2016 (**EI's Further Consultation Report**) brings forward a complex array of seven alternative models, with three alternative specifications for each of those models. These models are applied to several different datasets, resulting in a large number of scenarios for stakeholders to consider. In this context it is crucial that robust statistical principles, applied in a consistent manner, are adopted in support of forthcoming FAD decision making.

The adoption of robust statistical principles — applied to issues such as overall fit, the existence of structural breaks and measures of statistical significance — will not only promote process integrity and ultimately the long term interests of end users, but will also help mitigate against any attempts to cherry pick the modelling exercise given the multitude of options put forward.

The additional Joint Venture pricing data should be excluded

There is considerable evidence which indicates that the Joint Venture (**JV**) data is not reflective of a true competitive arrangement and should therefore be excluded as not relevant to the competitive benchmarking process.

The central premise of a competitive benchmarking process is to use data that appears in an open competitive environment to determine what prices should apply in declared areas. If the data reflects outcomes of a closed arrangement that is not reflective of what would be expected in a competitive

environment, then the data associated with that arrangement would bias predictions of what does occur as a result of competition.

Telstra is particularly concerned that the JV price data is averaged over distance and, therefore, what is proposed is that distance-averaged price data is to be combined with other distance-de-averaged data to determine distance-de-averaged price benchmarks. If such approach were to be adopted it would be inconsistent with the benchmarking approaches of other regulators including the New Zealand Commerce Commission (**NZCC**).

Professor Breusch's investigations show that the JV data is considerably different from the original dataset. For example [C-i-C begins] [redacted] [C-i-C ends]. Further tests indicate there is a significant structural break between the JV data and the original dataset. This is of significant concern because it dilutes the relationship between the dependent variable (i.e. price) and identified explanatory parameters in the modelling framework. Market intelligence also suggests [C-i-C begins] [redacted] [C-i-C ends].

Analysis undertaken by Professor Breusch — who in contrast to EI has made comparisons for identical sets of services — shows that inclusion of the JV data reduces average price predictions for Model 1b and Model 1c by 8.4 and 7.6 per cent respectively for exempt services and 9.0 and 6.9 per cent respectively for declared services. Given the purpose of benchmarking is to replicate competitive pricing, such overshooting is not an appropriate outcome. If such pricing were to be adopted, this would significantly diminish the incentive for ongoing investment in transmission infrastructure which is not in the long-term interests of end users.

Modelling around 2 Mbps services should be dismissed

The additional modelling focussed on 2 Mbps services should be dismissed. There are several reasons for this view. Foremost, correction of the GST error in the original dataset appears — in the ACCC's own words — to have resolved, or at least largely resolved, the motivating concern of stakeholders about the predictive ability of price models within the Draft FAD. Further, the prices which currently exist for regulated transmission services are not relevant to the benchmarking exercise, given the regression analysis is focussed on the prices of deregulated, competitive services. Nonetheless, the suggestion that 2 Mbps services are structurally different from other service types within the dataset is shown to be incorrect by Professor Breusch. This brings into question the different treatment of 2 Mbps services.

There is no need for price ceilings

The question in the Further Consultation about whether commercial pricing could be used as a price ceiling is not discussed at all and should be dismissed. Implicitly this suggestion is related to the complaints made about the predictive ability of price models within the Draft FAD, a complaint which was seemingly resolved through correction of the GST error. Accordingly, the rationale for the suggestion is not clear.

It is also unclear how price ceilings could be effected given the dynamic nature of commercial arrangements and how such a provision would interface with the established legislative framework in Part XIC of the *Competition and Consumer Act 2010* (**CCA**), where commercial agreements have precedence over regulatory determinations.

Substantive concerns remain unanswered

Telstra's submission in response to the Draft FAD raised substantive concerns about the ACCC's adoption of (the then) Model 2 instead of (the then) Model 3.[1] The accompanying discussion went into considerable detail about why the rationale for adopting Model 2 was flawed and inconsistent with EI's analysis. Central to this discussion was the inclusion of contentious throughput variables in Model 2, which instead of adjusting for the diseconomies of scale that characterise exempt routes (as asserted) actually accentuated these.

In the latest results, the ESA throughput variable continues to exhibit a positive sign, contradicting the reasoning provided (as a whole) for inclusion of the throughput variables. This outcome suggests the ESA throughput is meaningless as an indicator of scale. In the interests of obtaining a robust and transparent price equation (noting throughput is not a visible measure), the throughput variables should be dispensed with. Adoption of the c specification, in preference to the b specification, would also be consistent with EI's revealed preference for the c specification in their Further Consultation Report.

Another Draft FAD or a FAD?

The Further Consultation provides no indication regarding next steps in the FAD process — specifically whether there will be a second draft FAD or whether the ACCC will instead proceed straight to a FAD.

Given the available evidence Telstra believes Model A1c is the most appropriate specification developed and should be adopted the basis for a FAD. Such a FAD could take effect following allowance of an 8 week implementation period, so that internal billing systems can be updated to reflect the new price determination and billing adjustments are minimised.

In the event the ACCC elects to adopt a different approach, it is likely that further consultation would be required. This is because the price impacts of such an outcome are uncertain, due to both the multitude of options investigated and the need to ensure no further errors are contained in the preferred model.

[1] In EI's Further Consultation Report, these models are referred to as 1b and 1c respectively.

01 Introduction

This submission is made in response to the Further Consultation issued as part of the DTCS FAD public inquiry.

The submission is structured as follows:

- Chapter 2 sets out Telstra's views on inclusion of the JV data.
- Chapter 3 sets out Telstra's views on the further modelling on 2 Mbps services.
- Chapter 4 sets out Telstra's views on additional issues including outliers, price ceilings and stochastic frontier analysis and also the earlier concern about the adoption of (the then) Model 2 as opposed to (the then) Model 3.
- Chapter 5 sets out Telstra's views on whether there should be another draft FAD or instead a final decision following the current consultation.

02 Additional JV pricing data should be excluded

The central premise of a competitive benchmarking process is to use data that appears in an open competitive environment to determine what prices should apply in declared areas. If the data reflects outcomes of a closed arrangement that is not reflective of what would be expected in a competitive environment, then the data associated with that arrangement would bias predictions of what does occur as a result of competition.

Telstra has previously indicated its opposition to the inclusion of the JV data in the benchmarking dataset. This view is strongly supported by empirical analysis of the JV data undertaken by Professor Breusch, consideration of price consistency with Optus' other service offerings and consideration of EI's analysis. In light of evidence about substantive differences between the JV data and the original dataset, the JV data involves an irrelevant consideration for the purposes of the ACCC's decision and should be excluded from the competitive benchmarking exercise in order to protect the integrity and robustness of the current process.

2.1. Empirical tests draw into question the nature of the data

Empirical tests undertaken by Professor Breusch show that the JV data is so different from the original data — collected from 9 different providers, and relatively harmonious in terms of price-service attributes — that real doubts exist about the claim it reflects a true competitive arrangement. This is a fundamental consideration, because if the JV data is not reflective of a true competitive arrangement it should not be included as a relevant consideration in the benchmarking dataset.

A key challenge with respect to the JV data is testing the validity of the claim that it reflects a competitive arrangement. While there is no simple test for such claims, statistical analysis and tests can be deployed to support consideration of this matter. To this end, a reasonable hypothesis to assess is whether the JV data is similar in nature to the data which comprises the original dataset — that is, whether it exhibits similar levels of pricing (for given service attributes) to the contracts of other parties and has similar relationships to the same discernible drivers of that pricing.

To test the hypothesis it is necessary to consider:

- do the JV prices have the same relationship to the drivers of the original data; and
- does the JV data represent a distinct structural break from the original data used for the Draft FAD.

Do JV prices have the same relationship to drivers of the original data?

In the Domestic Transmission Capacity Services Benchmarking Model – Final Report dated 1 September 2015 (**EI Final Report**), EI identified capacity, distance and route type as the key drivers of price for deregulated transmission services. Indeed, capacity, distance and route type were correspondingly the primary variables in the draft price equations which were put forward by EI.[2] As previously noted by Telstra, this approach is commendable because it promotes transparency around

[2] Economic Insights (EI) *Final Report on the Domestic Transmission Capacity Services (DTCS) Benchmarking Model* (September 2015). Available at: www.accc.gov.au/system/files/Economic%20Insights%20final%20report%20-%20Domestic%20Transmission%20Capacity%20Services....pdf

the key factors associated with the price of any given service.[3] In contrast, the JV data involves little relationship between the attributes of a given service and its associated pricing.

To test the price drivers in the JV data, Professor Breusch estimated Model 1b using JV data for exempt routes, and found that only [C-i-C begins] [redacted] [C-i-C ends] was strongly statistically significant in terms of explaining price variations for this subsample. Furthermore [C-i-C begins] [redacted] [C-i-C ends].[4] Given Model 1c's similar overall construct, it is reasonable to assume that the same findings would exist in respect of this model.

Accordingly, the JV data is clearly differentiated from the original dataset as it does not share similar price drivers. In addition, it does not include drivers that should reasonably be expected to influence transmission prices.

Related to these shortcomings, Professor Breusch has made two further relevant observations about the characteristics of the JV data — namely: [C-i-C begins]

a) [redacted]

b) [redacted] [C-i-C ends]

This is a unique pricing structure compared to the data in the original dataset. The finding that distance in particular has no role is of concern because the cost of transmission services is widely accepted as being strongly related to distance, given the nature of the associated infrastructure. Combining distance-averaged prices (i.e. the JV data) with other distance-deaveraged data to determine a distance de-averaged benchmark price is problematic. If the JV data were to be included, some form of adjustment in respect of this issue would be required in order to avoid the introduction of inappropriate bias to the benchmarking process. Such an adjustment could be informed by reference to the distance-deaveraged data within the original dataset or via the use of dummy variables. It is noted that the NZCC, when encountering an opposite scenario (i.e. setting averaged prices using deaveraged price data) elected to adjust the problematic data (i.e. the deaveraged price data).[6]

Given the evidence above, the ACCC's preliminary acceptance of the JV data as being reflective of a competitive arrangement needs to be revisited.

Does the JV data have a structural break from the original data?

Building on the observations above, Professor Breusch also undertook statistical investigations into the possibility that the JV data represents a distinct 'structural break' from the original data used for the Draft FAD. Structural breaks are a recognised issue within regression analysis, and can arise where one subset of data is significantly different from another subset. Professor Breusch's investigations, and conclusions, were as follows:

---

[3] Telstra Corporation Limited *Submission to the Commission's Draft Report on the Final Access Determination for the Domestic Transmission Capacity Service*, October 2015. Available at: www.accc.gov.au/system/files/Telstra%20Submission%20to%20DTCS%20Draft%20FAD_9%20Oct%202015_public%20version.pdf

[4] Professor Trevor Breusch *Report on: Economic Insights 'Testing Further Specifications' for the 2015 DTCS FAD* (February 2016), page.8 (**Breusch 2016**)

[5] Ibid, page.7

[6] See the NZCC's Unbundled Bitstream Access Service Price Review (released 5/11/13), page 18, available at: www.comcom.govt.nz/regulated-industries/telecommunications/regulated-services/standard-terms-determinations/unbundled-bitstream-access-uba-services/unbundled-bitstream-access-uba/

1) Estimating Model 1b with the amended dataset, including relevant JV observations, but with a dummy variable to indicate the JV observations – this test found that there was a structural break between the original dataset and the JV data. The price implications of this structural break are identified in the redacted version of Professor Breusch's report, while the public version notes that the price drop is "*strongly statistically significant*".[7]

2) Estimating two versions of Model 1b, one using the original dataset and the other JV data, and comparing their joint results with estimates using the combined dataset, followed by application of a likelihood-ratio test – this test is an extension of the one above, but instead of testing the intercept while holding slope (i.e. parameter coefficients) constant it allows both the intercept constant and slope (i.e. parameter coefficients) to vary. Professor Breusch again found that there was a structural break between the original dataset and the JV data, with the differential fit between each subset meaning there "*is an overwhelming rejection of the hypothesis that the data comes from the same population, with statistical significance well beyond any conventional level*".[8]

Professor Breusch's finding that there is a structural break between the original data set and the JV data means the hypothesis that the JV data is similar in nature to the data which comprises the original dataset should be rejected, and undermines any claim that the JV data is reflective of a true competitive arrangement (which is a fundamental requirement for it to be included in the data set to enable a competitive benchmarking exercise).

Failure to recognise and address the structural break identified by Professor Breusch would adversely impact the integrity of the current benchmarking process. This is because the structural break dilutes the relationship between the dependent variable (i.e. price) and identified explanatory parameters, as shown in Table 1 below. This is effectively a form of bias, and when the revised coefficients are carried forward to price equations they embed the structural disconnect, resulting (among other things) in price reductions which are greater than they should be.[9] This issue is discussed further in section 2.3 below.

Table 1: Effect of JV data on coefficient values for key parameters, base case Random Effects model

Parameter	Coefficient values for Model A1b in EI's Further Consultation Report Exclusive of JV data	Coefficient values for Model 1b in EI's Further Consultation Report Inclusive of JV data
Constant	4.65796	4.63204
log capacity	0.49239	0.46012
log distance	0.09745	0.04450
0.5 (log capacity) ^{2}	-0.03527	-0.03030
0.5 (log distance)^2	0.01319	0.02421
(log capacity) (log distance)	-0.00367	-0.0405
route class 2 (Metro)	0.17682	0.08669
route class 3 (Regional)	0.31568	0.23657

Sources: Table A.1 and Table 2.1 EI's Further Consultation Report

[7] Breusch 2016, page.8
[8] Ibid, page.8
[9] The inclusion of non-linear forms and interaction terms among key parameters complicates the ability to gauge the effect of the depicted changes across all various service types, but the general shift downwards as a result of including the JV data is readily apparent.

2.2. Absence of price consistency with respect to other Optus transmission services

A further test of the claim that the JV data is reflective of a competitive arrangement is to check the level of consistency or otherwise between the pricing of these services and the pricing of Optus' non-JV transmission (i.e. DTCS) services.

Market intelligence indicates that Optus typically sells its (non-JV) services at a premium to the pricing of other providers, suggesting Optus' prices could be above the average of the original dataset. [C-i-C begins] [redacted] [C-i-C ends] heightens doubt about the claim that the JV data reflects a true competitive arrangement. Clearly there are other considerations at play in respect of the JV services which have influenced their pricing.

While public details on the scope of the JV arrangement between Optus and VHA are limited, the information which is available suggests the arrangement involves mobile tower co-builds and reciprocal access to existing mobile tower facilities.[10] Intuitively, it is likely that backhaul transmission for VHA equipment on Optus-owned towers is part of the arrangement. Telstra recognises that bundled infrastructure and service swaps of this type can be part of a competitive marketplace, but this does not mean individual parts of the deal can be excised for inclusion in a competitive benchmarking exercise. Indeed, the presence of these other non-price components means other market participants cannot possibly attain commercial arrangements which are equivalent to the JV prices. These observations support the view that the JV data does not represent a true competitive arrangement.

In light of the various concerns identified with the JV data, and given the confidentiality restrictions preventing other participants in this process from further enquiry, Telstra questions whether the JV data is just one part of a broader agreement between Optus and VHA.

2.3. Unreasonable price outcomes

Inclusion of the JV data results in price outcomes that are unreasonable. This result is not readily apparent through reference to EI's Further Consultation Report though, as explained by Professor Breusch:

> *Further understanding of the impact of including the JV data can be obtained by comparing predicted prices between models excluding or including the JV data in estimation, provided that comparison is made for the same set of services. That comparison is not possible between Tables A.4 and 2.5 of EI Further report, where the services used for prediction vary to correspond with the services used for estimation*.[11]

Using the data available to experts, Professor Breusch found:

> *Taking Model 1b as the central case, the average predicted price for all 6,767 exempt services not in the JV data falls from $1,207 in Table A.4 to $1,110 (8.4 per cent lower) while for all 11,480 declared services not in the JV data it falls from $834 to $762 (9.0 per cent lower). Using Model 1c, the average predicted price for the exempt services falls from*

[10] For example see www.itnews.com.au/news/optus-vodafone-to-build-500-joint-sites-299217 and www.smh.com.au/business/vodafone-optus-unveil-mobile-joint-venture-20120503-1y0nm.html

[11] Breusch 2016, page.9

$1,224 in Table A.4 to $1,134 (7.6 per cent lower) while for the declared services it falls from $865 to $807 (6.9 per cent lower).[12]

Given the purpose of benchmarking is to replicate average competitive pricing such outcomes are unreasonable, overshooting the price levels observed in both competitive and declared areas. Indeed, were such pricing to be adopted it would significantly diminish the incentive for ongoing investment in transmission infrastructure.

[12] Ibid

03 Modelling of 2 Mbps services should be dismissed

The further modelling focussed on 2 Mbps services should be dismissed. Telstra is concerned that the basis for these investigations is largely flawed, irrespective of the GST error which affected the original dataset.

Importantly, analysis by Professor Breusch reveals that the 2 Mbps services are no different structurally than many other service types within the dataset. This brings into question why the 2 Mbps services should be treated differently.

The investigations in relation to 2 Mbps services appear to be made without any statistical, economic or internally consistent basis. It is therefore difficult to understand how the models associated with these investigations promote transparency and robustness, noting they introduce new complexity.

The incidence of numerous errors in the work of EI also means that the specific implications of each investigation are not necessarily what is reported by EI, and in fact remain unknown.

3.1. GST error clouds the further modelling

The revelation that there was a GST-related error in the original dataset — in the form of inconsistent treatment between service providers — significantly clouds the further modelling. Indeed, it is not clear why the further investigations proceeded once the error was corrected.

The ACCC, in their Further Consultation, state:

> *After correcting for the treatment of GST, the predicted prices using the draft FAD model are lower than the predicted prices using the 2012 DTCS FAD model for all segments of the market. This corrects the issues raised by a number of stakeholders that the 2015 draft FAD model results in an increase in regulated prices from the 2012 FAD model for some segments of the market.*[13]

Meanwhile EI's Further Consultation Report states:

> *Optus and CEG have raised concerns about the predictive ability of the preferred econometric pricing models developed in our final report, for services of 2 Mbps, or thereabouts.*[14]

It would appear that the concerns of Optus and CEG were resolved, or at least largely resolved, as a result of the GST error being corrected. Accordingly, the reason for — and value of — the further modelling is unclear.

3.2. The basis of the 2 Mbps investigations is not relevant

In addition to correction of the GST error, the investigations into 2 Mbps services — Models 4, 5 and 6 in EI's Further Consultation Report — are largely motivated by a consideration which is not relevant to the benchmarking task, namely prices which currently exist for declared transmission services. The

[13] ACCC *Public Inquiry to make a Final Access Determination for the Domestic Transmission Capacity Service – Further consultation paper* (2015) page.11. Available at: www.accc.gov.au/system/files/DTCS%20FAD%20further%20consultation%20paper.pdf

[14] Economic Insights (EI) *Domestic Transmission Capacity Services Benchmarking Model: Testing Further Specifications* (January 2016), page.37. Available at: www.accc.gov.au/system/files/Economic%20Insights%20DTCS%20Benchmarking%20Model%20-%20additional%20advice%20-%20public%20version%20-%20corrected%20as%20at%2018%20January%202016.pdf

benchmarking process is based upon taking current prices for exempt transmission services and transposing these through the use of regression analysis to set prices (via a price formula) for declared transmission services. As such, the prices which currently exist for declared transmission services are clearly outside the scope of the benchmarking exercise.

It is notable that the complaint about 2 Mbps outcomes (i.e. some incidence of regulated prices exceeding current market agreed prices) is in fact reflective of behaviour which the regulatory framework protects, and indeed seeks to foster — commercial negotiations that promote the interests of end users. These complaints are based on historic transmission service arrangements that did not differentiate between exempt and declared services. While it is appropriate for exempt services within this bundle to be captured in the benchmarking exercise, the same cannot be said for declared services. As observed by Professor Breusch:

> *It is not the intention in benchmarking that the very best discounts that have been available to the largest customers should become the regulated prices specified by the FAD. For that reason the whole motivation for Chapter 4 (and much else in the EI Further report) is derived from a misunderstanding.*[15]

3.3. Models 4 and 5 could impact process integrity

Telstra has substantive concerns about the complaints raised by Optus and CEG in relation to the predictive ability of EI's preferred models for 2 Mbps services and considers that those complaints should be dismissed.

Discussion of the 2 Mbps investigations in this response is limited to Models 4 and 5, noting EI chose to make no substantive comments on Model 6 in their concluding discussion — Model 4 excludes services less than 2.5 Mbps from the dataset and makes a separate estimation for these, while Model 5 includes an indicator or dummy variable for services less than 2.5 Mbps.

Because each of these models isolate 2 Mbps services for special treatment they have the potential to impact the integrity of the current benchmarking process. We also note that the application of each model is characterised by numerous errors.

The 2Mbps investigations are inappropriate

The construct of the current benchmarking exercise is clear — price data is collected for exempt services, with regression analysis undertaken to determine a price equation which can then be used to calculate the price for a declared service, given its service attributes.

Inevitably there will be variation in the price-service nexus across the population of exempt services, noting these data points come from multiple parties and pertain to hundreds of supply contracts negotiated over a broad span of time — it is the role of the regression framework to cut through this nexus, and statistically identify the role of observed service attributes in overall price outcomes. Given the holistic nature of the regression framework, it is not appropriate carve out any specific segment of services for special treatment unless there are clear underlying reasons for doing so (i.e. the infrastructure in question is a submarine cable). As observed by Professor Breusch, such an approach results in tradeoffs elsewhere meaning the interests of one stakeholder group are advanced at the expense of other stakeholder groups:

[15] Breusch 2016, page.13

> *... excluding the 2Mbps services from the fitted model and using the sample average for them as a simple price predictor, as in Model 4, does yield lower price predictions for 2Mbps services. However, as EI observe, while treating these services differently might predict lower prices for them,* ***it does so at the expense of higher prices for other services****.*[16](emphasis added)

Because of the tradeoffs it involves, the cherry picking of any benchmarking exercise through dataset segmentation weakens the integrity of the benchmarking process. A key risk in this scenario is that the prices resulting from any carry-forward of the 2 Mbps specifications are below cost, adversely impacting future infrastructure investments. Furthermore, inappropriately responding to one set of stakeholder concerns opens the door for other stakeholders to come forward and cherry pick their own concerns. Such practices are not consistent with a benchmarking process based on integrity, transparency and robustness and, in delivering outcomes in the long term interests of end users. On this point Professor Breusch has observed:

> *The isolation of one category of service (low-capacity, short-distance, metro) in which the stakeholder has a special concern will invite other stakeholders to indicate particular segments of the market where special treatment might be more favourable to them.*[17]

2 Mbps services are not a special case

2 Mbps services are not a special case — or an example of a structural break — warranting specific attention. As a result, there is little basis for Model 5, with Professor Breusch observing:

> *There is nothing unusual in the finding that the 2 Mbps services deviate from the fit of the model.*[18]

As noted above, it is natural for there to be variation in the price-service nexus across the population of all exempt services. Indeed, if there was little-to-no variation in this nexus the task of identifying a suitable regression framework would be straightforward, and the investigation of multiple alternative specifications — as has been the case in the current process — would not be required. Thus, the reason the hypothesis investigated by EI is flawed is because deviations in fit are to be expected.

This position is reinforced by Professor Breusch's observation that including a dummy or indicator variable for other given cohorts of services would also suggest the presence of statistical differences (or a structural break):

> *If the same approach of adding an indicator variable to Model 1b (as done in Model 5b) is taken with other groups of services, then similarly large and statistically significant deviations will be found. I will use Model 1b for illustration, not as an endorsement of that model but as the middle case of EI's three model variants. With 200 Mbps services indicated, the coefficient is* [C-i-C begins] [redacted] [C-i-C ends], *showing that 200 Mbps services are also priced lower than the model would suggest, to an extent and with similar statistical significance to what is seen with 2Mbps. As dramatic example in the other direction, the outcome for services in the 150-155 Mbps range is a coefficient of* [C-i-C begins] [redacted] [C-i-C ends]*. These services are on average priced higher than the model, to a much larger extent than the 2 Mbps services are priced lower and with a deviation that is, if anything, even more statistically significant. Undoubtedly, the buyers of*

[16] Breusch 2016, page.11
[17] Ibid page.11
[18] Ibid page.12

> *100 Mbps services and the sellers of 150-155 Mbps services would also prefer their products to be priced separately from the model.*[19]

While the incidence of structural breaks can be a substantive issue for benchmarking analyses — as noted by Telstra in its discussion of the JV data (section 2.1) — this issue does not affect 2 Mbps services. The claims in this regard could and should be dismissed by the ACCC through the use of statistical analysis.

3.4. Arbitrary break points

A significant downside of segmenting the dataset — as Models 4 and 5 do — is the resulting introduction of arbitrary break points to any subsequently derived price equation. Arbitrary break points, which involve price discontinuities at the incidence of the chosen break 'point', are undesirable for several reasons.

Foremost, service providers do not build unwarranted price breaks into their menu of service offerings, and inevitably end users would not understand why regulated pricing introduced such discontinuities, artificially and inappropriately shaping their decision making. As observed by Professor Breusch:

> *Models 4 and 5 ... introduce an arbitrary break point between two groups of services and a discontinuity in pricing between the two groups. EI clearly understand ... this concern, with their illustration of a price jump from $341 to $431 for a miniscule change in specifications*.[20]

Reasonably, any move towards the use of break points will also give rise to debates about where the break is made, and why. As observed by Professor Breusch:

> *The definition of precisely which services are singled out for special treatment is also arbitrary: Why 2.5Mbps as the capacity break point? Why 5km as the distance break point? Is it just metro routes or all routes meeting the criteria?*[21]

Furthermore, any incidence of break points represents the introduction of complexity, which in turn detracts from both robustness and transparency.

3.5. Inevitable errors due to increased complexity

The increased level of complexity introduced into the current process by the investigations into 2 Mbps services is clearly evident in the fact these investigations contain numerous errors. These errors complicate the task of responding to the Further Consultation because they reduce transparency and create uncertainty. For example, respondents cannot be certain that the implications of the associated models are not as they are reported. Key errors in EI's Further Consultation Report, detailed further in Professor Breusch's report, include:

- The separate prediction formula in Model 4 for services less than 2.5 Mbps is described as encompassing the average for exempt "short metro 2 Mbps services", whereas it appears all exempt 2 Mbps services are used, whether metro or regional. Similarly, the frame for the declared services to be predicted is described as "short, low capacity, metro services" but the prediction is also applied to 2Mbps services on declared regional routes;
- The 2Mbps tail-end services in Model 4 are predicted from the regression model established for predicting the non-2Mbps services, not from the average of the exempt 2Mbps services. This

[19] Ibid, page.12
[20] Ibid, page.12
[21] Ibid, page.12

error results in the average predicted prices for tail-end services under Model 4 being considerably higher than what would otherwise be the case; and

- When Model 5 is applied, the dummy variable that indicates 2Mbps services is only applied to 2Mbps metro and regional services while 2Mbps tail-end services are predicted with the dummy variable suppressed, as if they were non-2Mbps services. Similar to the issue above, this error results in the average predicted prices for tail-end services (under Model 5) being higher than what would otherwise be the case.

04 Additional issues

Further to the substantive issues of the JV data and modelling of 2 Mbps services, the Further Consultation also includes a number of additional issues. These are outliers, price ceilings and stochastic frontier analysis.

These issues are discussed below, along with a key concern Telstra raised in its submission to the Draft FAD — the adoption of (the then) Model 2 as opposed to (the then) Model 3, and the associated throughput variables.

4.1. Outliers should be retained

Telstra agrees with EI that the supposed outliers should be retained. This is further supported by Professor Breusch's report. The main reasons for this are difficulties in accurately identifying inappropriate 'influential observations' and the fact these could, in any event, actually be relevant to the current benchmarking process. Section 5 of Professor Breusch's report discusses these issues in detail.

We also note EI's observation that:

> *... there does not appear to be any particular benefits to removing the most highly influential observations.*[22]

4.2. Price ceilings are not practical

The question of whether commercial pricing should be considered as a price ceiling is raised in the Further Consultation without any detailed discussion, and should be dismissed including for the reason that it is inconsistent with the established legislative framework set out in Part XIC of the CCA.

Implicitly the price ceiling question is related to complaints made about the predictive ability of price models within the Draft FAD. As noted earlier, this complaint was seemingly resolved (or at least largely resolved) through correction of the GST error. On this basis, the rationale for the question is not clear. Furthermore, there are a range of practical considerations which have not been considered. For example:

- How would price ceilings interface with the established legislative framework, where commercial agreements have precedence over regulatory determinations?
- How would price ceilings be effected given the dynamic nature of commercial arrangements? Would they be provider-specific or industry wide? Would they be route-specific or have a more general applicability?
- What impact would the use of price ceilings have for contract formation? Would these impacts negatively affect incentives for infrastructure investment?

Based on the matters above, Telstra is strongly of the view that the ACCC should not consider the use of commercial pricing as a price ceiling.

4.3. Stochastic Frontier Analysis is not suitable

The ACCC should not adopt the stochastic frontier analysis (**SFA**) method, and should retain the random effects model as the benchmarking model for the DTCS FAD. As observed by Professor Breusch:

[22] Economic Insights (EI) *Domestic Transmission Capacity Services Benchmarking Model: Testing Further Specifications* (18 January 2016), page. 22

> *The unsuitability of SFA for benchmarking in the DTCS was effectively dealt with in EI Final report and my response to that report, so it is surprising that the method should resurface here. The main arguments against this method for benchmarking were identified earlier as follows:*
>
> *(i) the cross-sectional SFA model discussed and apparently tested by the expert who made this recommendation did not appear to be consistent with the economic arguments it put forward, which tended to suggest that due to widespread bundling practices, some of the providers may retain some degree of market power. (EI Final report, p.88);*
>
> *...*
>
> *(iii) …stochastic frontier models proposed by other experts do not answer the fundamental question of benchmarking against average competitive pricing. (Breusch on Final, paragraph 3.5).*[23]

The ACCC's questions about applying a premium to frontier prices, and how this might be calculated, implicitly reflect the following observation made by EI:

> *A problem with the SFA approach in this context is that it would forecast lower prices based on an efficiency interpretation of the unexplained variation in the data, but given the scope of this variation, a premium would then need to be added to ensure prices were sufficient to finance investment and allow for estimation uncertainty. But it is not clear what the premium should be or how to calculate it.*[24]

Telstra continues to hold the view that the SFA approach is not suitable for the current context. EI has observed that:

> *Model 7 [the SFA specification] provides forecast for average prices over all deregulated routes that are substantially less than actual prices — between 44 and 49 per cent lower.*[25]

Accordingly the premium that is necessary for regulated prices align with average prices observed on competitive, deregulated routes is 49 per cent. Anything lower would mean regulated prices were lower than deregulated prices, an outcome which would be unsustainable over time and undermine incentives for infrastructure investment.

4.4. Substantive earlier concerns have not been addressed

Both of the further consultation papers devote significant attention to representations Optus and VHA made in their responses to the Draft FAD, but do not address the substantive concern Telstra raised about the ACCC's adoption of (the then) Model 2 instead of (the then) Model 3.[26] These concerns continue to exist, and are central to the outcome of the current FAD process.

The essence of Telstra's concerns is that the ACCC's rationale for adopting Model 2 is flawed and inconsistent with EI's analysis. Central to this discussion is the inclusion of contentious throughput

[23] Breusch 2016, page.13
[24] Economic Insights (EI) *Final Report on the Domestic Transmission Capacity Services (DTCS) Benchmarking Model* (September 2015), page.44
[25] Economic Insights (EI) *Domestic Transmission Capacity Services Benchmarking Model: Testing Further Specifications* (January 2016), page.75
[26] In EI's Further Consultation Report (2015), these models are referred to as 1b and 1c respectively.

variables in Model 2, which instead of adjusting for the diseconomies of scale that characterise exempt routes (as asserted) actually accentuated these.

In results within EI's Further Consultation Report, the ESA throughput variable continues to exhibit a positive sign, contradicting the reasoning advanced for inclusion of the throughput variables. Because the throughput variables have contradictory signs, they offset one another to some extent with the net effect depending on the two averages with which they are weighted. This is an unsatisfactory outcome, as ESA throughput is clearly meaningless as an indicator of scale.

In the interests of obtaining a robust and transparent price equation (noting throughput is not a visible measure), the throughput variables should be dispensed with. Adoption of the c specification, in preference to the b specification, would also be consistent with EI's revealed preference for the c specification in their Further Consultation Report.

05 Another draft FAD or a FAD?

The Further Consultation does not provide any indication regarding next steps in the FAD process — in particular, whether there will be a second draft decision or whether the ACCC will instead proceed straight to a FAD.

Telstra believes Model A1c is the most appropriate specification developed and should be adopted the basis for a FAD given the available evidence. Such a FAD could take effect following allowance of an 8 week implementation period, so that access providers can convert the FAD pricing formula into a set of rate tables that are suitable for billing systems and to minimise potential billing adjustments. Following the last FAD issued in 2012, a significant period of time was required by Telstra to convert the formula into tables, create the price tables in billing systems before updating and publishing the rate card. Telstra liaised with the ACCC during this process to ensure the ACCC was comfortable with the implementation.

In the event the ACCC elects to adopt a different approach, it is likely that further consultation would be required. This is because the price impacts of such an outcome are uncertain, due to both the multitude of options investigated and the need to ensure no further errors are contained in the preferred model.

ATTACHMENT A: Response to questions

The table below sets out Telstra's responses to questions within the Further Consultation.

Question	Answer
1. Should the additional pricing information be included in the 2015 benchmarking dataset? Please provide reasons why the data should or should not be included.	No, because there is considerable evidence that this data is not reflective of a true competitive arrangement. Chapter 2 of this submission details this evidence.
2. Which approach, if any, should the ACCC adopt in dealing with outliers in the benchmarking dataset? Please provide detailed reasoning.	Telstra agrees with EI that the supposed outliers should be retained. This is because there are difficulties in accurately identifying inappropriate 'influential observations' and the fact these could, in any event, actually be relevant to the current benchmarking process. Refer to section 4.1 of this submission for further discussion of this quesion.
3. Which options, if any, should the ACCC adopt in addressing the 2 Mbps pricing issues? Please provide details of why these options are preferable	The ACCC should not adopt any of the options provided for addressing the 2 Mbps pricing issues. It appears that the issues of concern were resolved, or at least largely resolved, as a result of the GST error being corrected. Furthermore, there are a range of reasons to dismiss the additional modelling undertaken. Chapter 3 of this submission details these reasons.
4. Should the ACCC consider using commercial pricing as a price ceiling?	No. The rationale for this suggestion is not clear. It is also unclear how price ceilings could be effected given the dynamic nature of commercial arrangements and how such a provision would interface with the established legislative hierarchy framework in Part XIC of the CCA. Refer to section 4.2 of this submission for further discussion of this question.
5. Should the ACCC adopt the SFA method instead of the random effects model used as the benchmarking model in the DTCS FAD draft decision? Please provide detailed reasons including whether a premium should be applied to predict frontier prices and how such a premium would be calculated.	No, because the SFA is unsuitable for use in a competitive benchmarking process. Refer to section 4.3 of this submission for further discussion of this question.