

Unbundled Bitstream Access Service Price Review

Decision [2013] NZCC 20

Final determination to amend the price payable for the regulated service Chorus' unbundled bitstream access made under s 30R of the Telecommunications Act 2001.

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CONTENTS

ACRONYMS AND ABBREVIATIONS	5
EXECUTIVE SUMMARY	6
COST-BASED PRICES FOR THE UBA SERVICES	7
<i>Determining the benchmark set for the Basic UBA service.....</i>	<i>7</i>
<i>Selecting a price point for the Basic UBA service.....</i>	<i>7</i>
<i>Enhanced UBA variants.....</i>	<i>8</i>
<i>Core charges</i>	<i>9</i>
INTRODUCTION	10
OVERVIEW OF THE UBA PRICE REVIEW PROCESS.....	10
STRUCTURE OF THE REPORT	13
STATUTORY FRAMEWORK.....	15
<i>Scope of this determination.....</i>	<i>15</i>
OUR APPROACH TO DETERMINING A PRICE FOR THE UBA SERVICE	16
<i>We must benchmark against prices in comparable countries that use a forward-looking, cost-based pricing methodology</i>	<i>16</i>
<i>We must choose a price for the UBA service within the plausible range derived from benchmarking.....</i>	<i>17</i>
<i>We must determine a geographically averaged price.....</i>	<i>18</i>
<i>We must ensure there is no double-recovery of costs in relation to regulated services.....</i>	<i>18</i>
SECTION 18 CONSIDERATIONS.....	19
<i>Our decision must give effect to the s 18 purpose.....</i>	<i>19</i>
<i>A forward-looking, cost-based price is likely to best give effect to s 18</i>	<i>20</i>
<i>How we have interpreted the addition of s 18(2A) in the 2011 legislative amendments.....</i>	<i>20</i>
<i>Relativity.....</i>	<i>21</i>
<i>Parties may seek a price review of this decision in accordance with the final pricing principle</i>	<i>22</i>
<i>Impact of the regulatory review of the Telecommunications Act 2001 on our determination.....</i>	<i>22</i>
DETERMINING THE BENCHMARK SET WITHIN THE IPP.....	23
FORWARD-LOOKING, COST-BASED PRICING METHODOLOGY	24
<i>Inclusion of countries that use incumbent TSLRIC models to set cost-based prices.....</i>	<i>25</i>
<i>Switzerland</i>	<i>26</i>
<i>Greece.....</i>	<i>27</i>
<i>Exclusion of countries that set cost-based prices using a FDC methodology.....</i>	<i>28</i>
<i>Countries that meet our forward-looking cost-based pricing criteria</i>	<i>31</i>
SERVICE CHARACTERISTICS	31
<i>Location of the handover point.....</i>	<i>32</i>
<i>Speed of the service</i>	<i>34</i>
<i>Conclusion on application of service characteristics.....</i>	<i>35</i>
COMPARABLE COUNTRIES	35
<i>Line density as a cost driver.....</i>	<i>36</i>
<i>Impact of migration from copper</i>	<i>38</i>
CONCLUSION ON THE BENCHMARK SET	40
PRICE POINT SELECTION FOR THE BASIC UBA SERVICE.....	42
<i>A movement above the median price point is appropriate for differences in comparability</i>	<i>43</i>
<i>Section 18 considerations</i>	<i>46</i>
<i>We do not adjust the price any further to account for migration away from copper</i>	<i>50</i>
<i>Our decision on the price point for the two country benchmark set</i>	<i>51</i>
OUR CROSS-CHECK USING AN EXPANDED BENCHMARK SET	52
<i>We expanded the core benchmark set by relaxing the criterion for the location of the handover point.....</i>	<i>53</i>
<i>Section 18 considerations</i>	<i>55</i>
<i>Decision on price point.....</i>	<i>56</i>
<i>Conclusion on the cross-check approach to select a price point for the Basic UBA service</i>	<i>56</i>
CONCLUSION ON THE PRICE POINT SELECTION FOR THE BASIC UBA SERVICE	57

RELATIVITY.....	58
DETERMINING A PRICE FOR THE ENHANCED UBA SERVICES	61
<i>Our approach to determining prices for the EUBA variants</i>	62
DETERMINING PRICES FOR UBA NON-RECURRING CHARGES	64
<i>Adjustments to connection and transfer charges</i>	64
<i>Price point selection.....</i>	64
<i>Clause 4A of Schedule 2 to the UBA STD.....</i>	65
CONNECTION CHARGES	65
<i>Wiring and modem installation</i>	66
<i>Connection charge applicable when connecting multiple services.....</i>	66
TRANSFER CHARGES.....	67
OTHER CORE CHARGES.....	67
<i>UBA service relinquishment</i>	68
<i>UBA service move address</i>	68
<i>Data interleaving toggle</i>	68
<i>Handover space rental charge</i>	68
DOUBLE RECOVERY	69
ATTACHMENT A: UBA SERVICE DESCRIPTION	71
ATTACHMENT B: SUBMISSIONS ON FORWARD-LOOKING COST METHODS	73
ATTACHMENT C: SPATIAL DENSITY ADJUSTMENT	74
<i>Econometric approach.....</i>	75
<i>Ratio benchmarking approach.....</i>	76
<i>Submissions on density adjustment.....</i>	77
ATTACHMENT D: CEG ADJUSTMENT FOR FIBRE MIGRATION	79
ATTACHMENT E: CURRENCY CONVERSION.....	80
ATTACHMENT F: CORE CHARGES	82
NEW CONNECTION COMPONENTS	82
<i>New connection without site visit (remote connection)</i>	82
<i>New connection without site visit (but exchange/cabinet visit required).....</i>	82
<i>New connection (with site visit).....</i>	83
TRANSFER COMPONENTS	84
<i>Transfer between UBA services or access seekers, with no port change required</i>	84
<i>Transfer between UBA services or access seekers, with port change required</i>	84
OTHER CHARGES	85
<i>Data interleaving toggle.....</i>	85
ATTACHMENT G: SCHEDULE 2 OF THE UBA STD.....	86

Acronyms and abbreviations

Act	Telecommunications Act 2001
Amendment Act	Telecommunications (TSO, Broadband, and Other Matters) Amendment Act 2011
DSL	digital subscriber line
DSLAM	digital subscriber line access multiplexer
FPP	final pricing principle
FTTx	fibre to the home or fibre to the node
IPP	initial pricing principle
LFC	local fibre company
LOI	ladder of investment
LTBEU	long-term benefit of end-users
MTAS	mobile termination access service
PDN	public data network
POTS	plain old telephone service
PPP	purchasing power parity
STD	standard terms determination
TSLRIC	total service long-run incremental cost
UBA	unbundled bitstream access
UCLFS	unbundled copper low frequency service
UCLL	unbundled copper local loop
UFB	ultra-fast broadband

Executive summary

1. This determination sets out our final decision regarding the prices payable for Chorus' unbundled bitstream access (**UBA**) service.
2. This determination is required by s 77 of the Telecommunications (TSO, Broadband, and Other Matters) Amendment Act 2011 (**Amendment Act**). The Amendment Act changed the initial pricing principle (**IPP**) from a retail-minus based price to a forward-looking, cost-based price. The new forward-looking, cost-based prices set by this review will come into effect on 1 December 2014, and replace the current retail-minus based prices.
3. This price review is limited to making only those changes necessary to implement the new IPP, ie, to implement the forward-looking, cost-based benchmarking approach to UBA pricing. The IPP states that the price of the UBA service must be determined as follows:¹

The price for the designated access service entitled Chorus's unbundled copper local loop network, plus benchmarking additional costs incurred in providing the unbundled bitstream access service against prices in comparable countries that use a forward-looking cost-based pricing method

4. The price for the designated access service *Chorus's unbundled copper local loop network*² is set under the unbundled copper local loop (**UCLL**) standard terms determination (the **UCLL STD**).³ This price was updated on 3 December 2012 to be \$23.52.⁴
5. We are required to determine the "additional costs incurred in providing the unbundled bitstream access service" by benchmarking against the prices charged for the additional costs in comparable countries that use a forward-looking cost-based pricing methodology. We note that under the IPP for the UBA service, we are not limited to benchmarking against strictly "similar services".
6. However, given we are benchmarking the "additional costs incurred" in providing the UBA service, we consider it appropriate to consider the similarity of the bitstream services in the countries within our benchmark set to the UBA service, as differences in those services may mean that costs are different from the UBA service as described in the UBA STD.

¹ Schedule 1 of the Telecommunications Act 2001, Chorus's unbundled bitstream access, Initial pricing principle applicable after the expiry of 3 years from separation day.

² Schedule 1 of the Telecommunications Act.

³ *Standard Terms Determination for the designated service Chorus's unbundled copper local loop* (Commerce Commission Decision 609, 7 November 2007).

⁴ *Final determination on the benchmarking review for the unbundled copper local loop service* (Commerce Commission, Decision NZCC 37, 3 December 2012).

Cost-based prices for the UBA services

7. We have determined the following monthly cost-based prices for the Basic UBA service and the Enhanced UBA variants:

UBA service	UCLL	UBA additional costs	Total monthly price
Basic UBA	23.52	10.92	34.44
EUBA 40	23.52	13.25	36.77
EUBA 90	23.52	13.82	37.34
EUBA 180	23.52	14.85	38.37

Determining the benchmark set for the Basic UBA service

8. We have examined the results from two alternative sets of benchmark countries in arriving at the price for the additional costs of the Basic UBA service as required by the IPP.
9. Our benchmark set comprises Denmark and Sweden. Both countries meet our IPP criteria, including close similarity with New Zealand in regard to the handover point. Accordingly, these countries provide the most robust estimates of the forward-looking costs for the Basic UBA service.
10. Submitters have argued however that a benchmark set comprising only two countries does not provide a basis for assessment of the uncertainty regarding the price we are setting. Since we conclude that there are higher costs in under-estimating the price than over-estimating the price (ie, asymmetric costs) an assessment of the margin of error in our setting of the price is highly relevant. To check the results of our analysis of the two country benchmark prices, we have examined the results of analysis based on a benchmark set where we relax the handover point criterion (as advocated by some submitters). That results in a five country benchmark set including Belgium, Greece, and Switzerland in addition to Denmark and Sweden.⁵

Selecting a price point for the Basic UBA service

11. Given the size of the two country benchmark set, we considered the following factors in selecting a price for the Basic UBA service:

⁵ The differences in handover points are expected to not result in large price differences but nevertheless the differences do introduce uncertainty.

- 11.1 Differences in comparability between the benchmark countries and New Zealand
- 11.2 Asymmetric costs.
12. Having considered the comparability of the countries in our two country benchmark set, our view is that a price point above the median is appropriate because Sweden is more comparable to New Zealand.
13. We also consider that a price point above the median is appropriate to minimise the risk to investment and to avoid the dynamic efficiency losses that could arise from incorrectly setting a price below the forward-looking cost for the UBA service. This has been considered recognising that these benefits need to be balanced with the costs to end-users of raising the price above the median.
14. As a result of the considerations above, our view is that a price point at the top of the range for the two country benchmark set is appropriate for the Basic UBA service. Accordingly, we have set a monthly cost-based price for the additional costs of providing the Basic UBA service of \$10.92.
15. We have also examined the results of applying to the five country benchmark set our standard approach to benchmark price setting. Having taken into account s 18 considerations, our approach results in a price point selection at the 75th percentile for asymmetric costs. This results in a price that is the same as the price we derive from the two country benchmark set. Thus we conclude we have a robust result.
16. We have also considered the relativity between the prices of the UBA and UCLL services. We are satisfied that the forward-looking cost for the Basic UBA service is likely to provide incentives to unbundle where efficient to do so, and therefore consider that we do not need a further adjustment to the price of the Basic UBA service to address relativity.
17. While we have made an adjustment for density differences in the two-country analysis, we have not accepted Chorus' proposed adjustments for density. These require significant assumptions and manipulation of data. Our view is that given the uncertainty of the assumptions, we are not convinced that the adjustments provide more reliable benchmarks. We have also not accepted Chorus' proposed adjustment for the migration away from copper. This adjustment idea may have some validity, but we do not know at this stage whether or how we would adapt a TSLRIC for this effect.

Enhanced UBA variants

18. We have also set cost-based prices for the Enhanced UBA variants. The Enhanced UBA variants offer a real time class of service (CoS) in addition to the best efforts Basic UBA service.
19. We have calculated the additional cost of the Enhanced UBA variants by calculating the percentage mark-up to provide a real time CoS in Belgium. To calculate the

additional cost of the Enhanced UBA variants we have calculated the percentage mark-up of the costs required to provide a real time CoS in addition to the costs of providing a best effort CoS for the Belgian bitstream service.

20. We have then applied the percentage mark-ups to the cost-based price for the Basic UBA service to set cost-based prices for the Enhanced UBA variants.

Core charges

21. We have also set new cost-based prices for the core one-off charges for the UBA service, which include connection and transfer charges.
22. The cost-based prices have been set in accordance with the new IPP for UBA—we have benchmarked the core charges against similar one-off charges in countries that have regulated bitstream services that meet our forward-looking cost methodology criteria.

Introduction

23. This document sets out our final decision regarding the monthly rental charges for Basic UBA (**BUBA**) service, the Enhanced UBA variants (**EUBA**), and the core charges for the UBA service.

Overview of the UBA price review process

24. This price review is required by s 77 of the Telecommunications (TSO, Broadband, and Other Matters) Amendment Act 2011 (**Amendment Act**). The Amendment Act changed the initial pricing principle (**IPP**) from a retail-minus based price to a forward-looking cost-based price. The new forward-looking cost-based prices set by this review will come into effect on 1 December 2014, and replaces the current retail-minus based prices.
25. This price review is limited to making only those changes necessary to implement the new IPP, ie, to implement the forward-looking cost-based benchmarking approach to UBA pricing. In applying the new IPP, we must benchmark the additional costs incurred in providing the unbundled bitstream access (**UBA**) service. The Telecommunications Act 2001 (Act) requires the Commission to use a benchmark of international regulated prices in comparable countries.
26. In July 2012, we published a discussion paper to explain our proposed approach to set the monthly rental charges for BUBA, EUBA and core charges for the UBA service (**discussion paper**).⁶ We proposed the following in relation to BUBA, EUBA and core charges, respectively:
- 26.1 In relation to the BUBA, we proposed that the approach to benchmarking involves assessing whether the countries set forward-looking cost-based prices, identifying services, or service components, similar to the UBA service, and identifying whether the countries are comparable. We also explained that:
- 26.1.1 where the benchmarked service includes the equivalent of the unbundled copper local loop (**UCLL**) in its cost, we proposed to deduct that component in order to determine the comparable additional costs of providing the UBA service;
- 26.1.2 the forward-looking cost-based price must also be geographically-averaged; and
- 26.1.3 we must consider the relativity between the UBA service and the UCLL service.

⁶ Commerce Commission, *Unbundled Bitstream Access Price Review Consultation – Proposed amendment to the Unbundled Bitstream Access Standard Terms Determination made under s30R of the Telecommunications Act 2001, as required by s77 of the Telecommunications (TSO, Broadband, and Other Matters) Amendment Act 2011*, (Commerce Commission, UBA discussion document), 26 July 2012.

- 26.2 In relation to EUBA, we proposed to first find benchmarks for the EUBA variants in accordance with the benchmarking criteria. Where comparable benchmarks are unavailable, we proposed to impute the additional costs with reference to other wholesale broadband services that include prioritisation;
- 26.3 In relation to the core charges for UBA services, we proposed to benchmark the charge against the cost of similar services in comparable countries. If benchmarking proves infeasible, we proposed to consider grandfathering the existing core charges.
27. Submissions on the discussion paper were received from interested parties on 24 August 2012, and cross-submissions were received on 7 September 2012.⁷ These submissions helped us to develop the approach in applying the new IPP and informed our draft decision.
28. On 3 December 2012, we published our draft decision for the UBA price review (**draft determination**).⁸ Our draft determination provided our preliminary view on the monthly prices for BUBA, EUBA and the core charges for the UBA service:
- 28.1 In relation to BUBA, our preliminary view was that Denmark and Sweden meet the criteria within the IPP framework. Our draft decision was the median would promote the objectives in s 18. The median, based on the two country benchmark set was \$8.93;
- 28.2 In relation to EUBA, our preliminary view was to set the prices for the variants based on the premium services in Sweden, which resulted in:
- 28.2.1 a monthly price for EUBA40 of \$9.35;
- 28.2.2 a monthly price for EUBA90 of \$9.88;
- 28.2.3 a monthly price for EUBA180 \$10.84; and
- 28.3 In relation to core charges for the UBA service, we used comparable core charges applied in Denmark and Sweden, which resulted in:
- 28.3.1 new service connections charge of \$174.02;
- 28.3.2 new transfer between services (with no port change) charge of \$15.17; and
- 28.3.3 new transfer between services (with port change) charge of \$74.60.

⁷ Submissions are available on the Commission's website at: <http://www.comcom.govt.nz/regulated-industries/telecommunications/standard-terms-determinations/unbundled-bitstream-access-service/section-30r-reviews-of-uba-std/uba-benchmarking-review/>

⁸ Commerce Commission, *Draft Determination to amend the price payable for the regulated service Chorus' unbundled bitstream access service made under s 30R of the Telecommunications Act 2001*, (Commerce Commission, UBA Draft Determination), 3 December 2012.

29. We also sought views on a number of unresolved issues identified in our draft decision:
- 29.1 the relativity between the prices of the UBA service and the UCLL service and the implications for investment in these services;
 - 29.2 whether there are asymmetric economic costs in setting the UBA price too high or too low; and
 - 29.3 the likely impact on incentives to invest in broadband services, whether over copper or fibre, and the effects on end-users.
30. We received submissions on our draft determination from interested parties on 1 February 2013, and cross-submissions were received on 1 March 2013.⁹ We have considered these submissions in drawing our conclusions on the UBA price review.
31. Following submissions, we held a UBA conference in June 2013.¹⁰ The key issues raised at the conference were:
- 31.1 The robustness of setting the forward-looking cost-based price for UBA using a two country benchmark set and a number of potential adjustments and amendments to provide additional robustness;
 - 31.2 The extent to which the Commission could relax the benchmarking criteria to include more countries in the benchmark set, and the trade-off between a larger benchmark set and the accuracy of the additional data points;
 - 31.3 The proposal to use the weighted average approach to speed point selection rather than selecting the lowest speed point as proposed in our draft decision.
 - 31.4 The impact of fibre on the migration from copper and the adjustments proposed by Chorus to reflect the potential impact;
 - 31.5 The application of s 18 of the Act;
 - 31.6 The relevant factors to the relativity considerations post the 2011 amendments for this price review, and how any new interpretation is justified by provisions within the Act; and
 - 31.7 Selecting a price point and the possibility that the price determined could fall outside the benchmark range.
32. At the conference, Commissioners also requested parties to submit their views on how to derive greater certainty from the benchmarking process. Chorus, Telecom and Vodafone provided a submission.¹¹

⁹ Submissions are available on the Commission's website.

¹⁰ The transcript of the conference, held on 12 to 13 June 2013, is available on the Commission's website.

33. On 13 August 2013, we published an update paper on the UBA price review in light of the submissions received and the conference (**the update paper**).¹² This paper outlined the Commission's views on:
- 33.1 an option of weighting individual benchmarks which are most comparable to New Zealand in deriving the most likely forward-looking costs of the UBA service;
 - 33.2 a proposed approach to deriving a plausible range of the forward-looking costs of the UBA service;
 - 33.3 the application of s18 to the UBA price review, and expressed the view that a price above the median may be appropriate to best gives, or is likely to best give, effect to the s 18 purpose; and
 - 33.4 updated the price points for Denmark and Sweden from our draft determination. The price points were updated due to updated prices in cost models, updated blended exchange rates and using the weighted average speed point. This resulted in an updated median for BUBA of \$9.91.
34. In parallel with the update paper, we also published advice that we have drawn on from Professor Ingo Vogelsang.¹³ We sought submissions only on the new views presented within the update paper and the paper by Professor Vogelsang. We received submissions on 3 September 2013.

Structure of the report

35. The structure of the report is as follows:
- 35.1 We firstly provide the statutory framework for the UBA price review. This includes the scope of this price review, our approach to determine the price for the UBA service and a discussion on section 18 considerations;
 - 35.2 This is followed by a discussion on how we determined the benchmark set in applying the new IPP;
 - 35.3 We then outline the price point selection for the Basic UBA service and our cross-check to determine whether the price point is robust; and

¹¹ Submissions post- conference is available on the Commission's website.

¹² Commerce Commission, *Unbundled bitstream access service price review - Update on matters relevant to the UBA price review*, (Commerce Commission, UBA update paper) 13 August 2013.

¹³ Professor Vogelsang, *What effect would different price point choices have on achieving the objectives mentioned in s 18, the promotion of competition for the long-term benefit of end-users, the efficiencies in the sector, and incentives to innovate that exist for, and the risks faced by investors in new telecommunications services that involve significant capital investment and that offer capabilities not available from established services?* (Paper prepared for the New Zealand Commerce Commission), 5 July 2013.

35.4 We finally explain how we determined the monthly prices for the EUBA variants and prices for the other core charges for the UBA service.

Statutory Framework

Scope of this determination

36. This determination sets out the Commission's decision on the prices to be charged for the regulated service *Chorus's unbundled bitstream access*, as set out in Subpart 1 of Part 2 of Schedule 1 of the Telecommunications Act 2001 (Act). The complete service description is set out in Attachment A to this determination.
37. The terms and conditions of service, and prices payable for the UBA services, are set out in the UBA STD.¹⁴
38. This determination is required by section 77 of the Amendment Act, which provides:

Review of standard terms determination for unbundled bitstream access service before expiry of 1 year from separation day

- (1) The Commission must make reasonable efforts to do the following before the expiry of 1 year from separation day:
- (a) review the standard terms determination for Chorus's unbundled bitstream access service under section 30R for the purpose of making any changes that may be necessary in order to implement the initial and final pricing principles applicable after the expiry of 3 years from separation day; and
 - (b) give public notice of the result of the review.
- (2) To avoid doubt, no variation of, addition to, or deletion of terms specified in the standard terms determination as a result of the Commission's review in accordance with subsection (1) may take effect before the expiry of 3 years from separation day.
39. The scope of this review is limited by s 76 of the Amendment Act, which prohibits the Commission from making other amendments to the UBA STD until 3 years from separation day:

Certain provisions of Part 2 and Schedule 3 of principal Act do not apply in relation to Chorus's unbundled bitstream access service

Despite section 71(2), the following provisions of the principal Act do not apply in relation to Chorus's unbundled bitstream access service for the period starting on separation day and ending 3 years after separation day:

- (a) section 30R (review of standard terms determination), except as provided in sections 73 and 77:
- (b) section 30V (application for residual terms determination):
- (c) section 59 (reconsideration of determination):

¹⁴ *Chorus' unbundled bitstream access service standard terms determination* (Commerce Commission Decision 611, 12 December 2007).

(d) clause 1(1) and (5) of Schedule 3 (Commission's investigation).

40. Accordingly, this determination is made under s 30R of the Act, and is limited to making those amendments necessary in order to implement the new IPP for the UBA service, to have effect from three years from separation day.¹⁵ Consequently, the amendments made by this determination are to have effect from 1 December 2014.

Our approach to determining a price for the UBA service

We must benchmark against prices in comparable countries that use a forward-looking, cost-based pricing methodology

41. The IPP states that the price of the UBA service must be determined as follows:¹⁶

The price for the designated access service entitled Chorus's unbundled copper local loop network, plus benchmarking additional costs incurred in providing the unbundled bitstream access service against prices in comparable countries that use a forward-looking cost-based pricing method

42. The price for the designated access service *Chorus's unbundled copper local loop network*¹⁷ is set under the UCLL standard terms determination (the **UCLL STD**).¹⁸ This price was updated on 3 December 2012 to be \$23.52.¹⁹ Following our determination of the UCLL price, we received a number of applications for a price review in accordance with s 42 of the Act.²⁰ Therefore, the UCLL price may change.

43. The Commission is required to determine the "additional costs incurred in providing the unbundled bitstream access service" by benchmarking against the prices charged for the additional costs in comparable countries that use a forward-looking cost-based pricing methodology.

44. The IPP is intended to be a proxy for the final pricing principle (**FPP**). The FPP is the total service long-run incremental cost (**TSLRIC**). TSLRIC is defined as:²¹

TSLRIC, in relation to a telecommunications service,-

- (a) means the forward-looking costs over the long run of the total quantity of the facilities and functions that are directly attributable to, or reasonably identifiable as incremental to, the service, taking into account the service provider's provision of other telecommunications services; and

¹⁵ Separation day refers to the date of the structural separation of Telecom New Zealand Limited and Chorus Limited—30 November 2011.

¹⁶ Schedule 1 of the Telecommunications Act 2001, Chorus's unbundled bitstream access, Initial pricing principle applicable after the expiry of 3 years from separation day.

¹⁷ Schedule 1 of the Telecommunications Act.

¹⁸ *Standard Terms Determination for the designated service Chorus's unbundled copper local loop* (Commerce Commission Decision 609, 7 November 2007).

¹⁹ *Final determination on the benchmarking review for the unbundled copper local loop service* (Commerce Commission, Decision NZCC 37, 3 December 2012).

²⁰ Under a s 42 price review, we must determine a price in accordance with the final pricing principle for the service, as specified in Schedule 1 of the Act, which requires determination of a TSLRIC cost model.

²¹ Clause 1 of Schedule 1 of the Act.

- (b) includes a reasonable allocation of forward-looking common costs.
45. TSLRIC models produce the expected costs that would be incurred by an efficient operator providing the regulated service in the form described in the applicable standard terms determination. It is not intended to replicate the access provider's actual costs, or the actual costs of any particular provider.
 46. TSLRIC costs may therefore be different from actual costs, which may be higher or lower than those of an efficient operator.
 47. We prefer to include in our benchmark sets only those countries that use a TSLRIC (or equivalent) model to determine their regulated prices, as these models are most likely to produce a result indicative of the costs that would be determined under a FPP in New Zealand. However, other models—such as fully distributed cost (**FDC**) models using current costs—may also meet the definition of forward-looking, cost-based pricing, depending on how they are implemented. Our view is that whether FDC models are actually appropriate for benchmarking purposes is determined on a case-by-case basis.
 48. We previously noted in our draft determination that, unlike other initial pricing principles for services in Schedule 1 of the Act that rely on benchmarking against prices using a forward-looking, cost-based method, the UBA IPP does not require us to benchmark against “similar services”.²² That is because, under the IPP, we are benchmarking the ‘additional costs’ of providing the UBA service (in addition to the underlying cost of the UCLL).

We must choose a price for the UBA service within the plausible range derived from benchmarking

49. The Act requires that we determine the cost of the UBA service by benchmarking against prices in comparable countries. In practice, the benchmarking process provides a plausible range for setting the cost of providing the regulated service in New Zealand.
50. Once we have defined the range of plausible prices—which may extend outside the range of observed benchmarks—the IPP requires us to select a price point within that range. As set out in our update paper, our view, taking into account legal considerations, is that s 18 can affect our price point selection but cannot move us outside the process set by the IPP. In other words, we can only apply the s 18 purpose within the constraints of the benchmarking framework set out in the UBA IPP.
51. One party submitted that in selecting the price from the range defined by our benchmarking, we are limited to selecting the median.²³ We do not agree that the

²² See, eg, the initial pricing principle for the UCLL service, and the mobile termination access services (MTAS).

²³ InternetNZ, et al, argued in their submission on the Update Paper, at 5.11, that the Commission must pick the ‘unbiased estimator’ – in this case, the median – as going beyond that point would increase bias.

statutory framework limits us in this way, and believe that our approach to price point selection (set out later in this decision) is consistent with the IPP and s 18.

52. We note that in our update paper we set out an approach that would potentially extend the plausible range beyond the observed benchmarks. A number of parties were critical of this approach.²⁴
53. The Commission remains of the view that inferring a larger plausible range is a conceptually valid exercise of the IPP, particularly where there are a small number of benchmarks. However, as we have not ultimately applied that approach in this determination, we have not responded to these aspects of submissions.

We must determine a geographically averaged price

54. As we noted in our draft determination, in addition to the benchmarking criteria, the price determined by the Commission must be a geographically averaged price, in accordance with clause 4A of Schedule 1 of the Act. A geographically averaged price is defined in clause 1 of that Schedule of the Act:

geographically averaged price means a price that is calculated as an average of all geographically non-averaged prices for a designated service through the geographical extent of New Zealand

55. We take into consideration the extent to which the benchmarked costs are likely to reflect the geographically averaged cost for New Zealand, and may make adjustments in order to derive an appropriate proxy for the likely cost.

We must ensure there is no double-recovery of costs in relation to regulated services

56. In accordance with clause 4B of Schedule 1 of the Act, we must ensure that the access provider does not recover costs that they are recovering through the prices charged for another regulated service, whether under a Commission determination or where provided on commercial terms:

In applying an applicable initial pricing principle or an applicable final principle, the Commission must ensure that an access provider of a designated service does not recover costs that the access provider is recovering in the price of a designated or specified service provided under a determination prepared under section 27 or 30M or a designated or specified service provided on commercial terms.

57. The UBA service is often provided on the same line as a voice service, such as POTS. Such services may include portions of the copper local loop (such as UCLFS), and may be provided under the terms of a Commission STD, or on commercial terms.
58. Whether any related service is provided on commercial terms or under a STD, provided the service falls within the definition of a regulated service under Schedule

They further contend, at 5.6(b), that if there is only one price point available, the Commission cannot go beyond the single observed price.

²⁴ See submission of InternetNZ, et al, on the Update Paper.

1 of the Act, we must ensure that costs recovered by Chorus under the UBA STD are not also recovered under the related service.

Section 18 considerations

Our decision must give effect to the s 18 purpose

59. Section 19 of the Act specifies that the Commission must consider the purpose set out in s 18 of the Act when determining the UBA price. The Commission must make a decision that best gives, or is likely to best give, effect to the s 18 purpose.²⁵ Section 18 provides:

18 Purpose

- (1) The purpose of this Part and Schedules 1 to 3 is to promote competition in telecommunications markets for the long-term benefit of end-users of telecommunications services within New Zealand by regulating, and providing for the regulation of, the supply of certain telecommunications services between service providers.
 - (2) In determining whether or not, or the extent to which, any act or omission will result, or will be likely to result, in competition in telecommunications markets for the long-term benefit of end-users of telecommunications services within New Zealand, the efficiencies that will result, or will be likely to result, from that act or omission must be considered.
 - (2A) To avoid doubt, in determining whether or not, or the extent to which, competition in telecommunications markets for the long-term benefit of end-users of telecommunications services within New Zealand is promoted, consideration must be given to the incentives to innovate that exist for, and the risks faced by investors in new telecommunications services that involve significant capital investment and that offer capabilities not available from established services.
 - (3) Except as otherwise expressly provided, nothing in this Act limits the application of this section.
 - (4) Subsection (3) is for the avoidance of doubt.
60. Section 18 establishes that our purpose in making this determination is first and foremost to “promote competition in telecommunications markets for the long-term benefit of end-users”. Competition is the key objective.
61. In determining whether or not our decision will promote competition, and the extent to which competition will result from our decision, s 18(2) tells us that we must consider the efficiencies that result, or will be likely to result, from our decision.
62. The Act does not define efficiencies, but we have treated this as reference to static (productive and allocative) and dynamic efficiencies. Dynamic efficiencies are concerned with new and innovative products and services, or existing ones at better

²⁵ See Schedule 1 of the Act.

quality, which leads over the long-term to greater consumer choices and benefits. It is therefore a significant factor in promoting competition.

63. As we have noted in previous decisions, where there is a trade-off between static efficiencies and dynamic efficiencies, we have tended to give greater weight to dynamic efficiencies given the emphasis on promoting competition over the long term. This emphasis is reinforced by s 18(2A).
64. Section 18(2A) requires us to consider the “incentives to innovate that exist for, and the risks faced by, investors in new telecommunications services that involve significant capital investment and that offer capabilities not available from established services.” A decision that undermines incentives to invest is likely to undermine competition over the long run, as it would deter future investment, and consequently not be in the long-term benefit of end-users.

A forward-looking, cost-based price is likely to best give effect to s 18

65. The purpose of Part 2 of the Act is to promote competition for the long-term benefit of end-users of telecommunications services in New Zealand. We are required by s 77 of the Amendment Act to determine a forward-looking, cost-based price for UBA in accordance with the new IPP introduced by the Amendment Act. We may infer from the changes to the UBA service description introduced by the Amendment Act that a forward-looking, cost-based price for the UBA service is consistent with s 18.

How we have interpreted the addition of s 18(2A) in the 2011 legislative amendments

66. There has been substantial debate about what the Commission is required to do to give effect to s 18, and particularly whether s 18(2) and s 18(2A) require the Commission to promote migration to UFB by setting a higher UBA price.
67. Chorus has stated that our decision must take into account implications for future network investment:²⁶

As part of section 18 the Commission should of course have regard to how any decision now might affect future investment in telecommunications in New Zealand. How the Commission treats UFB investment will send a clear message to all potential investors in telecommunications and other industries as to whether New Zealand has a regulatory environment that is consistent and reliable and whether different arms of government in New Zealand are aligned on government policy.

68. That includes considering how our decision will affect incentives to invest in, amongst other things, UFB.

²⁶ Chorus, *Submission in response to the Commerce Commission’s Draft Determination to amend the price payable for the regulated service Chorus’ unbundled bitstream access made under s 30R of the Telecommunications Act 2001*, (Chorus, Submission on UBA draft determination), 01 February 2013, para 182.

69. Section 18(2A) particularly reminds us that setting the wrong price for the UBA service may create disincentives to investment, and that this is not consistent with promoting competition. We considered the nature and extent of these disincentives, and how they might impact on our price point selection, in our update paper.
70. Our view is that Chorus overemphasises the scope of s 18(2A) within the context of the benchmarking task required by the IPP:²⁷

Section 18(2A) requires the Commission to do more than just “consider” the UFB network. It requires the Commission to prioritise the successful migration to the UFB over short term price gains on the legacy copper network, where there is a conflict. This is not controversial – it is orthodox regulatory economics to prioritise dynamic efficiency considerations over short term static gains where there is any tension. The long-term benefits to end-users from dynamic efficiency gains, in particular infrastructure investment, swamp any short term benefits from lower prices.

Relativity

71. In addition to these mandatory considerations set out in s 18, s 19(b) instructs that that, as part of our s 18 assessments, we must consider the additional matters set out in the service description for the UBA service. The service description for UBA instructs that we consider the relativity between the UBA service and the UCLL service (to the extent that terms and conditions have been determined for that service):²⁸

Additional matters that must be considered regarding application of section 18:

The Commission must consider relativity between this service and Chorus’s unbundled copper local loop network service (to the extent that terms and conditions have been determined for that service)

72. When considering relativity, we assess what impact our decision is likely to have on providing incentives to unbundle.
73. Our relativity assessment looks to whether the price we set will set appropriate incentives to efficiently invest:
- 73.1 a UBA price that is above-cost (relative to a UCLL service at cost) will encourage unbundling and investment where it is not otherwise efficient to do so
- 73.2 a UBA price that is below-cost (relative to UCLL) will encourage access seekers to remain on the UBA service rather than to unbundle, when it would be otherwise efficient to do so.

²⁷ Ibid, para 158.

²⁸ Section 19(b) of the Act.

74. Chorus argues that “relativity must be directed to promoting the transition to the fibre network”.²⁹
75. We disagree. Consideration of relativity remains an on-going s 18 consideration, as clearly stated in the service description for the UBA service. We note that the relativity requirement remains in the service descriptions for both the UCLL and UBA service following the Amendment Act.
76. While we consider that relativity between UBA and UCLL remains a mandatory consideration under the Act, we note that ‘relativity’ between the prices of the copper and fibre services also remain relevant under our general s 18 considerations.

Parties may seek a price review of this decision in accordance with the final pricing principle

77. Under s 78 of the Amendment Act, parties may seek a price review of this decision within 25 working days of public notice. The application for a price review must be made in accordance with ss 42 and 43 of the Act.
78. If we receive a request for a price review under s 42, we must make reasonable efforts to complete the price review determination before three years from separation day,³⁰ that is, by 1 December 2014.

Impact of the regulatory review of the Telecommunications Act 2001 on our determination

79. On 8 February 2013, the Minister for Communications and Information Technology announced she was bringing forward the commencement of the regulatory review of the Telecommunications Act 2001 provided for under s 157AA of the Act.
80. The Ministry of Business, Innovation, and Employment (MBIE) has since released a discussion document which, among other things, proposes a number of changes to the way the prices for the UBA and UCLL regulated services will be determined, and proposing that the current regulated prices remain in effect until 1 December 2015. The initial phase of the review is expected to be completed sometime in 2014.
81. This decision implements the Act as it stands.

²⁹ Chorus submission on the Update Paper, para 73.

³⁰ Section 78(3) of the Telecommunications (TSO, Broadband, and Other Matters) Amendment Act 2011.

Determining the benchmark set within the IPP

82. The Act requires the Commission to set the regulated price for the additional costs of providing the UBA service based on a benchmark of prices for services in comparable countries. In deciding whether a regulated price is appropriate for inclusion in the benchmark set, we have considered:
- 82.1 What approach was used to determine the price of the regulated service;
 - 82.2 The service characteristics and components of the service;³¹ and
 - 82.3 The comparability of the country in which the service is regulated.
83. While access seekers generally agreed with our approach to benchmarking in the draft determination, Chorus and the local fibre companies (LFCs) raised a number of potential issues, including:
- 83.1 We should add additional countries to the benchmark set:
 - 83.1.1 Countries that set regulated prices using an incumbents LRIC model should be included;
 - 83.1.2 FDC models are legitimate forward-looking pricing methodologies, and countries that set prices using FDC should be included in the benchmark set;
 - 83.1.3 By relaxing the handover point criterion to include additional countries in the benchmark set.
 - 83.2 We must make adjustments to ensure comparability
 - 83.2.1 The benchmark set is biased downward due to differences in spatial density and an adjustment is required to ensure comparability;
 - 83.2.2 An adjustment is required to take into account migration to fibre services;
 - 83.2.3 The weighted average speed of the benchmark countries should be adjusted to account for the higher line speeds and VDSL capable lines in New Zealand.
84. Chorus submitted that a two country benchmark set is not robust, and that the above additions and adjustments are required in order to provide a more robust estimate of the forward-looking cost of providing the UBA service. Therefore, in considering whether the above suggested additions and adjustments to the

³¹ As noted in the statutory framework, the UBA initial pricing principle does not expressly require the Commission to benchmark the UBA service against similar services.

benchmark set are valid, we have considered whether they provide a more reliable benchmark set.

85. Following our assessment, we have determined that our benchmark set will consist of the wholesale bitstream services from two countries—Denmark and Sweden. Our reasons for selecting these two countries are set out below.
86. In reaching our decision, we found that while Belgium, Greece and Switzerland met our criteria for forward-looking cost-based models, they did not meet our service characteristics criteria. Our decision is, therefore, to not include Belgium, Switzerland and Greece in the benchmark set. While we do not consider it appropriate to use these countries in making our final determination, we have used them as a cross-check to our decision.
87. How we select a price point from within the benchmark set is explored in the section following the determination of the benchmark set.

Forward-looking, cost-based pricing methodology

88. The Commission must benchmark the price of the UBA service against prices that use a forward-looking, cost-based pricing methodology. A number of methodologies potentially meet these criteria, including TSLRIC and other LRIC models, and FDC models using current costs.
89. In our draft determination we used the following criteria to identify countries that meet our forward-looking cost-based pricing criteria:
 - 89.1 The wholesale bitstream access price is regulated using a cost-based methodology;
 - 89.2 A forward-looking LRIC, or equivalent, methodology is used to set the cost-based price;
 - 89.3 The regulated price was set based on current costs; and
 - 89.4 The cost-model has been reviewed or verified by the regulator.
90. In the draft determination we found three countries that met our criteria for forward-looking cost-based pricing methods—Belgium, Denmark, and Sweden.
91. Some parties submitted that our application of the forward-looking cost criteria in the draft determination was overly restrictive and we should include in the benchmark set countries that:
 - 91.1 Use FDC models to set cost-based prices for its wholesale bitstream service
 - 91.2 Use the incumbents TSLRIC cost model to set prices for its wholesale bitstream service.

92. We have reconsidered whether it is appropriate to increase the benchmark set by including countries that have regulated a wholesale bitstream access service using an FDC approach (with current cost accounting) or incumbent-built models, reviewed by the regulator.

Inclusion of countries that use incumbent TSLRIC models to set cost-based prices

93. Chorus submitted that the Act does not require that cost models be prepared or approved by the regulator, and therefore that we may take a more flexible approach.³² Chorus argued that we should include:
- 93.1 Greece, on the basis that the regulator was involved in the development of the model and that top-down approaches are forward-looking cost-based pricing methods;³³ and
- 93.2 Switzerland, on the basis that industry participants are able to seek a review of the existing cost-based price but have never done so, indicating that the price is fair.³⁴
94. In its cross-submission, Kordia/CallPlus disagreed with Chorus on the basis that:³⁵
- 94.1 there is no reason to depart from the Commission's previous practice of only including models prepared by the regulator;
- 94.2 there is no evidence for Greece on the extent of the review of the model and the extent of the changes to the model in light of the review; and
- 94.3 it is unsafe to rely on Switzerland as a benchmark because there are many reasons why parties may not have sought a price review, and therefore the absence of a challenge to the price is not evidence that parties consider the price reflects forward-looking costs.
95. Vodafone also argued against including the incumbent models for both Greece and Switzerland on the basis that they have not been subjected to regulatory scrutiny, are not publically available, and therefore should be excluded.³⁶

³² Chorus, *Submission in response to the Commerce Commission's Draft Determination to amend the price payable for the regulated service Chorus' unbundled bitstream access made under s 30R of the Telecommunications Act 2001*, (Chorus, Submission on UBA draft determination), 01 February 2013, para 48. Also refer to the UBA Price Review Conference Transcript, 12 June 2013, p 65, where Tim Sparks emphasised the inclusion of Switzerland.

³³ Chorus, Submission on UBA draft determination, para 45.1.

³⁴ Chorus, Submission on UBA draft determination, para 45.2.

³⁵ Kordia/CallPlus, *Unbundled bitstream access service price review - Cross submission*, 01 March 2013, paras 75–77. Also refer to the Conference, 12 June 2013, p 67 where Michael Wigley emphasised that it is commercial model not publically available and there are many for reasons for the price not being challenged, including commercial reasons.

³⁶ Vodafone, *Draft determination to amend the price payable for the regulated service Chorus' unbundled bitstream access*, (Vodafone, Submission on UBA draft determination), 01 March 2013, para 22.

96. Network Strategies recommended that Switzerland be included only if the Commission considers the lack of formal scrutiny is not an issue in this instance and the model is robust enough.³⁷
97. Network Strategies also noted the model for Greece does not appear to be an efficient forward-looking cost model, but the Commission may relax the criteria to include Greece.³⁸ During the conference, Network Strategies indicated a concern about the precedent we would be setting by including incumbent models not reviewed by the regulator.³⁹
98. Analysys Mason noted, in its cross-submission for Telecom, that top down LRIC models that uses current costs, a forward-looking depreciation scheme, and includes efficiency adjustments, may be sufficiently forward-looking to include in the benchmark set.⁴⁰
99. We have previously only included countries in the benchmark set using an incumbent's cost model where the cost model has been verified and reviewed by the regulator. The reason was to ensure that the cost model meets all the requirements for efficient network costs. For example, in the UCLL decision we excluded Switzerland from the benchmark set until the model was reviewed and verified by the regulator.⁴¹
- Switzerland was previously considered to not meet the benchmarking criteria because the cost model was under review as part of an ex-post review procedure. However, the pricing review is now complete and the 2011 prices have been retrospectively adjusted by the regulator.
100. We have previously noted that a two benchmark set is not ideal, as there is less confidence that the observed prices reflect the efficient costs of providing the regulated service in New Zealand.
101. Given the risk of error inherent in a small benchmark set, we have therefore further examined whether the regulator has sufficiently reviewed the incumbent's cost model, such that it appropriately meets our forward-looking cost-based criteria. We have considered each of these countries in turn.

Switzerland

102. The Swiss price is derived from an incumbent TSLRIC model, which is not publically available. The model is based on current costs and follows a bottom-up approach. As

³⁷ Network Strategies, *Cross-submission - Final Report for Vodafone - A review of key benchmarking issues in UBA submissions*, (Network Strategies, Cross-submission on UBA draft determination), 28 February 2013, p 5.

³⁸ Network Strategies Cross-submission on UBA draft determination, 28 February 2013, pp 5–6.

³⁹ Conference, 12 June 2013, Dr Suella Hansen, Network Strategies, p 66.

⁴⁰ Analysys Mason, *Report for Telecom New Zealand- Comments on UBA submissions*, 19 February 2013, p 6.

⁴¹ Commerce Commission, *Revised draft determination on the benchmarking review for the unbundled copper local loop service*, May 2012, p 77.

indicated in our draft determination, the Swiss regulatory authority, BAKOM, will only review prices on request of access seekers. The regulator has confirmed that the price has not been challenged to date.⁴²

103. We also note that BAKOM indicated that it had reviewed the tariffs for bitstream, since the cost model as a whole has been reviewed for other regulated services. The tariffs for bitstream access are also affected by the review, because the incumbent adopts its cost model according to the specifications of BAKOM, and a single cost model is used for regulated services.⁴³
104. Therefore, we consider that this review of the incumbent model is sufficient evidence that the regulator was involved in the development of the cost model and that Switzerland meets our forward-looking cost methodology criteria.
105. We note that the Swiss service has a different handover point to the UBA service. We consider this further at paragraphs 135–143.

Greece

106. The Greek price is derived from an incumbent TSLRIC model, which is not publically available. The Greek model is based on current costs and modern equivalent assets (**MEA**), indicating that the model is forward-looking.
107. As indicated in our draft determination, the model is checked by the regulator, although the extent to which the model is verified is unknown.
108. The Greek regulator has informed us that it conducts an annual audit of the incumbent's costs. We note that the significant reduction in the price of the regulated service from 2012 to 2013 appears to be an indication of the Greek regulator's audit of the incumbent's costs.
109. We note, however, that the model uses a top-down approach. While falling within the family of forward-looking LRIC approaches, top-down models offer challenges in determining truly efficient costs.
110. In our Principles Paper on TSLRIC, we stated that in applying TSLRIC:⁴⁴
 - 110.1 forward-looking costs should reflect the costs of providing services using best-in-use technology with MEA; and
 - 110.2 a bottom-up approach is likely to result in more accurate estimates.

⁴² One possible reason is that given the low up-take of the bitstream service in Switzerland, it is likely that the cost to parties of reviewing the price outweighs the benefit of the potential benefit of a lower price or it is likely that the access seekers view the price as efficient.

⁴³ For example, BAKOM adjusts the construction cost for ducts during the review of the unbundled local loop price, this adjustment affects for the price for bitstream access in the following year.

⁴⁴ Commerce Commission, *Implementation of TSLRIC Pricing Methodology for Access Determinations under the Telecommunications Act 2001* (Commerce Commission Principles Paper, 20 February 2004), paras 82 and 100

111. Although the bottom-up approach is likely to result in more accurate estimates for a TSLRIC model, we have previously included countries using top-down TSLRIC models from benchmark sets to set regulated tariffs. For example, in the UCLL decision, we included Czech Republic using a top-down model.⁴⁵ We had a similar concern regarding a small benchmark set in the UCLL decision.
112. We also note that the Greek cost model is using the best-in-use technology with MEA. We cannot be certain that the model meets all the requirements for efficient network costs, and we have concerns that the approach may lead to over-stated costs. However, we consider that the level of review shows sufficient evidence that Greece meets our forward-looking cost methodology criteria.
113. We note that the Greek service has a different handover point to the UBA service. We consider this further at paragraphs 135–143.

Exclusion of countries that set cost-based prices using a FDC methodology

114. The non-Chorus LFCs submitted that countries that use FDC models should be included in the benchmark, even if they are not good proxies for the FPP, as they meet forward-looking cost-based criteria.⁴⁶
115. Chorus agreed that countries using FDC models should be included and be considered on a case-by-case basis.⁴⁷ CEG particularly made the point that FDC and TSLRIC models may lead to similar results, provided FDC models are based on replacement rather than historical costs.⁴⁸ CEG further submitted that the UK and France should be included, Bahrain excluded, and further consideration of Spain is required.⁴⁹
116. Submissions from access seekers suggested that while FDC models could be forward-looking, it was less likely that they are a good proxy for TSLRIC and they should be excluded from the benchmark set.⁵⁰
117. The IPP requires us to set the price for the UBA services using a benchmark of comparable countries that use a forward-looking cost-based pricing methodology.⁵¹

⁴⁵ Published spread sheet on the UCLL decision available at <http://www.comcom.govt.nz/regulated-industries/telecommunications/standard-terms-determinations/unbundled-copper-local-loop-service/re-benchmarking-prices-for-chorus-s-unbundled-copper-local-loop-service/>

⁴⁶ Joint submission by Enable Networks Limited, Whangarei Local Fibre Company Limited and Ultrafast Fibre Limited, – *Unbundled bitstream access service price review*, 01 February 2013, paras 5(b) and 25.

⁴⁷ Chorus, *Cross-submission in response to amend the price payable for the regulated service Chorus' unbundled bitstream access made under s 30R of the Telecommunications Act 2001*, (Chorus Cross-submission), 1 March 2013, para 50.4.

⁴⁸ CEG, *Forward-looking cost-based pricing methods*, February 2013, paras 3 and 13

⁴⁹ CEG, *Forward-looking cost-based pricing methods*, February 2013, paras 5–8, and para 14

⁵⁰ See Attachment B for a summary of submissions.

⁵¹ Schedule 1 of the Telecommunications Act 2001, Chorus's unbundled bitstream access, Initial pricing principle applicable after the expiry of 3 years from separation day.

118. FDC models, based on forward-looking costs, and TSLRIC or equivalent models, both fit within the requirement that we benchmark against forward-looking cost-based prices, and are therefore consistent with the IPP.
119. As the IPP is effectively a proxy for the FPP, which is TSLRIC, we prefer TSLRIC models. However, a FDC approach may also lead to similar results to those under a TSLRIC model, depending on how it is applied in practice.
120. We would generally not include FDC models if we are uncertain as to whether they produce an outcome that is consistent with TSLRIC. While a high-level test of the assumptions used in a FDC approach may be sufficient to give us some confidence that it is similar to a TSLRIC outcome, we have previously rejected the use of FDC models from our TSLRIC benchmark sets.⁵²
121. Given the concern regarding the small benchmark set, we have reconsidered whether we should relax the criteria to include countries using FDC models in the benchmark set.
122. FDC models can either be based on historical cost (HCA) or current cost. HCA is backward-looking and therefore does not meet the criteria of a forward-looking cost-based pricing methodology as required by the IPP. Using HCA may substantially overstate the hypothetical costs (which the operator was not efficient) or understate the hypothetical costs (where the operator has fully or substantially depreciated existing assets).
123. It is our understanding that a FDC model based on current cost takes an operator's historic costs and re-values them to reflect the current and expected costs. The move from historic costs to current costs will require a revaluation of the assets and adjustments to the depreciation profile.
124. This can lead to either an upward or downward bias depending on the efficiency of the operator prior to the adjustments and the impact of technological changes to the costs. These adjustments, however, do not completely take into account the optimisation of the network like a TSLRIC methodology does.
125. To this point, CEG argued that:⁵³

The principal potential difference between the two approaches lies in the degree of optimisation. In particular, depending upon the degree of scorching, a TSLRIC model may entail more extensive optimisation than an FDC approach-particularly 'scorched earth' variants. Those optimisation assumptions will also flow through to the determination of operating and maintenance costs in a TSLRIC model, whereas an FDC approach may simply allocate costs listed in the accounts.

⁵² See, for example, the datasets for unbundled copper local loop (UCLL) and mobile termination access service (MTAS) decisions.

⁵³ CEG, Forward-looking cost-based pricing methods, p 20, para 76.

126. In light of the above, an FDC approach based on current cost meets the IPP requirement of forward-looking cost. However, as it is far from clear that a FDC methodology implements the same level of optimisation as the TSLRIC methodology, we are not satisfied that including the FDC countries would lead to a more accurate benchmark set.
127. Further, whether or not we were to relax the criteria to include countries using FDC models, we found that none of the countries are appropriate benchmarks. We have therefore excluded from the benchmark set countries that use FDC models to set cost-based prices.

Country	Analysis
The UK	The FDC model is based on current costs, so it might be forward-looking costs. However, the UK approach models an old technology, ATM. ⁵⁴ We do not consider the use of an old technology as a forward-looking methodology. It is, therefore, not appropriate to include the UK as a benchmark. In addition, the service is only available in non-competitive rural areas, and is unlikely to provide a reasonable estimate for the geographically averaged New Zealand cost.
France	The regulated price is only for non-competitive rural areas, which represents less than 13.1% of the population. It is, therefore, not appropriate to include the France as a benchmark as we are not satisfied that it would provide a reasonable estimate for the geographically averaged New Zealand cost. We note that the FDC model is based on current costs. The model follows a hybrid which does appear to have some forward-looking elements. The regulator has advised that the access monthly allowance is cost-orientated and based on a top-down FDC model, while the backhaul part is based on a regulatory cost model being a bottom up LRIC. This indicates that model is unlikely to implement the same level of optimisation as a TSLRIC methodology for the bitstream service.
Bahrain	The FDC model is based on historical cost, so it does not represent a forward-looking methodology. It is, therefore, not appropriate to include Bahrain as a benchmark.
Spain	The European Commission (EC) has requested that the Spanish regulator either amend or withdraw its wholesale broadband access fees following an investigation of the

⁵⁴ Telecom, in its post-conference note indicated that BT is currently rolling out an Ethernet based network used for UBA.

	<p>regulator’s price setting methodology. The EC was concerned that the regulator’s price setting would lead to regulated prices up to 50% above cost-efficient levels.⁵⁵ Given the EC’s recommendation, we have substantial concerns regarding the reliability of the Spanish price as a benchmark and have therefore not included it in our benchmark set.</p>
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Countries that meet our forward-looking cost-based pricing criteria

128. Having reconsidered what countries should be included in our benchmark set under the forward-looking, cost-based criteria, our view is that, in addition to the three countries that met our criteria in the draft determination, Greece and Switzerland also meet the criteria. While both countries set cost-based prices based on the result of an incumbent’s model, we are satisfied that the regulator has had sufficient involvement in review or validation of the prices. Table 1 provides a summary of the countries that meet our criteria.

Table 1: Cost model methodology

Country	Methodology
Belgium	BU-LRAIC
Denmark	Hybrid-LRAIC
Greece	TD-LRAIC
Sweden	Hybrid-LRAIC
Switzerland	BU-LRAIC

Service characteristics

129. Under the IPP for the UBA service, we are not limited to benchmarking against strictly “similar services”.
130. However, given we are benchmarking the “additional costs incurred” in providing the UBA service, we consider it appropriate to consider the similarity or comparability of the bitstream services in the countries within our benchmark set to the UBA service, as differences in those services may mean that costs are different from the UBA service as described in the UBA STD.

⁵⁵ European Commission, 28 October 2013, See the press release at http://europa.eu/rapid/press-release_IP-13-1001_en.htm

131. If benchmarked services are likely to have materially different costs, one option is to make adjustments in order for the benchmarked service to align with the costs expected of the UBA service. The reliability of such adjustments may be uncertain and not lead to more robust benchmark. Therefore, it may be preferable to exclude the service, or to use the unadjusted costs but take service-related comparability differences into account in our price point selection.
132. In our draft determination, we considered the following four key product characteristics of UBA that we took into account in comparing the regulated services.⁵⁶
- 132.1 The location of the handover point.
- 132.2 Class of service.
- 132.3 The speed of the service.
- 132.4 The technology used to provide the service.
133. Submissions on our draft approach stated that:
- 133.1 We should relax the handover point criterion in order to expand the benchmark set.
- 133.2 We should benchmark against a weighted average of all speed points rather than use the lowest speed product in the benchmark countries.
134. We give further consideration to these matters below.

Location of the handover point

135. In the draft determination we benchmarked against countries with the handover point at the first data switch (FDS), as there were likely to be differences in active network costs and transport costs for bitstream services with different handover points.⁵⁷ We noted that while the Belgian handover point was at the FDS, it was not directly comparable to the UBA service as the FDS was co-located with the DSLAM, and we therefore excluded Belgium from the benchmark set.
136. Chorus submitted that we should take a pragmatic approach to handover points given that the Act does not require that the benchmark services be exactly the same.⁵⁸ Chorus argued that the distant node tariff in Belgium and the parent node tariff in Switzerland are sufficiently similar to be included in the benchmark set.⁵⁹

⁵⁶ Commerce Commission, UBA Draft Determination, para 77.

⁵⁷ Commerce Commission, UBA Draft Determination, paras 79–84.

⁵⁸ Chorus, Submission on UBA draft determination, 01 February 2013, p 28, para 78.

⁵⁹ Chorus, Submission on UBA draft determination, paras 66.2, 78 and 80.

137. However, in its cross-submission, Chorus stated that it was appropriate to include the Belgian parent node service, provided we made an adjustment for density, and possibly transport, as the network configuration in Belgium is driven by density.⁶⁰
138. Telecom submitted that we should include Belgium's regional handover point product in the benchmark and consider adding Hungary, adjusting for any differences in handover point.⁶¹ Network Strategies indicated that we would need to adjust the costing data to reflect the network set up in New Zealand and for the benchmarks to be comparable with the UBA service in New Zealand. In the absence of the cost models the Commission is unable to make a reasonable assessment of the required adjustments to produce results based on services that are truly similar to the New Zealand service.⁶²
139. Given the concern regarding the small benchmark set, we have considered relaxing the handover point criterion and including countries (Belgium, Greece and Switzerland) in the benchmark set with different handover points using:⁶³
- 139.1 unadjusted prices for countries with different handover points to help to determine a broader range and to expand the benchmark set; or
- 139.2 transport tariffs to make adjustments to approximate the parent node tariff.
140. The unadjusted approach assumes that any over-estimation by handover points beyond the FDS will be offset by under-estimation of services with no transport costs. However, there is no means by which we can identify the extent of over or under-estimation for these services. This creates additional risk of error, absent more robust information regarding likely cost differences.
141. However, if we were to take the alternative approach by making adjustments, the adjustments required to provide comparable services for each country are likely to be more complex than a simple estimate of transport cost.⁶⁴ Without information on the likely over or under-estimation of cost for different handover points we cannot make a robust adjustment to estimate the comparable cost of providing the UBA service in New Zealand.
142. Therefore, our view is that the most robust approach to determining the benchmark set is to include only those countries with the same handover point as the UBA

⁶⁰ Chorus, 01 March 2013, *Cross submission in response to the Commerce Commission's Draft Determination to amend the price payable for the regulated service Chorus' unbundled bitstream access made under s 30R of the Telecommunications Act 2001*, p 17, para 65.

⁶¹ Telecom, *Unbundled Bitstream Access Service Price Review*, 01 February 2013, paras 19, 21–23.

⁶² Network Strategies, *Cross-submission on UBA draft determination*, 28 February 2013, pp 3–4.

⁶³ We note that we have rejected Hungary as they apply retail-minus approach to service components beyond the DSLAM.

⁶⁴ For example, as the Greek service terminates at a distant node we would have to make an adjustment for the additional active equipment included in the cost of the service. Likewise, services where the data switch is co-located with DSLAM may have different unit costs for the active equipment.

service—Denmark and Sweden. The advantage of this approach is that there is no distortion from services that are not directly comparable to the UBA service.

143. However, we note that the expanded benchmark of Belgium, Greece and Switzerland meet the requirements of the IPP, and the inclusion of these unadjusted price points would be a valid approach to benchmarking the price of the UBA service. In this case, we have decided to use an expanded benchmark set as a cross-check for the reasonableness of the core benchmark set of Denmark and Sweden.

Speed of the service

144. In the UBA update paper, we set out our approach to taking the weighted average speed price point for the Danish and Swedish bitstream services.⁶⁵ Using the weighted average approach will ensure that we are benchmarking against prices in Denmark and Sweden that recover the cost of providing the wholesale bitstream service in those countries.

145. Chorus have submitted that a further adjustment is required for the higher theoretical speeds available in New Zealand. Chorus state:⁶⁶

The Swedish and Danish line speed distributions are on average below that of Chorus. This suggests that even though these jurisdictions may have a similar proportion of FTTN lines as Chorus, the line lengths in their bitstream networks are longer. Chorus has deployed cabinets closer to end-users, which means a higher speed (and cost) bitstream network relative to benchmark FTTN jurisdictions.

146. Network Strategies, however, submitted that the distribution graph on which Chorus makes its proposed adjustment compares two different parameters.⁶⁷ Chorus compares the theoretical maximum line speed available in New Zealand with the retail demand for various line speeds in the benchmark countries.

147. In suggesting a further adjustment to the Danish and Swedish price points Chorus assumes that higher theoretical line speeds incur a higher cost per subscriber. We disagree. Our view is that the theoretical line speeds Chorus refer to are a function of the length of the copper local loop.

148. We note that in the UCLL re-benchmarking review, Chorus stated:⁶⁸

our view is that the Commission made an understandable error in assuming that a drop in the loop length signalled a decrease in the UCLL costs.

149. Given Chorus' view that line lengths have no effect on the cost of the access network, we consider it inconsistent for Chorus to suggest that line length should affect the additional costs of providing the UBA service.

⁶⁵ The spreadsheet "title" sets out our calculations of the weighted average price.

⁶⁶ Chorus, Submission on UBA draft determination, p 26, para 73.

⁶⁷ Network Strategies, Cross-submission on UBA draft determination, 28 February 2013, p 12.

⁶⁸ Commerce Commission, *UCLL benchmarking review conference transcript*, 19–20 September 2012, p 8.

150. In addition, as Network Strategies noted, Chorus makes its adjustment based on a comparison of two different parameters. Chorus does not compare theoretical maximum line speeds in New Zealand with the theoretical maximum line speeds in Denmark and Sweden, and as such, the proposed adjustment is not appropriate.
151. Chorus also submitted that an adjustment is required for VDSL capable lines. Chorus suggest that the benchmark prices be adjusted to reflect the proportion of lines in New Zealand that are VDSL capable.⁶⁹
152. We consider this adjustment inappropriate. We are benchmarking against the costs of an efficient operator providing the service as specified in the UBA STD. We have expressly determined that VDSL is not a part of the regulated service where it is used to provide a higher class of service.⁷⁰ Our view is that the VDSL services provided in the benchmark countries are unlikely to reflect the forward-looking cost of providing the regulated UBA service.
153. As we are required to benchmark the UBA service, we have benchmarked against services consistent with the service description. As such, no additional adjustment is required for VDSL.

Conclusion on application of service characteristics

154. Having reconsidered the handover point criterion, our view is that the most robust approach is to exclude countries with different handover points to the UBA service. Given that bitstream services with different handover points to the UBA service are likely to have different cost structures relaxing the criteria or adjusting for differences in cost is unlikely to lead to a more robust benchmark set.
155. While we have not included Belgium, Greece and Switzerland in our final benchmark set, our view is that these countries provide considerable value as a cross-check to our two country core benchmark.
156. We consider it appropriate to benchmark against weighted average speed price points. We do not consider Chorus' additional adjustment for theoretical line speeds in New Zealand appropriate. Our view is that line speeds do not affect the additional cost of the UBA service; and Chorus does not make its adjustment using comparable parameters.

Comparable countries

157. The IPP requires us to identify countries within the benchmark set that are comparable to New Zealand. In order to fulfil this requirement, we identify countries to include in the benchmark set that are likely to have costs for wholesale bitstream

⁶⁹ See UBA Price Review Conference Transcript, 12 June 2013, p 99. We also note that Chorus' position on a VDSL adjustment has changed over the course of our consultation. In its submission on the Draft Determination, Chorus proposed excluding VDSL and fibre services from our benchmark set – see para 76.

⁷⁰ See our *Final decision of the Commerce Commission on the applicability of the UBA STD to Telecom's Wholesaler VDSL2 Service* (20 December 2010).

access services that are likely to be suitable for determining the cost of the UBA service in New Zealand.

158. In the draft determination we noted that due to the small sample of benchmark countries we were unable to take a quantitative approach to determining comparability criteria.⁷¹
159. We noted that the UBA service was comprised of predominantly active electronics, and therefore the scale of the infrastructure would likely be a major factor driving network cost. We therefore concluded that spatial density factors are less likely to be major cost drivers of bitstream services.
160. Chorus submitted that the prices in the benchmark countries should be adjusted to take into account major cost differences between those countries and New Zealand, including:
- 160.1 differences in line density; and
- 160.2 the accelerated migration from copper due to the UFB initiative.
161. Our analysis below considers these adjustments on our benchmark set of Denmark and Sweden.

Line density as a cost driver

162. Chorus have submitted that line density is a significant cost driver for the UBA service and provided a report by CEG that explores the relationship between cost and line density.⁷²
163. CEG concluded that line density is an important cost driver and rural areas are therefore likely to have higher unit costs because:⁷³
- 163.1 DSLAM infrastructure will likely be defrayed across fewer customers; and
- 163.2 there are likely to be significant additional costs associated with building longer trenches to connect more dispersed points.
164. CEG present two approaches to adjust for the alleged differences in line density between New Zealand and the benchmark countries – an econometric adjustment and a ratio benchmarking adjustment.
165. In order to make an econometric adjustment, CEG undertook a regression analysis of the Danish and Swedish models to explore the relationship between cost and:
- 165.1 lines per DSLAM location

⁷¹ Commerce Commission, UBA Draft Determination, p 20, para 72.

⁷² CEG, *Wholesale broadband cost drivers*, January 2013.

⁷³ *Ibid*, paras 71, 78.

- 165.2 trench distance per DSLAM location.
166. CEG applied the result of the regression analysis to actual Chorus network characteristics to normalise the Danish and Swedish prices for Chorus' network.⁷⁴ The normalisation resulted in a 31.9% increase for the Danish bitstream prices, and 0.6% for the Swedish price.
167. CEG suggest the ratio benchmarking approach as a “pragmatic alternative” to the econometric approach. CEG states that the ratio benchmarking approach takes into account the spatial density drivers for the UBA service while avoiding the need to go through the modelling of the econometric approach.
168. The ratio benchmarking approach calculates the proportion of the bitstream service cost to the local loop cost in each benchmark country and applies that proportion to the UCLL price. The ratio benchmarking approach results in an increase of 77.4% for Denmark, and 34.7% for Sweden.
169. We accept that spatial density characteristics are likely to reflect underlying factors that impact the cost of providing the UBA service.
170. However, as we noted in the draft determination, we are unable to take a quantitative approach, similar to that used in the 2007 UCLL decision, to identify cost drivers across all jurisdictions because the sample of benchmark countries is too small.
171. The CEG analysis of the Danish and Swedish models provides evidence that density does have an impact on unit cost. However, our analysis suggests that the econometric adjustment proposed is not a reliable method to address differences in spatial density characteristics.⁷⁵ In addition, the CEG adjustment:
- 171.1 does not consider the effect of TSLRIC optimisation—CEG use Chorus' actual network to adjust against; and
- 171.2 assumes the optimisation of the Danish and Swedish models would not change if density changes.
172. Our analysis indicates that higher density urban areas had the greatest adjustments, which appears inconsistent with CEG's contention that unit cost in urban areas was likely to be low. CEG in response noted that the adjustment was consistent with the recent cabinetisation of Chorus' network. However, this again raises the question of whether the econometric approach is adjusting for differences in spatial density, or if it is adjusting an optimised TSLRIC network for Chorus' network.

⁷⁴ We note that these adjustments take into account trench sharing, following a correction to CEG's original analysis. See CEG memo, *UBA question's from Commerce Commission staff*, 29 May 2013, for more information.

⁷⁵ See Attachment C.

173. In addition, significant manipulation of data is required to make comparisons between New Zealand and the benchmark countries. For example, CEG initially did not take into account trench sharing in New Zealand. When CEG corrected its adjustment to take into account trench sharing, the adjustment for Denmark decreased from 53.9% to 31.9%, while the Swedish adjustment decreased from 14.1% to 0.6%.
174. As a result, we have significant doubt that CEG's proposed econometric adjustment produces a more reliable estimate of the additional costs of the UBA service.
175. Regarding the ratio benchmarking approach, we note that this approach assumes that the relationship between cost drivers for the UBA and UCLL services is constant. We consider this assumption unlikely – the two services have very different components and we do not consider it reasonable to expect a change in density to have the same effect on both services.
176. We also note that, while CEG have submitted that the results implied by both methodologies are reasonable, the adjustment for ratio benchmarking approach diverges substantially from the econometric approach following the correction for trench sharing.
177. At the conference, CEG agreed that the ratio benchmarking approach was a “very second best” method to adjusting for spatial density.⁷⁶
178. We have significant concerns with the adjustments proposed by CEG, however, we agree that differences in density are likely to reflect cost characteristics that have an impact on the forward-looking costs of the UBA service. While we can estimate the direction of the bias due to differences in density, the size of the bias is uncertain. We consider this possible bias further when estimating the forward-looking cost for the UBA service from the benchmark set in price point selection.

Impact of migration from copper

179. Chorus submitted that an adjustment is required to account for accelerated migration to fibre as a result of the Government's UFB policy.⁷⁷ Chorus note that the prices in Denmark and Sweden were not set with “New Zealand's special circumstances in mind” and, therefore, an adjustment is required.⁷⁸
180. At the UBA conference, Chorus elaborated further that an adjustment was necessary as benchmark countries were not comparable to New Zealand:⁷⁹

...in my mind what we're talking about here is the fact that we have to benchmark against comparable countries and what we don't have is a set of countries which have got the same

⁷⁶ Jason Ockerby, CEG, UBA Price Review Conference Transcript 12 June 2013, p 83.

⁷⁷ Chorus, Submission on UBA draft determination, 01 February 2013, p 34.

⁷⁸ Chorus, Submission on UBA draft determination, 01 February 2013, p 35 para 112.

⁷⁹ Anna Moodie, UBA Price Review Conference Transcript Day 12 June 2013, p 108.

circumstances as in New Zealand and we're just suggesting that an adjustment needs to be made to address that issue...

181. Chorus provided a report from CEG stating that declining utilisation of the copper network due to fibre migration will shorten the window of opportunity for Chorus to recover its investment in the copper network.⁸⁰ The CEG report set out options to adjust for the potential declining utilisation of the UBA service.
182. As noted above, Chorus have stated that the "special circumstances" in New Zealand mean that the benchmark countries are not comparable and an adjustment is required. The special circumstances that Chorus refer to are:
 - 182.1 the Government subsidised rollout of fibre in New Zealand; and
 - 182.2 the accelerated migration of end-users to fibre services in relation to migration in countries without a government subsidy.
183. We have analysed the state of fibre rollout and migration in Denmark and Sweden; and whether this leads to any differences in comparability.
184. In Sweden, rollout of fibre has been underway since the early 2000s, undertaken by a combination of the incumbent provider and local municipalities. The Swedish Government initially provided a grant to bolster the rollout by municipalities, though at present, government grants are only available for rural areas where there is no commercial interest.
185. The Swedish Government has a target of 90% coverage of 100Mbps broadband by 2020, using a variety of technologies, and 40% coverage by 2015, which has already been met. Currently 32% of fixed line broadband subscriptions are fibre based, with xDSL subscriptions, which have been declining since 2008, making up 47%.
186. In Denmark, rollout of fibre began around 2006. Much like Sweden, the number of DSL subscriptions in Denmark has been decreasing over the past few years. The Danish Government's broadband goal is ensuring 100% of households and businesses have access to 100Mbps by 2020.
187. As it stands, fibre penetration in Sweden is close to 15% and expected to reach 25% by the end of 2016.⁸¹ In Denmark fibre penetration is approximately 8% and expected to be around 22% by 2016.⁸²
188. While the UFB initiative is intended to accelerate migration to fibre, the actual pace of migration remains speculative. Therefore, it is unclear what, if any, adjustment would be appropriate. Because of the substantial uncertainty around competition from fibre services, any adjustment is unlikely to give a more reliable estimate than the unadjusted approach.

⁸⁰ CEG, *Effect of fibre on copper bitstream prices*, January 2013.

⁸¹ DotEcon, *Regulatory policy and the roll-out of fibre-to-the-home networks*, July 2012, p 9.

⁸² *Ibid*, p 9.

189. However, while it is uncertain that any bias exists, CEG has stated that an adjustment is required to ensure Chorus recovers its forward-looking costs:⁸³
190. CEG presents two possible approaches to adjust for the potential decline in utilisation:
- 190.1 Tilting the annual capital depreciation to reflect the expected decline in utilisation of the regulated service (utilisation tilt);
- 190.2 Modelling the constraint that fibre prices will impose on future cost recovery.
191. CEG stated that by applying a utilisation tilt the price for the UBA service should be adjusted up 27%, while modelling the UFB pricing constraint requires an upward adjustment of 31%.
192. We note that the CEG adjustments rely on a number of assumptions that appear arbitrary and unsupported.⁸⁴ For example, Chorus does not provide its support or otherwise for the demand forecasts and CEG does not support its own capital cost assumption. Adjustments based on such assumptions raise considerable doubt in the reliability of the adjustments and would not lead to a more accurate benchmark set.
193. We also note the apparent circularity paradox that is created by an upward adjustment to the UBA price for declining utilisation—as the UBA price is adjusted upward, migration to fibre (and potentially unbundling) is likely to accelerate, thereby requiring a further increase in the UBA price. Alternatively, a low UBA price will likely slow migration to fibre and therefore not require an upward adjustment to the price.
194. As with the other proposed adjustments, we consider the CEG adjustments proposed here will increase the risk of error rather than improve the comparability of the benchmarks. We separately consider whether a price point adjustment for migration from the copper network is required in paragraphs 233–239.

Conclusion on the benchmark set

195. Based on our analysis above, our view is that the most robust benchmark set is the two country benchmark set—Denmark and Sweden. Both countries meet our criteria for the IPP and our view is that they will provide the most robust estimate of the cost for the UBA service.
196. While a larger benchmark set is desirable, it potentially introduces error by including countries that are not directly comparable to New Zealand. In this case, we have decided to use an expanded benchmark set as a cross-check for the reasonableness of the core benchmark set of Denmark and Sweden.

⁸³ Jason Ockerby, CEG, UBA Price Review Conference Transcript 12 June 2013, pp 104–105.

⁸⁴ See Attachment D.

197. The two country benchmark set is our preferred approach because there is no distortion from services that are not directly comparable to the UBA service. The approach is also based on countries most comparable to New Zealand, and our expectation is therefore that it more accurately reflects forward-looking costs for the UBA service.
198. We have rejected Chorus' proposed adjustments for density and migration away from copper. Both adjustments require significant assumptions and manipulation of data. Our view is that given the uncertainty of the assumptions, we are uncertain that the adjustments provide more reliable benchmarks. In the next section we consider whether a price point adjustment is necessary for these factors.
199. The table below summarises the countries included in our final benchmark set and the countries used as a cross-check to determine the monthly rental for the UBA service in New Zealand.

Table 2: Countries included in final benchmark set and our cross-check

Country	Comment
Denmark	Included in final benchmark set
Sweden	Included in final benchmark set
Belgium	Used as a cross-check
Switzerland	Used as a cross-check
Greece	Used as a cross-check

Price point selection for the Basic UBA service

201. In the following sections we consider our price point selection within our two country benchmark set, and our cross-check using an expanded five country benchmark set. We then set out our decision on the price point for the Basic UBA service.
202. To determine our price point selection from within the two country benchmark set, we have started with the median of the benchmark set, and then considered whether we should move above or below the median due to any other additional factors. The factors that we consider relevant for this price review are:
- 202.1 differences in comparability between the benchmark countries and New Zealand; and
- 202.2 section 18 considerations.
203. We considered the contribution of these factors in selecting a price point for the additional cost for the Basic UBA service. We recognise that the benchmark set is small and may create uncertainty. To improve the accuracy of our estimate we considered weighting benchmarks, where one of the benchmarks appears to be more comparable to New Zealand. We then examined whether a move away from the median is required to address s 18 considerations. In selecting the price point, we considered the aggregate effect of these relevant factors.⁸⁵
204. The two country benchmark set is presented in Table 3 below.⁸⁶

Table 3: The two country benchmark set

Country	Currency	Monthly prices (local currency)	Blended FX rates	Monthly prices(\$NZ)
Denmark	DKK	41.66	4.69	8.88
Sweden	SEK	60.18	5.51	10.92
Median				9.90

⁸⁵ In past determinations, we have often considered it helpful to break down any adjustments and take them into account separately. In this case, we cannot undertake such a discrete approach due to the limitations imposed by the two benchmark set, and the higher degree of comparability of one country within that set.

⁸⁶ Attachment E sets out our approach to currency conversion. The Benchmarking Workbook published in parallel to this final decision outlines the underlying calculations and assumptions.

A movement above the median price point is appropriate for differences in comparability

205. In paragraphs 162–178, we agreed that density characteristics are likely to reflect underlying costs that may impact the forward-looking cost of the UBA service, while rejecting Chorus’ proposed adjustments to the benchmarks to correct for differences in density. Therefore, we consider density characteristics further in selecting an appropriate price point for the Basic UBA service.
206. We would expect that where the benchmarks may not be comparable to New Zealand due to differences in density, the median of our benchmark set may not reflect the forward-looking cost of the Basic UBA service.
207. We note that where the Commission has faced the issue of a small benchmark set in previous price determinations, other adjustments have been used where these improve the accuracy of our estimate.⁸⁷ As a means of addressing the uncertainty, our update paper suggested the following option:⁸⁸

This option consists of weighting benchmarks, where one of the benchmarks is believed to be more comparable than others. In this situation we note:

- (a) if one benchmark is more comparable to New Zealand, then we would expect its price to be more likely to be representative of New Zealand than other benchmarks;
 - (b) placing greater weight on this benchmark should therefore increase accuracy; and
 - (c) even if a particular country perfectly matched all our comparability criteria, this does not imply there is no potential for error. In observing prices in other countries there are many factors we cannot observe which can introduce error.
208. Our decision is that it is appropriate to adopt this weighting approach as a means to address uncertainty of a small benchmark set.
209. Our update paper expressed the view that Sweden is the most closely comparable benchmark to New Zealand.⁸⁹ This was supported by the report from Professor Vogelsang.⁹⁰

Because of higher population density Denmark has lower UBA cost than Sweden. In addition, since New Zealand’s density is very close to that of Sweden the Swedish observation is

⁸⁷ We use ‘accuracy’ here in the sense of both reducing the potential difference between the price determination and TSLRIC cost and reducing the potential extent of inaccuracy that could occur.

⁸⁸ Commerce Commission, *Unbundled Bitstream Access Service Price Review- Update on matters relevant to the UBA price review*, (Commerce Commission Update paper), 13 August 2013, para 46.

⁸⁹ Commerce Commission, para 47.

⁹⁰ Professor Vogelsang, 05 July 2013, Paper prepared for the New Zealand Commerce Commission, “*What effect would different price point choices have on achieving the objectives mentioned in s 18, the promotion of competition for the long-term benefit of end-users, the efficiencies in the sector, and incentives to innovate that exist for, and the risks faced by investors in new telecommunications services that involve significant capital investment and that offer capabilities not available from established services?*”, para 8.

probably much closer to the true expected value of UBA cost for New Zealand than the Danish observation.

210. Submissions to our update paper had mixed views on giving weight to the Swedish price point:
- 210.1 Vodafone submitted that it is appropriate for Sweden to be given greater weight as it is the best comparator to New Zealand.⁹¹ In particular, Vodafone submitted that setting a price at the Swedish level would:⁹²
- (a) Result in price point being set that is higher than the median of the existing benchmark (i.e. there has already been an upward adjustment)
 - (b) Provide relativity between UBA and UCLL services
 - (c) Generate a UBA price that is consistent with informed expectations of benchmarking results
- 210.2 Covec submitted that while Sweden is more similar to New Zealand than Denmark, Denmark and Sweden should be weighted equally.⁹³
- 210.3 Telecom's economic advisor, NERA, noted weighting data points would tighten comparability criteria and may not be reasonable. NERA further queried whether the Commission has sufficient evidence to be confident to assign a higher weighting to Sweden.⁹⁴
- 210.4 Chorus submitted that its proposed adjustments to prices were preferable to placing greater weight on particular benchmarks.⁹⁵
211. Table 4 below provides measures of density and scale as comparability indicators for the UBA price.
212. Table 4 illustrates that urbanisation in New Zealand is comparable with the benchmark countries, while the difference in population density between New Zealand and Denmark appears to be substantial. However, DSL subscriptions and penetration in New Zealand is more comparable to Denmark.⁹⁶ On balance, our view is that Sweden is more comparable to New Zealand than Denmark based on these

⁹¹ Vodafone, *UBA service price review: Update on matters relevant to the UBA price review*, 03 September 2013, para 11.

⁹² Vodafone, *UBA service price review: Update on matters relevant to the UBA price review*, 03 September 2013, para 17.

⁹³ Covec, *Report prepared for Internet New Zealand, TUANZ and Consumer New Zealand- UBA pricing issues*, 03 September 2013, paras 24–30.

⁹⁴ Telecom, *Submission on UBA price review: Update paper*, 03 September 2013, para 12.a; NERA economic consulting, *Prepared for Telecom New Zealand, UBA- Review of Commerce Commission's Update Paper and Vogelsang Report*, 03 September 2013, pp 1–2

⁹⁵ Chorus, *Submission in response to the Commerce Commission's consultation paper "Update on matters relevant to the UBA price review"*, 03 September 2013, paras 18, 20 and 21

⁹⁶ We also note that total DSL subscriptions include unbundled copper lines, which will effect DSL penetration.

indicators. However, we acknowledge that there are other cost drivers not observed in this table.

Table 4: Density measures for New Zealand, Denmark and Sweden⁹⁷

Characteristic	New Zealand	Denmark	Sweden
DSLAM sites	5,794	1,730 ⁹⁸	5,091 ⁹⁹
Population density	17	131	23
Urbanisation	86%	87%	85%
DSL penetration	27%	21%	15%
DSL subscriptions	1,169,014	1,190,954	1,470,000

213. Given that New Zealand’s density factors appear more comparable to Sweden than Denmark, it is more likely that the forward-looking cost for the UBA service is closer to the Swedish bitstream service. This means we should select a price above the median, closer to Sweden.
214. However, while less comparable regarding population density, we do not consider that we should discount the Denmark price—we consider that price still relevant to our benchmarking purposes. Therefore, we do not believe that comparability factors alone would move us to the Swedish benchmark price. Doing so would give a 100% weighting to Sweden, and would discount the evidence provided by the Danish observation, effectively reducing the benchmark set to one.
215. We note that parties generally supported choosing a price closer to the Swedish price:
- 215.1 Our expert advisor, Ingo Vogalsang, indicated that a value at the 75% or even the 100% mark between the benchmark costs of Denmark and Sweden appears to be justified.¹⁰⁰

⁹⁷ Sources: <http://data.worldbank.org/indicator/EN.POP.DNST/countries?display=default>; http://esa.un.org/unup/CD-ROM/WUP2011-F01-Total_Urban_Rural.xls; http://www.keepeek.com/Digital-Asset-Management/oecd/science-and-technology/oecd-communications-outlook-2013_comms_outlook-2013-en#page132; http://esa.un.org/unup/CD-ROM/WUP2011-F05-Total_Population.xls

⁹⁸ Network Strategies, *Final report for Vodafone- A review of key benchmarking issues in UBA submissions- Cross-submission for the Unbundled bitstream access draft determination*, 28 February 2013, p 19. Network Strategies have estimated there are 1730 DSLAM sites in the model but this increases to 1838 if edge router and core router sites are included.

⁹⁹ Network Strategies, *Final report for Vodafone- A review of key benchmarking issues in UBA submissions- Cross-submission for the Unbundled bitstream access draft determination*, 28 February 2013, p 24.

215.2 NERA indicated that a value at the 75% mark is reasonable.¹⁰¹

215.3 Covec submitted that it is unlikely that Denmark provides no information about UBA costs in New Zealand.¹⁰²

215.4 Network Strategies indicated that the price is likely to be between the median and the upper bound.¹⁰³

Section 18 considerations

216. Uncertainties in the benchmarking process mean that we may arrive at a calculated price that is different from a price based on the forward-looking costs of providing the service. A benchmarked price that is different from the forward-looking cost could affect access seekers' decisions in a way that may not be beneficial for end-users. There is an asymmetric cost on end-users when the economic cost of an incorrect estimate in one direction is greater than the opposite direction.
217. In our update paper, our view was a price point above the median is appropriate. In reaching this view, the update paper considered the following:
- 217.1 The role of unbundling of the copper local loop, the impact our decision will have on incentives to invest in further unbundling, and the dynamic and static efficiencies that are likely to result from such investment; and
- 217.2 Incentives to innovate that exist for, and risks faced by, but not limited to, investors in the Government's UFB Initiative, and the dynamic and static efficiencies that are likely to result from such investment.
218. The detailed discussion of the factors relevant to this decision is contained in our update paper and the expert report by Professor Vogelsang. The update paper also noted the following on the impact on other competing networks.¹⁰⁴

¹⁰⁰ Professor Vogelsang, Paper prepared for the New Zealand Commerce Commission, "*What effect would different price point choices have on achieving the objectives mentioned in s 18, the promotion of competition for the long-term benefit of end-users, the efficiencies in the sector, and incentives to innovate that exist for, and the risks faced by investors in new telecommunications services that involve significant capital investment and that offer capabilities not available from established services?*", 05 July 2013, para 8.

¹⁰¹ NERA Economic Consulting, *Prepared for Telecom New Zealand, UBA- Review of Commerce Commission's Update Paper and Vogelsang Report*, 03 September 2013, p 1.

¹⁰² Covec, *Report prepared for Internet New Zealand, TUANZ and Consumer New Zealand- UBA pricing issues*, 03 September 2013, paras 24–30.

¹⁰³ Network Strategies, *Prepared for Vodafone, Unbundled bitstream access price review*, 02 September 2013, p 15. Network Strategies argued that the WACC used in the Swedish model (8.8%), may be higher than the WACC we would use for NZ, because no subsidies are provided for fibre deployment, may imply that the Swedish benchmark price would be higher than the New Zealand equivalent. We note, on the other hand, that we have no evidence on whether the Swedish WACC is above or below the appropriate WACC in a TSLRIC model for UBA in New Zealand.

¹⁰⁴ Commerce Commission, UBA update paper, 13 August 2013, para 111.

Where **Chorus is the local fibre company (LFC)** – In those areas where Chorus is operating both the copper and UFB networks, it is difficult for the Commission to conclude that this is ‘true’ competition. Here competition is only likely to be driven through Commission-mandated access to the copper network (ie, regulation of the UBA and UCLL services), which effectively forces copper and fibre services to compete. The ability of access seekers to offer a lower quality copper service or a higher quality fibre service may enhance the level of competition in meeting the needs of heterogeneous end-users, some of who will value the additional speeds available over fibre, and some of which will not. Here a higher UBA price is unlikely to promote competition between the copper and fibre networks for the LTBEU but may facilitate migration to the UFB network. This in turn may impact on incentives to invest and dynamic efficiencies which may be for the LTBEU. We discuss this further in the next section.

Where **Chorus is not the LFC** – In those LFC areas where Chorus is not the UFB provider, there is the potential for direct competition between Chorus’ copper network and the other LFCs fibre network in attracting access seekers to use their wholesale inputs. This competition could be intense including the potential for Chorus to price its services below the regulated price cap and/or invest in enhancing the capabilities of the copper network. Applying a higher UBA price (which reflects a price cap) is unlikely to have any effect on the competition between the copper network and fibre networks in areas Chorus is not the UFB fibre provider.

Other networks – We consider that it is unlikely that a higher UBA price will materially increase the prospect of competition from completely new network level entry and expansion of existing alternative networks. The Government subsidised UFB implies that at existing prices it is uneconomic for large-scale private investment in alternative fixed network rollout.

219. Our view in the update paper was that a price above the median is likely to ensure that s 18(2A) incentives are maintained.¹⁰⁵

We therefore consider that a price point above the median may be appropriate to minimise the risk to investment and the dynamic efficiency gains from incorrectly setting a price below the ‘true’ UBA cost. This has been considered recognising that these benefits need to be balanced with the costs to end-users of raising the price above the median. In considering this we have borne in mind the greater potential for error from setting a price under an IPP approach.

We recognise that increasing the UBA price above the median may lead to greater migration to the UFB. We note that the asymmetric impact of setting a price that under-estimates the UBA price has greater negative impacts to investment and innovation than erring on a price which may over-estimate the UBA price. If the price is incorrectly set below forward-looking cost, this would adversely impact on returns to investment in new and innovative services and may act to discourage such investment. In turn this can impact on competition in the longer-term which can be dependent on such investment

220. This view was balanced against the potential cost to end-users.¹⁰⁶

¹⁰⁵ Commerce Commission, UBA Update paper, 13 August 2013, para 115.

¹⁰⁶ Commerce Commission, UBA Update paper, 13 August 2013, para 141.

The Commission considers that accelerated migration implies a welfare cost to end-users because they could have continued to consume the cheaper copper broadband services rather than the more expensive fibre broadband services. However, as discussed above, this cost needs to be weighed against the benefits of accelerated migration in bringing forward services dependant on UFB take-up. Thus over time we would expect the value of the additional capabilities of fibre to grow and benefits to end-users to accrue, offsetting the welfare costs of accelerated migration.

221. Our view remains that the negative impacts on competition of under-estimating the forward-looking costs are greater than over-estimating the forward-looking costs.¹⁰⁷ This implies that we should err on the higher side to avoid the negative consequences of setting a price that is too low.

222. Chorus submitted that greater weighting should be placed on dynamic efficiencies and investment incentives.¹⁰⁸

the potential benefits of the industry moving to competition on the UFB network are substantial and significantly outweigh the short term effects of potential price shocks and incentives on the copper network¹⁰⁹

223. Chorus has also submitted that a price point that is higher than the median is necessary to reflect asymmetric costs.¹¹⁰

the economic cost of error in estimating the UBA price are asymmetric and the costs for under-estimating the price give rise to greater economic costs than over-estimating

224. Vodafone submitted that the Commission needs to place equal weight to static and dynamic efficiencies and there is no requirement for the Commission to prioritise s 18(2A).¹¹¹ Vodafone submitted that the UBA price must be at the Swedish price.¹¹²

225. The majority of submissions have pointed to the uncertainty of the benefits of a higher price and the certainty of the potential cost. For example, Telecom noted that regulated prices at cost promote dynamic efficiency, and departing from a cost-based price creates uncertainties around incentives and outcomes.¹¹³ Telecom further submitted that a price point above the median could incentivise migration to fibre or incentivise further unbundling investment in “old” technology.¹¹⁴ Telecom’s

¹⁰⁷ Cost refers to the cost of an efficient operator as defined by the Act.

¹⁰⁸ Chorus, Submission on UBA update paper, 03 September 2013, paras 18.4, 17, 26, 49 and 24.

¹⁰⁹ Chorus, Submission on UBA update paper, 03 September 2013, para 26.3.

¹¹⁰ Chorus, Submission on UBA update paper, 03 September 2013, para 18.3. However, we note that in its post-conference spreadsheet “*Chorus UBA benchmarking summary*”, Chorus indicated that the price should be set at \$21.46 which reflected a price point selection ranging from the 4th to the 85th percentile, depending on the approach taken to Chorus’ proposed adjustments. This price is identical to the current retail-minus price. Chorus notes that its price point selection is guided by s 18.

¹¹¹ Vodafone, Submission on UBA update paper, 03 September 2013, paras 28, 31–32.

¹¹² Vodafone, Submission on UBA update paper, 03 September 2013, paras 5, 11, 17 and 37.

¹¹³ Telecom, Submission on UBA update paper, 03 September 2013, para 32.

¹¹⁴ Telecom, Submission on UBA update paper, 03 September 2013, paras 39 and 46.

economic advisor, NERA, argued that the only valid reason to add an increment to the UBA price is to address asymmetric risk.¹¹⁵

226. InternetNZ, TUANZ, and Consumer New Zealand submitted that the cross-check information supports the median as the price point and not to go beyond the range.¹¹⁶ They also argued that a price above the median will distort competition.¹¹⁷
227. InternetNZ, TUANZ and Consumer New Zealand’s economic advisor, Covec, also emphasised this uncertainty. Covec indicated that the effects on consumers are certain but the effects on incentives to invest and incentives to migrate from copper are uncertain.¹¹⁸
228. We recognise the greater uncertainty of benefits but believe these uncertainties need to be considered against the potential negative consequences of setting the price too low.¹¹⁹ This could harm competition in the longer-term due to a loss in dynamic efficiencies. This would not promote competition for the LTBEU due to the potential loss of dynamic efficiency benefits which may otherwise result.
229. Covec indicated that there is no reason to depart from the median UBA price because, amongst other factors, there is an inbuilt cushion from the geographical averaging of the UCLL price was included into the 2011 reforms, which benefits UFB networks. Covec indicated that this provides a cushion against the risk of error from under-estimating the total copper price.¹²⁰
230. While we believe that geographical averaging does affect the way competition operates in different parts of the country, we are nevertheless required to set a national price for the Basic UBA service.¹²¹
231. On balance, we accept in principle that the risk to dynamic efficiency of a low access price is asymmetric and that the balance of risk favours setting a price that errs on the high side. Consequently, we believe some adjustment is appropriate to take account of asymmetric risk.
232. We therefore consider that a price point above the median may be appropriate to minimise the risk to investment and to avoid dynamic efficiency losses that could

¹¹⁵ NERA economic consulting, *Prepared for Telecom New Zealand, UBA- Review of Commerce Commission’s Update Paper and Vogelsang Report*, 03 September 2013, pp 5–9.

¹¹⁶ Internet New Zealand, TUANZ and Consumer New Zealand, Submission in response to the Commission’s UBA Update, 03 September 2013, para 4.7.

¹¹⁷ Internet New Zealand, TUANZ and Consumer New Zealand, 03 September 2013, Submission in response to the Commission’s UBA Update, paras 1.15, 6.11–6.14.

¹¹⁸ Covec, *Report prepared for Internet New Zealand, TUANZ and Consumer New Zealand- UBA pricing issues*, 03 September 2013, pp 14–20.

¹¹⁹ By their nature dynamic efficiency benefits which occur across time are subject to greater uncertainty which always raises the danger that they are not given enough weight.

¹²⁰ Covec, *Report prepared for Internet New Zealand, TUANZ and Consumer New Zealand- UBA pricing issues*, 03 September 2013, para 161.

¹²¹ We also acknowledge that the “inbuilt cushion” referred to by Covec was known at the time when the UFB commercial contract was negotiated

arise from incorrectly setting a price below the forward-looking cost for the UBA service. This has been considered recognising that these benefits need to be balanced with the costs to end-users of raising the price above the median.

We do not adjust the price any further to account for migration away from copper

233. Chorus¹²² and other LFCs¹²³ have contended that migration to UFB should be a major consideration, and, consequently, warrants selection of a higher price point. As set out in paragraphs 179–194, we have rejected Chorus’ proposed adjustments to address the effects of migration from copper to alternative networks.
234. However, given that fibre migration is the central theme of submissions from the participants in the UFB, we here separately set out the reasons we consider that no additional adjustment (above that for addressing asymmetric costs) is appropriate in our selection of the price point.
235. Our view is that a drop in utilisation (over time) due to competition from other services may be addressed in other ways, and that there may be substantial reductions in cost of providing the service over the long run.¹²⁴
236. In addition, the impact of migration from copper on the forward-looking cost of the UBA service is uncertain:
- 236.1 UBA specific assets (mostly active equipment such as DSLAMs) have a relatively short economic life, typically 5 to 10 years, and are unlikely to be affected by migration in the short to medium term; and
- 236.2 longer life assets, such as trenching and backhaul, may be shared between copper and fibre services.
237. As explained in the legal framework section in this report, the IPP is a proxy for the FPP, which is a TSLRIC model. As such, if we make an assumption in a FPP for the UBA service and take that assumption into account in a TSLRIC model, we must consider that aspect in our IPP assessment of the forward-looking cost for the UBA service in New Zealand.
238. We are unsure how this potential and uncertain decline in copper utilisation would be reflected in a TSLRIC estimation of UBA under and FPP for the UBA service. Furthermore, how this would be accounted for in comparison to our benchmarks in our IPP assessment is much more uncertain. Therefore, our decision is that adjusting the price to take account for a drop in copper utilisation is unlikely to make the outcome more accurate.

¹²² See, eg, para. 84 of Chorus’s Cross-submission on the Draft Determination, referencing the report prepared for Chorus by Sapere Research Group, at para 58.

¹²³ See, eg, para. 54 of the Joint Submission on the Draft Determination

¹²⁴ We note that any further copper investment by Chorus is likely to be limited given its prioritisation of fibre-based services and their assumption that copper usage is likely to decline substantially in the future.

239. On balance, we do not consider a price point adjustment is appropriate to account for a potential drop in copper migration given that the effect of migration on the forward-looking costs of the UBA service is uncertain.

Our decision on the price point for the two country benchmark set

240. Having considered s 18, our view is that a price point at the top end of our two country benchmark set is appropriate to take into account the comparability of the benchmark countries and asymmetric cost.
241. This gives a monthly cost-based price for additional costs of providing the Basic UBA service of \$10.92.

Our cross-check using an expanded benchmark set

243. While a larger benchmark set is desirable, it potentially introduces error by including countries that are not directly comparable to New Zealand. In this case, we have considered an expanded benchmark set to cross-check the reasonableness of the core benchmark set of Denmark and Sweden.
244. It was argued at the UBA conference and in submissions received post-conference that other benchmarks could be used as a cross-check. For example:
- 244.1 Network Strategies argued that relaxing the benchmark criteria would increase the potential for error. It suggested that additional benchmark countries may be used as a sanity check.¹²⁵
- 244.2 Network Strategies assessed whether the relativities between the data points are reasonable. Network Strategies used both the price of the lowest bandwidth service and the weighted average price across speed. They included Belgium, Greece, Hungary and Switzerland in their analysis. They found that the relativities of the prices of the countries not included in the core benchmark set are what they would expect relative to Denmark and Sweden. They also indicated that:¹²⁶
- there is nothing within this additional data to suggest that the use of only Denmark and Sweden for deriving benchmark estimates for New Zealand is inappropriate.
- 244.3 Telecom found that Sweden and Denmark represents price points in the centre of the distribution of wider broadly cost-based forward-looking prices. Telecom included nine countries in the benchmark set and excluded the UK. Telecom did note that none of the additional countries included appeared to be forward-looking models which would present good proxies for the New Zealand TSLRIC UBA price.¹²⁷
- 244.4 Chorus proposed an expanded benchmark set including Denmark, Sweden, Greece, Belgium, Switzerland and the United Kingdom. Chorus proposed further adjustments to the benchmarked price points for VDSL, line density and fibre migration based on either an econometric methodology or a ratio benchmarking methodology.

¹²⁵ Network Strategies, *Prepared for Vodafone, Unbundled bitstream access price review*, 02 September 2013, p 6.

¹²⁶ Network Strategies, UBA: reviewing benchmark data. Information paper, 02 July.

¹²⁷ Telecom, letter dated 26 June 2013. UBA Conference- Commissioner Gale's request for Benchmark Indications.

We expanded the core benchmark set by relaxing the criterion for the location of the handover point

245. As noted in paragraph 82, there are three criteria in deciding whether a regulated price is appropriate for the inclusion in the benchmark set. For the purposes of this cross-check, we expand the benchmark set by relaxing the similar services benchmark criteria. When we relax the handover point criterion, this leads to the inclusion of the following countries in the benchmark (in addition to Denmark and Sweden):
- 245.1 Switzerland;
 - 245.2 Greece; and
 - 245.3 Belgium.
246. For the purposes of this cross-check we have not made any adjustments to the observed prices. We consider making such adjustments is speculative and uncertain.
247. It remains a concern that this could result in a biased benchmarking data set due to differences in comparability between New Zealand and the expanded benchmark countries. This is illustrated in Table 5 below.
- 247.1 Population density is lower than all of the countries in the benchmark set, with the exception of Sweden. We note that the extent of this bias is unknown.
 - 247.2 The location of the handover point for the benchmark countries, with the exception of Sweden and Denmark, is different to New Zealand. However, there is no means by which we can identify the extent of over or under-estimation for these services, and therefore we cannot be certain that we are not introducing bias to the benchmark set (or the direction of that bias).

Table 5: The location of the handover points and density for New Zealand and benchmark countries

Country	DSL subscribers (2012)	DSL penetration (2012)	Urbanisation (2012)	Population density (2013)	Handover point of service
Denmark	1,190,954	21%	87%	131	Parent switch
Sweden	1,470,000	15%	85%	23	Parent switch
Belgium	1,857,523	17%	97%	365	Parent switch but DSLAM and parent node are collocated at the MDF
Switzerland	2,210,000	28%	74%	198	Between DSLAM and Parent switch
Greece	2,554,689	24%	61%	88	B-RAS
New Zealand	1,169,014	27%	86%	17	Parent switch

248. We do not consider that a move away from the median for potential differences in cost is necessary within the expanded benchmark set because the uncertainty of a small benchmark set is reduced by expanding the benchmark set. We also believe that a move away from the median is not appropriate within the expanded benchmark set, given that the bias is uncertain.
249. On balance, recognising the potential bias in the expanded benchmark set, we are of the view that it provides an appropriate cross-check. We conclude that the expanded benchmark set is an appropriate approach to assess the robustness of the price point selection under the core benchmark set option.
250. The forward-looking cost for each benchmark country in the expanded benchmark set under our cross-check is presented in Table 6 below.¹²⁸

¹²⁸ Attachment E sets out our approach to currency conversion. The Benchmarking Workbook published in parallel to this final decision outlines the underlying calculations and assumptions.

Table 6: The five country benchmark set

Country	Currency	Monthly price (local currency)	Blended FX rates	Monthly price (\$NZ)
Denmark	DKK	41.66	4.69	8.88
Sweden	SEK	60.18	5.51	10.92
Belgium	EUR	3.70	0.56	6.56
Switzerland	CHF	10.00	0.87	11.45
Greece ¹²⁹	EUR	5.30	0.51	10.48

Median	10.48
25th percentile	8.88
75th percentile	10.92

251. Consistent with past determinations, we consider that the median of the benchmark set is a reasonable starting point. We then take into account s 18 considerations in the selection of the price point.

Section 18 considerations

252. As discussed in paragraphs 216–232, setting a forward-looking cost-based price above the median would promote efficiencies in accordance with s 18. Our conclusion is, therefore, that a UBA price above the median may be appropriate in this price review. There are grounds to move to a higher point in the benchmark set to account for asymmetric risk.
253. We conclude that the median point of the benchmark range is the appropriate starting point for the pricing decision and that an adjustment should be made to reflect the asymmetric nature of the risk to dynamic efficiency of a low price. A price below the mean may yield short-term static gains but constrain the realisation of long-term, dynamic efficiency gains.
254. There were a number of comments made in submissions about the price point selection by the Commission. These related to our update paper to adopt a price above the median price. As discussed in paragraph 215, none of the submissions argued for a price point below the median.

¹²⁹ We have calculated a weighted average price point for the Greek service based on observed speeds in Greece. The calculation is outlined in the accompanying Benchmarking Workbook.

Decision on price point

255. In previous decisions, where we consider price point selection we have traditionally used percentiles in determining how much to move above or below the median. We numerically order the benchmarks and then pick a price point in the range corresponding to that percentile. For example, we have used the mean or median, 75th percentile, or 25th percentile in previous determinations in which access prices have been set according to an IPP.

256. We have adopted this approach for the purpose of the cross-check.

257. In previous decisions, the Commission has selected the 75th percentile as an appropriate point from within a range of the benchmark prices to address asymmetric risk. For example, in Decision 477, the Commission stated:¹³⁰

The Commission has been unable to identify any rigorous and quantifiable means of accounting for the risk to dynamic efficiency, while recognising that the risk should induce the Commission to set a price at a level that minimises the possibility of undershooting. The Commission has accordingly decided to shift the price point from the median point of the range to the 75th percentile of the range.

258. For the current price review, we consider the 75th percentile is an appropriate price point for the cross-check because:

258.1 this price point minimises the risk to investment and avoid the dynamic efficiency losses that could arise from incorrectly setting a price below the forward-looking cost for the UBA service; and

258.2 recognises that these benefits need to be balanced with the costs to end-users of raising the price above the median.

Conclusion on the cross-check approach to select a price point for the Basic UBA service

259. We consider that addressing the asymmetric risk moves us to the 75th percentile of the benchmark set. This produces a price for the additional costs of providing the Basic UBA service of \$10.92 per month.

¹³⁰ Commerce Commission, Decision 477, para 169.

Conclusion on the price point selection for the Basic UBA service

260. In selecting the price point for Basic UBA, we have adopted the two country benchmark set as the basis of our decision, and applied the expanded benchmark set as a cross-check.
261. We believe both approaches addressed the problem of uncertainty in a small benchmark set. In the case of the two country benchmark set, as a means to address uncertainty, we provided greater weight to Sweden because it is more comparable to New Zealand than Denmark. In the case of the expanded benchmark set, additional price points were included to address uncertainty.
262. We recognise, however, that by relaxing the benchmarking criteria in order to expand the benchmark set potentially creates a source of error. On the other hand, the two country benchmark set contains countries we are confident are comparable to the UBA service in New Zealand.
263. Accordingly, we adopted the two country benchmark set as the basis of our determination, whereas the expanded benchmark set is the cross-check to our determination.
264. The result of both approaches are summarised in Table 7.

Table 7: Monthly price for Basic UBA (NZ\$)

	Two country benchmark set	Cross-check (Five country benchmark set)
Price prior to adjustment for asymmetric risk	10.41	10.48
Monthly price for the Basic UBA service	10.92	10.92

265. As shown in Table 7, the price under the two country benchmark set is \$10.92. We considered two adjustments for comparability and asymmetric cost, and cumulatively these adjustments moved us to the Swedish price.
266. As shown in Table 7, the price under the cross-check is \$10.92. We applied our standard approach to the expanded benchmark set to derive the price of \$10.92. We did not consider it necessary to make an adjustment for comparability because the uncertainty of a small benchmark set is reduced by expanding the benchmark set. We moved away from the median to the 75th percentile to address asymmetric cost.
267. Table 7 illustrates that applying our standard approach to the expanded benchmark set results in the same price as we derive from the analysis of the two country benchmark set. Given that the results of the two country benchmark set and the

cross-check are not materially different, it provides comfort that our price determination does not depend on the choice of expanding the benchmark set.

268. Our conclusion is that the cost-based price for the additional cost of providing the Basic UBA service is \$10.92 per month. We consider that that this price best gives, or is likely to best give, effect to the purpose of s 18 because:

268.1 we systematically applied the IPP in order to reach our best estimate of the forward-looking cost-based UBA price for New Zealand;

268.2 setting a forward-looking cost-based price promotes competition and promotes efficiencies in accordance with s 18; and

268.3 we have taken into account s 18 including s 18(2A) in adjusting for the long term costs of potentially setting a price below the forward-looking costs of UBA.

Relativity

269. We have also considered and rejected any further price adjustment to reflect the relativity requirements under the Act.

270. As part of our s 18 considerations, the service description for UBA requires us to assess the relativity of the UBA and UCLL services. The difference in price between the UBA and UCLL services may affect the incentives for access seekers to invest in UCLL.

271. Most submissions to the discussion paper and draft determination expressed the view that the appropriate relativity would be provided for if both the UCLL and UBA monthly prices are cost-based. For example:

271.1 Vodafone submitted that cost-based pricing provides for the correct build versus buy signals for competitors and investment signals for incumbents.¹³¹

271.2 Chorus argued that:¹³²

if both UCLL and UBA services are appropriately set on a cost-based approach, then presumptively those are the prices that encourage economically efficient investment between the two services. There should be limited scope for adjustment in reliance on the relativity condition.

271.3 Telecom noted that in a cost-based world:¹³³

¹³¹ Vodafone, *Changing the unbundled bitstream access (UBA) service from retail-minus pricing to international benchmarking from jurisdictions using forward-looking cost-based pricing*, 24 August 2012, paras 35–43.

¹³² Chorus, *Submission in response to the Commerce Commission's Unbundled Bitstream Access Price Review Consultation Discussion Paper*, 24 August 2012, para 20.

¹³³ Telecom, *UBA Price Review Consultation: Discussion Paper*, 24 August 2012, para 65.

the ladder of investment incentives become far less relevant than they were in a pre-fibre world and the relative difference between UBA and UCLL becomes a pure factor of cost differences

271.4 InternetNZ agreed that if both UCLL and UBA prices are cost-based then the relativity between the services will be automatic given that the UCLL cost is a constant factor in the UBA price.¹³⁴

272. Sapere Research Group, in its report for Chorus on our draft determination, provided three distinctions between this decision and our prior decisions on UBA and UCLL.¹³⁵ In particular, any minor incongruity between the cost-based prices determined for UCLL and UBA arise from the different benchmark sets, not specifically the approaches used to address different risk factors within each benchmark set. This uncertainty is inherent in determining prices in accordance with the IPP.
273. Telecom argued that the ladder of investment is no longer an appropriate framework for applying the relativity requirement.¹³⁶ Telecom suggested that the only way to consider relativity is to set UCLL and UBA prices at cost.¹³⁷
274. In this regard, Professor Vogelsang noted:¹³⁸

A strict application of the ladder-of-investment approach could be interpreted as requiring an increase of the wholesale UBA price relative to the UCLL price because that could induce access seekers to climb the ladder of investment by an additional rung by adding network, DSLAM and collocation equipment. However, that could run into trouble with argument (a) above against using the ladder-of-investment approach because investments in UBA bypass would be in an outgoing technology. The questions here are if the remaining time horizon for copper access is still long enough to justify such investments and if some of these investments could be reused for later UFB access. Because of the uncertainties involved in answering these questions it appears best neither to favor such investments nor to handicap them. That means it is best to set both the UCLL and the UBA wholesale prices using the same cost-based methodology so that those investment decisions by access seekers can be made in a consistent and unbiased way.

275. Accordingly, Professor Vogelsang is of the view that relativity occurs if the same cost-based methodology is used. Our starting presumption is, therefore, that the relativity requirement is likely to be maintained given that both the UCLL and UBA prices are

¹³⁴ Internet New Zealand, *Submission in response to The Commerce Commission's Unbundled Bitstream Access Service Price Review – Draft Determination*, 01 February 2013, para 4.16.

¹³⁵ Sapere, *Report for Chorus Ltd- Comment on how to best give effect to the purpose of Section 18 in relation to UBA pricing*, 30 January 2013, p 11.

¹³⁶ Telecom, Submission on UBA update paper, 03 September 2013, para 36.

¹³⁷ Telecom, Submission on UBA update paper, 03 September 2013, paras 7 and 35.

¹³⁸ Professor Vogelsang, 05 July 2013, Paper prepared for the New Zealand Commerce Commission, "What effect would different price point choices have on achieving the objectives mentioned in s 18, the promotion of competition for the long-term benefit of end-users, the efficiencies in the sector, and incentives to innovate that exist for, and the risks faced by investors in new telecommunications services that involve significant capital investment and that offer capabilities not available from established services?", para 32.

now set in accordance with similar TSLRIC-based forward-looking cost-based pricing methodologies.

276. Having considered the relativity between the cost of the UBA and UCLL services, we are satisfied that the forward-looking cost for the UBA service is likely to provide incentives to unbundle where efficient to do so.
277. NERA noted that adding risk adjustment “breaks” relativity with UCLL, which did not include a risk adjustment.¹³⁹ We consider that as the Basic UBA price is set using a cost-based methodology, the price preserves appropriate efficiencies regarding investment incentives, particularly the ‘build vs buy’ decisions of access seekers of the UBA and UCLL service.
278. Given these considerations, we cannot identify any reasons to believe that an adjustment above and beyond forward-looking cost differences between UCLL and UBA will be in the long-term interest of end-users. We therefore consider that we do not need a further adjustment to the price of the Basic UBA service to address relativity.

¹³⁹ Telecom suggested that the only way to consider relativity is to set UCLL and UBA prices at cost Telecom submission, para 7.

Determining a price for the Enhanced UBA services

279. The UBA STD specifies four different variants to the UBA service: Basic UBA service (BUBA, also referred to as EUBA0) and three Enhanced UBA (EUBA) variants, offering a real time class of service (CoS) in addition to the best efforts BUBA service.
280. The EUBA variants were included within the UBA STD to enable access seekers greater flexibility in terms of the services they can support at retail. Alternative services would provide further opportunities for service differentiation and therefore are likely to promote competition.¹⁴⁰
281. As with the BUBA service, we are required by s 77 of the Telecommunications (TSO, Broadband, and Other Matters) Amendment Act 2011 to determine new cost-based prices for the EUBA variants to have effect from 1 December 2014.
282. In the draft determination, we determined the additional costs of the EUBA variants (on top of the BUBA service) with reference to the Swedish Bitsream Pro services.¹⁴¹ We calculated the percentage increase of Sweden's premium 2 Mbps CoS over the basic service (21.3%), and used that as a reference price for the EUBA 180 kbps service. We then calculated the uplift for the other two EUBA variants on a pro rata basis.
283. Analysys Mason submitted that the price of the Swedish product we benchmarked against was not determined in the Swedish cost model and it was unclear if the price was cost-based. Analysys Mason also noted that prices for the product had recently been updated and there was no longer a price differential.
284. Analysys Mason¹⁴² and Telecom¹⁴³ suggested two alternative approaches:
- 284.1 Use historic ratios established under the former retail-minus approach (which was itself established by reference to retail services in the UK, as Telecom at the time did not offer different CoS variants)
- 284.2 Use a wider benchmark range for the purpose of setting the EUBA price only, even if that includes using data on additional prices that are not based on forward-looking cost models.
285. Chorus also noted that the Swedish prices for the services used to derive the additional costs of EUBA have been updated and were now the same price.¹⁴⁴ Chorus recommended that we adopt the current retail-minus pricing approach put forward

¹⁴⁰ Commerce Commission, UBA STD Decision 611, p 32, para 109.

¹⁴¹ Commerce Commission, UBA Draft Determination, paras 134–137.

¹⁴² Analysys Mason report for Telecom on the Draft Determination, section 3.

¹⁴³ Telecom, Submission on UBA Draft Determination, paras 25–26.

¹⁴⁴ Chorus, Submission on UBA Draft Determination, paras 84–87.

in WIK's advice to the Commission, and supported by Analysys Mason and Telecom.¹⁴⁵

286. At the conference, Telecom stated that it was also comfortable with the current retail-minus ratios, while also noting that there is unlikely to be a large cost differential between the BUBA service and the EUBA variants.¹⁴⁶
287. However, we are required to determine the price for these services in accordance with the IPP, and our view is that the current ratios are not based on the forward-looking costs of providing the EUBA variants. Our approach to determining the uplifts in the UBA STD included, among other things, references to wholesale prices and various retail price products.¹⁴⁷ We observed a number of different price differentials across wholesale products, and the final uplift found in the current pricing includes a number of assumptions regarding retail prices.

Our approach to determining prices for the EUBA variants

288. The IPP requires us to benchmark the additional costs of providing the UBA services. We agree with the Telecom view that there is an additional cost involved in providing a guaranteed real time traffic channel. As such, we have attempted to identify countries that offer real time traffic profiles for carrying wholesale bitstream traffic.
289. We note that Chorus, when asked at the conference, stated that the primary additional costs for the EUBA variants were its system setup costs.¹⁴⁸ We do not consider that Chorus' actual setup costs are a relevant consideration in determining the forward-looking costs of the EUBA variants.
290. We have identified that Belgium has a wholesale bitstream transport service with a real time CoS profile. In order to calculate the percentage difference for the additional cost of the EUBA variants we have calculated the percentage mark-up of the costs required to provide a real time CoS in addition to the costs of providing a best effort CoS to the Belgian distant handover point.¹⁴⁹
291. Telecom's view was that the additional cost of guaranteeing a real time traffic channel is unlikely to be substantial and therefore we consider that the percentage mark-ups calculated using the Belgian wholesale bitstream service are reasonable.

¹⁴⁵ Chorus, Cross-submission on UBA Draft Determination, para 76.

¹⁴⁶ John Wesley-Smith, UBA Price Review Conference Transcript, 12 June 2013, p 128.

¹⁴⁷ The Commission's approach to determining the retail-minus prices for the EUBA variants is set out in paragraphs 168 – 222, and Schedule B, of the *Standard Terms Determination for the designated service Telecom's unbundled bitstream access* (Commerce Commission Decision 611, 12 December 2007).

¹⁴⁸ Tim Sparks, Chorus, UBA Price Review Conference Transcript, 12 June 2013, p 124.

¹⁴⁹ We have assumed a 32kbps best effort CoS as the base service on top of which we have calculated the additional costs of the real time services.

292. We have calculated the following percentage mark-ups for wholesale bitstream services in Belgium with a real time CoS:¹⁵⁰

Bitstream service	Price (EUR)	Mark-up
32kbps best effort service	4.56	
32kbps best effort service + 40kbps real time service	5.53	21.32%
32kbps best effort service + 90kbps real time service	5.77	26.57%
32kbps best effort service + 180kbps real time service	6.20	36.02%

293. Applying the percentage mark-ups to the BUBA price produces the following prices for the EUBA variants:

UBA Service	Mark-up	Price
BUBA		10.92
EUBA 40	21.32%	13.25
EUBA 90	26.57%	13.82
EUBA 180	36.02%	14.85

294. We recognise that setting prices for the EUBA variants using a country outside our benchmark set for the Basic UBA service is not ideal. However, our view is that the prices set using this method are more likely to reflect the forward-looking costs of providing the EUBA variants than the current retail-minus ratios.

¹⁵⁰ The Belgian 32kbps base service is calculated assuming a 32kbps best efforts dedicated Ethernet VLAN to the regional handover point. The real time services also include a real time dedicated Ethernet VLAN. See spreadsheet for more information.

Determining prices for UBA non-recurring charges

296. This section sets out the benchmark prices for the UBA core charges. Core charges include, in addition to the monthly service charges for the UBA services, the prices for:
- 296.1 new connections;
 - 296.2 transfers; and
 - 296.3 other core services.
297. The core charges are set out in Schedule 2 to the UBA STD.
298. Consistent with our approach in the original UBA determination, we have set prices for the core charges in accordance with the IPP. In accordance with the new IPP for UBA, we have benchmarked the core charges against similar charges in countries that have regulated bitstream services that meet our forward-looking cost methodology criteria.¹⁵¹
299. We note that Chorus submitted that a cost-plus approach, using third party costs, is more appropriate as these costs are easily identified.¹⁵² However, Vodafone opposed this approach, stating that there was the risk of excessive charges being passed on to access seekers as Chorus has at least some control over these costs through its supplier arrangements.¹⁵³
300. Our view is that setting prices in accordance with the IPP will ensure that prices are based on efficient costs. The cost-based prices for the one-off core charges are set out in Attachment F.

Adjustments to connection and transfer charges

301. Chorus has stated that the benchmarking adjustments addressed in its submission relating to monthly rental price should also be applied to connection and transfer charges, where appropriate.¹⁵⁴
302. No evidence has been provided which would support making adjustments to the observed benchmark prices. Given that the substantial costs for connection and transfer charges relate to labour costs, we do not consider an adjustment beyond the purchasing power parity (PPP) conversion necessary.

Price point selection

303. Chorus has submitted that we should take the 75th percentile rather than the median due to uncertainty in the benchmark set.¹⁵⁵ Our view is that the cost involved with

¹⁵¹ See paragraph x for countries that meet our forward-looking methodology criteria.

¹⁵² Chorus, Submission on UBA draft determination, p 62, paras 238–239.

¹⁵³ Vodafone cross-submission, pp 13–14, paras 48–49.

¹⁵⁴ Chorus, Submission on UBA draft determination, p 62, para 240.3.

connection and transfer services are largely labour costs and the activities involved with a new connection or transfer are likely to be similar across jurisdictions.

304. As we have noted above, differences in labour costs across jurisdictions are addressed by the PPP adjustment. Therefore, we consider that the median provides a robust estimate of the cost of the core charges in New Zealand.

Clause 4A of Schedule 2 to the UBA STD

305. Pre-separation, Telecom did not charge a connection fee where end-users signed up to a term contract. Telecom recovered connection charges within its monthly retail price for the UBA service, rather than charge an upfront connection fee. Therefore, under the terms of the UBA STD, no connection charge applied where an access seeker's end-user signed up to the term contract associated with a free installation.
306. Clause 4A of Schedule 2 to the UBA STD sets out the services for which no charge is applied when an end-user signs up to a term contract, and the mechanism for which Chorus can recover charges when an end-user terminates their contract early.
307. The new cost-based charges for the UBA service variants do not include a component for the recovery of connection costs. We would expect Chorus to apply the appropriate new connection charge regardless of the term to which an access seeker signs an end-user. Therefore, our view is that clause 4A is no longer required and we have removed it from Schedule 2 from 3 years from separation day, when the new cost-based prices are to come into effect.

Connection charges

308. In the draft determination we set a cost-based price for only one type of connection charge—a new service connection (assisted). The charge represented the cost of a new connection including an end-user site visit.
309. A number of parties submitted that it was not clear what this connection charge related to and that we needed to further clarify new connection charges.
310. Telecom¹⁵⁶ and Chorus¹⁵⁷ submitted that there are broadly three types of new connection:
- 310.1 Connection without site visit (remote connection);
 - 310.2 Connection without site visit (but exchange/cabinet visit required); and
 - 310.3 Connection with site visit.

¹⁵⁵ Chorus, Submission on UBA draft determination, p 62, para 240.2.

¹⁵⁶ Telecom, Submission on UBA draft determination, Attachment 2, pp 15–16.

¹⁵⁷ Chorus, Submission on UBA draft determination, p 60, para 227.

311. We agree with the Telecom and Chorus submissions and have identified comparable charges in the benchmark countries in order to set cost-based prices for the three new connection types.
312. The benchmarked charges for the new connection components are set out in Attachment F.

Wiring and modem installation

313. At the request of an access seeker, Chorus is required to provide wiring at the end-users premises beyond the external termination point to a single jackpoint, and modem installation.
314. Telecom has submitted that wiring and modem installation services should not be included as part of the connection charge and should instead be treated as sundry services.
315. In its cross-submission, Chorus agrees with Telecom some connection charges, such as wiring and modem installation, should be treated as sundry charges.
316. We agree. We note that none of the potential benchmark countries appear to set cost-based prices for these services, and therefore setting prices in accordance with the IPP is not possible.
317. Given that we have no method for determining the additional cost of the wiring service, our view is that the service should be charged on a POA basis. We note that under sub-clause 2.4 of Schedule 2 of the UBA STD, this requires the price of the wiring service to reflect the underlying cost of providing the resources and project management skills required to provide the service.
318. We note that the current wholesale price for modem installation is \$38.01, when carried out at the same time as a connection. As we cannot benchmark the cost of modem installation, we consider the current charge appropriate.

Connection charge applicable when connecting multiple services

319. Telecom has submitted that Chorus offers a range of access services and the initial connection to the network could be triggered by any one of those services.¹⁵⁸ Premises connection charges could be applied to any of the services and Schedule 2 of the UBA STD needs to clarify which initial connection charge applies.
320. Telecom noted that the 2011 amendments to the Act provided that the UBA service is the primary service on a line.¹⁵⁹ As such, where connection relates to multiple services, Telecom recommended that the charge applies to the UBA service.
321. In its cross-submission, Chorus noted that:¹⁶⁰

¹⁵⁸ Telecom, Submission on UBA draft determination, p 12, para 55.

¹⁵⁹ For example, the UCLF service description provides that it is additional to the UBA service. See Telecom, Submission on UBA draft determination, p 12, para 56.

where UBA is ordered standalone or later added to UCLFS that the UBA STD sets out the relevant charges; and

where UCLFS is ordered standalone, UCLFS and UBA are ordered together or UCLFS is added to an existing UBA connection that the UCLFS STD sets out the relevant charges.

322. We disagree with Chorus that the UCLFS STD sets out the relevant connection charge where UCLFS and UBA are ordered together. We note that when the Act was amended on 2011, the pricing construct for the UBA service was amended such that it was the primary service for determination of charges. Consequently, we have inserted a provision in the UBA STD that ensures connection charges will be recovered only through the UBA prices where one or more other regulated charges might apply.

Transfer charges

323. Transfer charges are incurred where an end-user switches between UBA services or service providers. There are broadly two types of transfer charges:

323.1 Transfer between UBA services or providers where no port change is required; and

323.2 Transfer between UBA services or providers where a port change at the cabinet or exchange is required.

324. Our view is that the process, and therefore cost, for a transfer between service providers is likely to be similar for a transfer between UBA services. Accordingly, where we have only been able to identify a charge for a transfer between service providers in a benchmark country we have applied that charge for the purpose of benchmarking a transfer between UBA services, and vice versa.

325. The benchmarked charges for the transfer components are set out in Attachment F.

Other core charges

326. In addition to connection and transfer charges the following services are classified as core charges:

326.1 UBA service relinquishment;

326.2 UBA service move address;

326.3 Data interleaving toggle; and

326.4 Handover space rental charge.

¹⁶⁰ Chorus cross-submission, p 25, para 104.

UBA service relinquishment

327. The UBA service relinquishment charge is currently applied in accordance with sub-clause 4A.2 of Schedule 2 to the UBA STD. There is no charge for a new connection where an end-user signs up to a term contract associated with a free connection. The UBA service relinquishment charge only applied where an end-user terminated their UBA service contract within the term associated with the free connection.¹⁶¹
328. Given clause 4A has been removed from the Schedule and a charge applies in all instances of a new connection, we consider it appropriate that no charge applies for a relinquishment of the UBA service.

UBA service move address

329. The UBA service move address charge is currently applied in accordance with sub-clause 4A.1 of Schedule 2 to the UBA STD. We note that charges are aligned with the current connection charges—there is no charge where an end-user signs up to the term associated with a free installation.
330. Our view is that the UBA service move address should continue to be aligned with the charges that apply for a new connection. Accordingly, the charge applied in the instance of a UBA service move address is dependent on the new connection service required to connect the new address.

Data interleaving toggle

331. Currently no charge applies to the data interleaving toggle service. However, we note that in the UBA STD we stated that the process for this service is similar to the process for a plan change with no port change required.¹⁶² As such, we have set the charge for this service in line with the charge for a transfer between UBA services where no port change is required.

Handover space rental charge

332. The charge for the handover space rental service is currently set consistent with the external tie-cable space charge in the UCLL co-location STD. The external tie-cable space charge was determined by benchmarking against similar services in comparable countries.¹⁶³ As such, we consider the current charge for the handover space rental service to be an appropriate cost-based price, and no change is required.

¹⁶¹ To allow Chorus to recover the outstanding costs associated with a new connection.

¹⁶² Commerce Commission, Decision 611, p 55, para 254.

¹⁶³ Commerce Commission, *Standard Terms Determination for Chorus' unbundled copper local loop network co-location*, 7 November 2007, p 20, para 78.

Double recovery

333. Under clause 4B of Schedule 1 of the Act, we must ensure that an access provider of a designated service does not recover costs that it is recovering in the price of another designated or specified service, whether provided under a determination or on commercial terms.
334. In our draft determination, we identified a particular concern regarding the potential for double-recovery of the copper local loop service, which is used as an input for both the regulated UBA service (as UCLL) and the regulated POTS service (as UCLFS or an equivalent service).¹⁶⁴
335. The 2011 amendments to the Act provide that the cost of the copper local loop should be recovered through the UBA service instead of the POTS service (a change from the pre-2011 amendments, which recovered the copper local loop through the POTS service). The resold POTS service, however, is no longer subject to a Commission STD, it is instead provided on commercial terms. It is therefore possible that there could be double-recovery by Chorus of the copper local loop inputs.
336. We therefore proposed introducing the following provision to the UBA STD to ensure there was no double-recovery:¹⁶⁵
- For service component charges 2.1 – 2.8 which include the Geographically Averaged UCLL component of the UBA service charge, Chorus may not assess a separate charge to the Access Seeker or any other party that includes the costs of Chorus' full unbundled copper local loop network for that line and must, if the non-UBA service being purchased by the Access Seeker or other party includes such costs, deduct such costs from the price paid for the other service.
337. While Chorus supported the principle of avoiding double-recovery of costs,¹⁶⁶ Chorus considered there was no scope for double-recovery,¹⁶⁷ and that, in regards to the potential POTS/UBA overlap, Chorus is not the access provider of POTS and therefore clause 4B of Schedule 1 of the Act does not apply.¹⁶⁸
338. Vodafone agreed in general with the approach, noting in their view that the issue of double-recovery is likely to have been resolved through the UCLL review.¹⁶⁹
339. We agree that any actual double-recovery by Chorus is unlikely, given that the UCLFS service (the service, or an equivalent service on similar terms, used by Telecom to build the resold POTS service) expressly provides that the charge is \$0 where the end-user is simultaneously purchasing UBA over the same line. In addition, the

¹⁶⁴ The regulated POTS service is the Telecom *Local access and calling service offered by means of fixed telecommunications network*, described in Schedule 1 of the Act. Chorus on-sells the service as an agent for Telecom.

¹⁶⁵ Commerce Commission, UBA draft determination, para 158.

¹⁶⁶ Chorus, Submission on UBA draft determination, para 247.

¹⁶⁷ Ibid, para 245.

¹⁶⁸ Ibid, paras 258–263.

¹⁶⁹ Vodafone Submission, para 33.

regulated POTS service expressly provides that Telecom must exclude the price of Chorus' unbundled full local loop service from the resold POTS service where the end-user is simultaneously purchasing UBA—though as noted previously, Telecom is currently providing this service on commercial terms.

340. We therefore agree that the likelihood of Chorus double-recovering is limited. Nevertheless, we consider there is a possibility of double-recovery, and we are under a statutory duty in applying the IPP for UBA to ensure that no double-recovery occurs.
341. We do not agree with Chorus' assertion that the prohibition on double-recovery only applies where access provider is providing both wholesale services. Clause 4B makes clear that an access provider of a designated service cannot recover any costs for the service that are being recovered in any other regulated service. The service description for the resold POTS service makes that clear: the IPP expressly provides that, from 3 years from separation day, the price of the service must exclude the price of the copper local loop received under the UCLFS service.
342. Therefore, as Chorus may be able to recover the costs of the copper local loop under both the UBA STD (which uses UCLL as an input) and UCLFS (sold as an input to Telecom's POTS service), the UBA STD must ensure that no double-recovery incurs.
343. In order to ensure that the 2011 amendments reflects an expectation that the underlying copper local loop costs should be included recovered first in the UBA service, we therefore consider it appropriate to ensure that Chorus may not recover those costs where recovered in the provision of another service, eg, UCLFS.
344. We note that, while a risk of double-recovery is more obvious in the scenario we have described, there may be other situations in which there is a risk of double-recovery, and therefore we have phrased the obligation more generally rather than with regard to any particular service.



Dr Stephen Gale
Telecommunications Commissioner
Commerce Commission

Attachment A: UBA service description

Chorus's unbundled bitstream access

Description of service: A digital subscriber line enabled service (and its associated functions, including the associated functions of operational support systems) that enables access to, and interconnection with, that part of a fixed PDN that connects the end-user's building (or, where relevant, the building's distribution frame) to a first data switch (or equivalent facility), other than a digital subscriber line access multiplexer (**DSLAM**)

To avoid doubt, unless otherwise requested by the access seeker, the supply of this service must not be conditional on a requirement that the access seeker, end-users, or any other person must purchase any other service from the access provider

Conditions: That either—

(a) Chorus faces limited, or is likely to face lessened, competition in a relevant market; or

(b) Chorus does not face limited, or is not likely to face lessened, competition in a relevant market, and the Commission has decided to require Chorus's unbundled bitstream access to be wholesaled in that market

Access provider: Chorus

Access seeker: A service provider who seeks access to the service

Access principles: The standard access principles set out in clause 5

Limits on access principles: The limits set out in clause 6 and the additional limit that Chorus is only required to provide access to the trunk side of the first data switch or equivalent facility (for which purpose a DSLAM is not an equivalent facility)

Initial pricing principle applicable before the expiry of 3 years from separation day: Retail price (as imputed by the Commission, having regard to the price of any other digital subscriber line enabled service, including the imputed price of any such service offered as part of a bundle of retail services) minus a discount benchmarked against discounts in comparable countries that apply retail price minus avoided costs saved pricing in respect of the service

Plus, if no person is also purchasing a local access and calling service from Telecom in relation to the relevant subscriber line, all or any of the costs of Chorus's local loop network that would usually be recovered by Telecom from an end-user of its local access and calling service, as determined by benchmarking against comparable countries (unless the Commission considers that the price already takes into account all of the relevant costs)

Initial pricing principle applicable after the expiry of 3 years from separation day: The price for the designated access service entitled Chorus's unbundled copper local loop network plus benchmarking additional costs incurred in providing the unbundled bitstream access service against prices in comparable countries

years from separation day: that use a forward-looking cost-based pricing method

Final pricing principle Either—

applicable before the expiry of 3 years from separation day:

(a) retail price (as imputed by the Commission, having regard to the price of any other digital subscriber line enabled service, including the imputed price of any such service offered as part of a bundle of retail services) minus a discount comprising avoided costs saved, in a case where Chorus faces limited, or is likely to face lessened, competition in a relevant market; or

(b) retail price (as imputed by the Commission, having regard to the price of any other digital subscriber line enabled service, including the imputed price of any such service offered as part of a bundle of retail services) minus a discount comprising actual costs saved, in a case where Chorus does not face limited, or lessened, competition in a relevant market

Plus, in either case, if no person is also purchasing a local access and calling service from Telecom in relation to the relevant subscriber line, all or any of the costs of Chorus's local loop network that would usually be recovered by Telecom from an end-user of its local access and calling service, as determined by identifying the relevant costs (unless the Commission considers that the price already takes into account all of the relevant costs)

Final pricing principle applicable after the expiry of 3 years from separation day:

The price for Chorus's unbundled copper local loop network plus TSLRIC of additional costs incurred in providing the unbundled bitstream access service

Requirement referred to in section 45 or final pricing principle:

Nil

Additional matters that must be considered regarding application of section 18:

The Commission must consider relativity between this service and Chorus's unbundled copper local loop network service (to the extent that terms and conditions have been determined for that service)

Attachment B: Submissions on forward-looking cost methods

345. Telecom submitted that FDC models may be included but only after meeting stringent tests to ensure that the models meet the underlying requirements of forward-looking cost-based models.¹⁷⁰ Analysys Mason found that none of the countries using FDC models meet the requirements.¹⁷¹ During the conference, NERA suggested an approach to consider whether a FDC model can be considered a forward-looking model:¹⁷²

FDC approach, to me, from an economics perspective, could fall within the phrase "forward-looking cost-based" if it's using **replacement costs, economic depreciation and efficiency optimisation type issues** [own emphasis added].

346. Telecom further explained the application of these criteria:¹⁷³

....this as a bit of a continuum as you can tick off each of those boxes between something that is quite clearly a backward-looking cost model and falls outside of the IPP, to something that does actually comply with the points of the IPP. And this goes to the point you just raised about the level of error. So, clearly something that's got current cost accounting but still uses accounting-based depreciation and doesn't have optimisation, is more backward-looking than something that has more of those features.

347. Network Strategies, representing Vodafone, submitted that the robustness of the benchmark set is not improved by including countries that set prices using a fundamentally different model.¹⁷⁴ During the conference Network Strategies agreed that two benchmarks are more robust as opposed to relaxing the criteria and emphasised that a FDC model is a fundamentally different model.¹⁷⁵

Fully allocated costing models are put together on an entirely different basis compared to bottom-up LRIC models, and admittedly some top-down fully-allocated cost models can have the assets revalued at current cost, but that in itself is not sufficient to then take essentially a leap to say that the output of such a model will be commensurate with a bottom-up LRIC approach

348. Both Telecom¹⁷⁶ and CallPlus/Orcon¹⁷⁷ mentioned that countries using FDC models are at best regarded as a sanity check on the price location.

¹⁷⁰ Telecom, Cross-submission on the *Unbundled bitstream access service price review*, 22 February 2013, para 5, para 19, paras 23–25.

¹⁷¹ Analysys Mason, Report for Telecom New Zealand - Comments on UBA submissions, 19 February 2013, pp 7–9.

¹⁷² Conference, 12 June 2013, James Mellsop, NERA, p 54.

¹⁷³ Conference, 12 June 2013, Anton Nannestad, Telecom, p 55.

¹⁷⁴ Network Strategies, *Cross-submission- Final Report for Vodafone- A review of key benchmarking issues in UBA submissions*, 28 February 2013, p 7.

¹⁷⁵ Conference, 12 June 2013, Dr Suella Hansen, Network Strategies, pp 51–52.

¹⁷⁶ Conference, 12 June 2013, Anton Nannestad, Telecom p 55 and Telecom Post-conference note.

¹⁷⁷ Conference, 12 June 2013, Michael Wigley, p 65.

Attachment C: Spatial density adjustment

349. Chorus have provided a report by CEG which considers the impact of line density on cost for bitstream services, and proposes an adjustment for potential differences in line density between New Zealand and the benchmark countries.

350. CEG hypothesises that line density is an important driver of unit costs for the UBA service. CEG state:¹⁷⁸

The Commission rightly recognise that DSLAMs are major cost components of the UBA service. These costs are largely fixed across customers connected to each DSLAM location. It may be the case that in densely populated areas it is relatively easy to structure the network such that every DSLAM location achieves high utilisation (and therefore low unit costs).

...

The Commission has also not considered the potential relevance of the trench distance between DSLAM locations, data switch(es) and handover points. Again, in dense urban environments, we might expect this distance to be modest, reducing total and unit costs. However, in rural areas, these distances are likely to be considerably larger, increasing unit costs.

351. In order to test these hypotheses, CEG performed a regression analysis between:

351.1 line density and average lines per DSLAM site. CEG find that there is a significant link between line density and the number of customers per DSLAM location.¹⁷⁹

351.2 line density and average distance to the handover point. Again, CEG find that there is a significant link between average distance and line density.¹⁸⁰

352. CEG conclude that rural areas therefore are likely to have higher unit costs because:¹⁸¹

352.1 DSLAM infrastructure will likely be defrayed across fewer customers; and

352.2 There are likely to be significant additional costs associated with building longer trenches to connect more dispersed points.

353. We note that CEG's analysis of Chorus' network characteristics, while establishing a relationship between line density and lines per DSLAM/average distance to handover point, does not establish a relationship between line density and cost as CEG assert. In particular, we note:

¹⁷⁸ CEG, *Wholesale broadband cost drivers*, January 2013, paras 60, 62.

¹⁷⁹ *Ibid*, para 71.

¹⁸⁰ *Ibid*, para 77.

¹⁸¹ *Ibid*, paras 71, 78.

353.1 CEG states that higher density areas have lower cost due to the largely fixed DSLAM costs being across more customers. However, we disagree that DSLAM costs are largely fixed. As Network Strategies note, DSLAM equipment is scalable based on the number of lines at a DSLAM location. Therefore, it is possible that the utilisation of DSLAM equipment in a low density area is the same as a high density area.

353.2 The relationship between trench length and cost is more complex than suggested by CEG.

Econometric approach

354. CEG then undertook a separate regression analysis of the Danish and Swedish models to explore the relationship between cost and:

354.1 lines per DSLAM location

354.2 trench distance per DSLAM location.

355. The CEG analysis found the following relationship for the Danish and Swedish cost models:

Parameter estimate with a dependent variable of price	Danish model	Swedish model
Constant	8.199	4.691
Lines/DLSAM location	-0.416	-0.121
Trench distance/DSLAM location	0.122	0.098
Adjusted R squared	0.9409	0.4543

356. CEG then applied these results to actual Chorus network characteristics to determine Danish and Swedish prices adjusted for Chorus' network:

356.1 The Danish price increases 31.9%.

356.2 The Swedish price increases 0.6%.

357. In addition, CEG outline a methodology to adjust prices for countries that do not have publically available cost models:

357.1 Take our fitted UCLL prices, derived using the 2007 regression model of spatial density factors; and

357.2 Using the adjustments for Denmark and Sweden implied by the fitted UCLL prices for those jurisdictions, approximate the mark-ups that would be required for these jurisdictions, based on their fitted UCLL prices and a

straight line interpolation/extrapolation between the Danish and Swedish observations.

358. Our analysis of the CEG econometric adjustment has found a number of conceptual and data issues with the methodology:

358.1 The adjustments are country specific and based on interpretation of the individual models, which appears to be more of a short form FPP than a detailed IPP.

358.2 The results of the regression are applied to characteristics that are outside the range modelled, which increases the likelihood of error.

358.3 CEG have extracted the data required for the regression analysis from the models. As these are highly complex models, we have been unable to verify the robustness of CEG's work. A full audit of the models and data extracted would be required to verify that appropriate costs and trench lengths have been used.

358.4 It is unclear that the Chorus data used to adjust the benchmarks is appropriate:

358.4.1 While the Danish and Swedish model's build up their costs from a highly disaggregated level, the Chorus data is averaged.

358.4.2 The Chorus data is not conceptually the same as the Danish and Swedish models. For example, there is no optimisation within the Chorus data, whereas TSLRIC models will optimise.¹⁸² In addition, we note that CEG did not initially take trench sharing into consideration – CEG's updated regression taking trench sharing into account had a significant effect on the adjustment.

358.5 Chorus have performed unverified adjustments to its trench data to provide estimates of trench sharing.

Ratio benchmarking approach

359. CEG also proposed a ratio benchmarking approach as a "pragmatic alternative" to the econometric approach. CEG states that the ratio benchmarking approach takes into the account the spatial density drivers for the UBA service while avoiding the need to go through the modelling of the econometric approach.

360. The ratio benchmarking approach calculates the proportion of the bitstream service cost to the local loop cost in each benchmark country and applies that proportion to the UCLL price. The application of the approach results in a Danish price of \$15.81, and a Swedish price of \$14.68.

¹⁸² See Analysys Mason submission, p 3.

361. Cross-submissions have been critical of the ratio benchmarking approach. Analysys Mason submitted that they did not consider this approach to safe to use. They state that while some cost inputs for the two services follow similar trends, there are others that are not correlated in any meaningful way.¹⁸³
362. Network Strategies submitted that the adjustment relied on the assumption that there is a direct or indirect relationship between the UCLL price and UBA price, which did not believe existed.¹⁸⁴ Network Strategies noted that the two services are completely distinct and it is therefore unlikely that the costs of the UBA service are dependent on the costs of the UCLL service, which the adjustment assumes.¹⁸⁵

Submissions on density adjustment

363. Telecom submitted that:¹⁸⁶

Chorus' proposed density adjustment also fails to recognise that cost models incorporate a range of dependent design and parameter choices. For example, Chorus propose adjusting a specific input, actual demand at particular modelled nodes, in isolation from a significant number of related model design choices such as efficient node location or equipment modularity. It is simply not possible to reliably adjust benchmark prices in the way proposed by Chorus – these adjustments can only be made in the context of a final pricing review exercise.

364. Telecom also submitted that:¹⁸⁷

We agree that there are likely to be differences in costs relating to, for example, the costs of transport links from the local exchange to the first data switch. However, it is less clear how significant those differences are to a national benchmark or how much reliance can be placed on the proposed adjustments. The proposed adjustments result in a less reliable estimate of costs than the unadjusted data set, and would expose the Commission to the risk of regulatory error.

365. Vodafone submitted that:¹⁸⁸

Chorus' second proposed alternative is an adjustment based on the relationship between costs and spatial density characteristics identified from the cost models used by the Swedish and Danish regulators. CEG uses econometric analysis to make various adjustments, claiming that without these the cost of providing the UBA service in New Zealand will be underestimated. The flaws in this approach are set out in detail in Network Strategies report.

366. Kordia/CallPlus submitted that:¹⁸⁹

...there are multiple factual and methodological errors in the CEG analysis. Additionally the CEG arguments are novella and controversial, and the report does not benefit from a neutral

¹⁸³ Analysys Mason, Cross-submission on UBA draft determination, p 4.

¹⁸⁴ Network Strategies Cross-submission on UBA draft determination, p 27.

¹⁸⁵ Ibid.

¹⁸⁶ Telecom Cross-submission on UBA draft determination, p 3.

¹⁸⁷ Telecom, Cross-submission on UBA draft determination, para 27.

¹⁸⁸ Vodafone, Cross-submission on UBA draft determination, p 9.

¹⁸⁹ Kordia/CallPlus, Submission on UBA draft determination, para 63.

analysis of factors for and against, as would be required of experts that sign the Code applicable to Experts.

367. Network Strategies submitted:¹⁹⁰

The actual data from the Danish cost models shows that nearly 80% of all sites have less than 500 DSL lines, but only 48% of CEG's averaged sites have less than 500 lines. CEG's econometric analysis therefore cannot claim to represent accurately the variation in costs per DSLAM site in Denmark, as it is clear that the lines per DSLAM site will be overstated.¹⁹¹

...CEG's econometric analysis is based on highly averaged data, which omits valuable information, in particular for DSLAM sites with low line density. As it is based on averaged data, which we have demonstrated to be divergent from the actual characteristics of Danish DSLAM sites, it fails in its objective to adjust for differences between Danish and New Zealand line densities.

¹⁹⁰ Network Strategies, Cross-submission on UBA draft determination, p 32.

¹⁹¹ Ibid, p 22.

Attachment D: CEG adjustment for fibre migration

368. The CEG report “Effect of fibre on copper bitstream prices” presents two possible approaches to adjust for the potential decline in utilisation:
- 368.1 Tilting the annual capital depreciation to reflect the expected decline in utilisation of the regulated service (utilisation tilt);
 - 368.2 Modelling the constraint that fibre prices will impose on future cost recovery.
369. CEG state that by applying a utilisation tilt the price for the UBA service should be \$11.36 (a 27% increase on the draft UBA price), while modelling the UFB pricing constraint requires a UBA price of \$11.68 (31% increase on the draft UBA price).
370. In order to calculate an adjustment, CEG make a number of assumptions:
- 370.1 Demand forecasts for the UBA service sourced from Deutsche Bank.
 - 370.2 A 20 year asset life for UBA assets based on a weighted average of core network bitstream assets. It is not appropriate to apply a tilt to a weighted average of assets. In a TSLRIC model each asset is given a different asset life.
 - 370.3 A cost of capital value of 9%.
 - 370.4 A 0% base case tilted annuity (the expected change in the cost of assets over time). CEG note the weighted average tilt is -0.65% and 0.35% in the Danish and Swedish models respectively. However, in the Swedish model, tilts range from 2% to -5% depending on the asset class.
371. The assumptions made by CEG are arbitrary and substantially increase the risk of error in the benchmarking process:
- 371.1 It is unclear how the demand forecasts from Deutsche Bank have been derived, with Chorus not indicating its support or otherwise for the data.¹⁹²
 - 371.2 The CEG utilisation tilt is applied to the weighted average of core network bitstream assets. This is not an appropriate method to apply as each asset class is given a different asset life in a TSLRIC model. Any tilt that is applied will be done so to each individual asset class, and as such, a weighted average may over or under-estimate each individual asset.
 - 371.3 CEG note that its assumed cost of capital value does not constitute its view of Chorus’ cost of capital but is similar to the WACC proposed in the regulation of electricity distribution businesses (8.77%).
372. Assuming a weighted average for all assets could lead to over or under-recovery of expected future costs.

¹⁹² Chorus Submission on UBA draft determination, p 36, footnote 25.

Attachment E: Currency conversion

373. This attachment describes our approach to convert the benchmark prices to New Zealand dollars. We have applied this to each of the benchmark sets to determine the prices for the Basic UBA service, Enhanced UBA variants and non-recurring costs for the UBA service
374. In the draft determination, we applied the blended currency conversion approach to convert prices for the purpose of setting the Basic UBA and Enhanced UBA prices. This approach converts benchmark prices based on an equal weight of PPP and a ten year average for market exchange rates.
375. The blended approach reflects the fact that these services are comprised of approximately 50% of non-tradable components (such as labour) with the other 50% relating to tradable capital inputs. We use the exchange rates as a reference point for tradable goods and services, PPP rates as reference point for non-tradable components.
376. To convert connection and transfer charges to New Zealand dollars we used PPP rates only, as the cost of these services is driven primarily by labour costs.
377. We used 2011 PPP rates sourced from the World Bank, and a 10-year average exchange rate, calculated to 30 June 2012. We used the 10-year average as this provides a consistent approach between the UBA and the UCLL, Sub-loop and Backhaul determinations.
378. In response to the draft determination, Vodafone’s economic advisor, Network Strategies, submitted that PPP rates alone should be applied to convert the benchmark prices.¹⁹³ We remain of the view to apply the blended approach. This is consistent with past determinations and enhanced regulatory predictability.
379. Network Strategies further indicated that the PPP rates that the Commission used in the draft determination have been updated. Network Strategies recommended that we rather use 2012 PPP rates from either the World Bank or OECD. The PPP rates are the same for both sources.¹⁹⁴
380. We agree with Network Strategies and have adopted more recent PPP rates. We have also updated the market exchanges rates. Accordingly, we used the following to convert the international benchmarked prices from the relevant local currencies to New Zealand dollars:
- 380.1 2012 World Bank PPPs¹⁹⁵
- 380.2 10 year average market exchange rate, to 30 June 2013.¹⁹⁶

¹⁹³ Network Strategies, Submission on UBA draft determination, p 12.

¹⁹⁴ Ibid.

¹⁹⁵ See <http://data.worldbank.org/indicator/PA.NUS.PPP>.

381. Chorus stated that we should follow the approach it set out in its submissions on the UCLL re-benchmarking review.¹⁹⁷ We note that we rejected this approach in the UCLL review.
382. For similar reasons we reject Chorus' approach for the purpose converting benchmark prices in this review.¹⁹⁸

¹⁹⁶ Daily ask rates sourced from <http://www.oanda.com/>.

¹⁹⁷ Chorus Submission on UBA draft determination, p 38, para 126.

¹⁹⁸ See Commerce Commission, Decision NZCC 37, 03 December 2012, Attachment C.

Attachment F: Core charges

New connection components

New connection without site visit (remote connection)

383. This connection charge applies where a technician is not required to visit either the end-user premises or the exchange/cabinet in order to provision the UBA service.
384. Table 8 below summarises the information we have identified to benchmark the new connection without site visit (remote connection) service.¹⁹⁹

Table 8: Benchmark set for new connection without site visit (remote connection)

Country	Currency	Connection charge (local currency)	PPP rates	Connection charge (\$NZ)
Belgium	EUR	9.20	0.59	15.67
Denmark	DKK	35.00	5.35	6.54
Greece	EUR	7.50	0.47	15.99
Sweden	SEK	95.00	5.99	15.85
Switzerland	CHF	39.80	0.96	41.43
Median				15.85

New connection without site visit (but exchange/cabinet visit required)

385. This connection charge applies where a site visit to the end-user premises is not required, but a visit to the exchange/cabinet is required to make a port connection. This connection charge also includes any administrative charges associated with the new connection without site visit (remote connection) charge.
386. Table 9 below summarises the benchmark information we have identified to benchmark the new connection without site visit (exchange/cabinet visit required) service.

¹⁹⁹ We note that we have been unable to identify specific new connection without site visit charges for Denmark, Greece and Sweden. However, our view is that the cost associated with this service is likely to be similar to the costs incurred for a transfer between UBA services or access seekers, with no port change required.

Table 9: Benchmark set for new connection without site visit (but exchange/cabinet visit required)

Country	Currency	Connection charge (local currency)	PPP rates	Connection charge (\$NZ)
Belgium	EUR	40.98	0.59	69.82
Denmark	DKK	434.00	5.35	81.11
Greece	EUR	34.47	0.47	73.51
Sweden	SEK	383.00	5.99	63.89
Switzerland	CHF	86.70	0.96	90.25

Median	73.51
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New connection (with site visit)

387. The new connection (with site visit) applies where a technician is required to visit the end-user premises in order to connect the external termination point at the end-user premises. The new connection (with site visit) charge also includes any charges associated the new connection without site visit (exchange/cabinet visit required).
388. We have identified information for new connections with a site visit for Belgium, Denmark and Sweden.²⁰⁰ The information is summarised in Table 10 below.

Table 10: Benchmark set for new connection (with site visit)

Country	Currency	Connection charge (local currency)	PPP rates	Connection charge (\$NZ)
Denmark	DKK	823	5.35	153.82
Sweden	SEK	1,109	5.99	184.99
Belgium	EUR	99.62	0.59	169.73

Median	169.73
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²⁰⁰ See the accompanying UBA Benchmarking Workbook for the relevant service charges we have identified for the purpose of benchmarking the core charges.

Transfer components

*Transfer between UBA services or access seekers, with no port change required*²⁰¹

389. Table 11 below sets out the prices we have identified for the purpose of benchmarking a transfer between UBA services or access providers, with no port change at the exchange or cabinet required.

Table 11: Benchmark set for transfer between UBA services or access seekers, with no port change required

Country	Currency	Transfer charge (local currency)	PPP rates	Transfer charge (\$NZ)
Belgium	EUR	3.21	0.59	5.47
Denmark	DKK	35.00	5.35	6.54
Greece	EUR	7.50	0.47	15.99
Sweden	SEK	95.00	5.99	15.85
Switzerland	CHF	39.80	0.96	41.43
Median				15.85

Transfer between UBA services or access seekers, with port change required

390. Table 12 below sets out the prices we have identified for the purpose of benchmarking a transfer between UBA services or access providers, with a port change at the exchange or cabinet required.

²⁰¹ This charge will apply to the following components of Schedule 2 to the UBA STD:

Table 12: Transfer between UBA services or access seekers, with port change required

Country	Currency	Transfer charge (local currency)	PPP rates	Transfer charge (\$NZ)
Belgium	EUR	40.98	0.59	69.82
Denmark	DKK	436.00	5.35	81.49
Greece	EUR	34.47	0.47	73.51
Sweden	SEK	383.00	5.99	63.89
Switzerland	CHF	86.70	0.96	90.25
Median				73.51

Other charges*Data interleaving toggle*

391. As noted at paragraph 331, we have set the charge for this service in line with the charge for a transfer between UBA services where no port change is required. Accordingly, the price for this service is \$15.85.

Attachment G: Schedule 2 of the UBA STD

An amended Schedule 2 of the UBA STD is attached as a separate document.