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Report for Chorus Ltd

# Comment on how to best give effect to the purpose of Section 18 in relation to UBA pricing

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30 January 2013





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# 1. Introduction

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1. We have been requested by Chorus to review the approach the Commerce Commission (Commission) has taken in its draft unbundled bitstream access price review (UBA Draft) to give best effect to the purpose of section 18.
2. Our report is structured as follows:
  - In section 2 we identify the way in which the Commission has approached section 18 considerations in previous determinations, and the distinctions it made in its initial determinations in 2007 for UCLL and UBA that resulted in it adopting the median, rather than the 75th percentile price points in those determinations.
  - In section 3 we set out why the distinctions made in 2007 in relation to UCLL and UBA prices do not apply to the circumstances of the current UBA price review.
  - In section 4 we recommend how to best give effect to the purpose of section 18 in this UBA price review that is consistent with the Commission's earlier approach on this topic.

## Summary of findings

3. The Commission's approach in its initial price determinations under the Telecommunications Act (the Act) emphasised the importance of dynamic efficiency in giving best effect to the purpose of section 18. This approach resulted in the Commission selecting price estimates at the 75th percentile in order to address asymmetric economic effects of the risks of error in these estimates. We support this approach and explain why in Appendix 1. We also explain why we consider the amendment in 2012 to section 18 (i.e. clause 2A) strengthens, not weakens, this approach.
4. In the determinations on UCLL and UBA in 2007 the Commission made three distinctions relative to the earlier determinations that led it to, in those instances, adopt the median price point estimate. Those three distinctions were to:
  - ensure retention of investment incentives for access seekers in assets (e.g. DSLAMs)<sup>1</sup> required to complement the UCLL service;
  - ensure incentives to invest in fibre, where that relationship was perceived to be inverse relative to the price of UCLL (i.e. that as the UCLL price decreases so the incentives to invest in fibre would increase, and vice versa) ; and
  - align the price point selection method used for UBA with that used in UCLL to ensure the relativity requirement was met.

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<sup>1</sup> Digital subscriber line access multiplexer

5. We explain why none of these three distinctions apply in the case of this UBA price review:
- access seekers are not required to make investments in complementary assets when taking the UBA service, as these assets (DSLAMs and associated equipment) are incorporated in the UBA service;
  - the perceived inverse relationship between the price of UCLL (and UBA) and incentives to invest in fibre (i.e. that incentives strengthen as the price reduces) is not a plausible reflection of today's market, was based on the notion that an access provider could provide only one or other service (i.e. either copper or fibre based), and took no account of competing infrastructure providers; and
  - the amendment in 2012 to the initial pricing principle (IPP) for UBA means that the price benchmarking exercise now addresses the relativity between UCLL and UBA prices more directly (by benchmarking the additional costs to supply UBA, rather than using a retail-minus method) and therefore the need to align the price point selection method between UCLL and UBA to ensure the relativity requirement is met drops away.
6. In the absence of these three distinctions applying, we consider the conventional analysis used previously by the Commission and supported in economics should apply, namely that from a dynamic efficiency perspective the economic harm from error in setting the UBA price is likely to be greater from under-pricing than over-pricing (i.e. these effects are asymmetrical). In our view the best way to give effect to the purpose of section 18 in this context is to adopt the following approach, which is consistent with the Commission's previous approach on this issue:
- the purpose of section 18 can be best given effect by emphasising the dynamic efficiency effects of the pricing of UBA;
  - the economic effects of error in the estimation of the UBA price are asymmetric, that is a price set slightly below the costs to provide this service will inflict greater economic harm than one set slightly above;
  - the IPP method to estimate the UBA price is prone to error, and the correct price remains unknown;
  - in this circumstance the Commission can best give effect to the purpose of section 18 by selecting a price point above the mid-point of the distribution of its benchmarked prices; and
  - in past determinations the Commission has selected the 75th percentile price point in such circumstances (or the 25th percentile when determining the level of a retailer discount), and that it should do likewise in this determination.



## 2. Previous Commission approaches

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7. In its initial price determinations pursuant to the Act, when considering price point selection, the Commission emphasised dynamic efficiency in its considerations and addressed its view of asymmetric risk from regulatory error by taking the 75th percentile of its price estimates (or the 25th percentile in cases where it was estimating a retail margin to apply to a retail-minus pricing method). In its UCLL decision of 2007 the Commission considered the risks from regulatory error to be broadly symmetric in relation to this service (due to both the access seeker as well as the access provider needing to make service-specific investments), plus it considered investment incentives for fibre networks did not warrant the choice of a price point higher than the mid-point of its estimates. This reasoning resulted in the Commission taking the mid-point of its price estimates.
8. The UBA price decision in 2007, determined shortly after the UCLL one, also used the mid-point of the Commission's estimates (in this case an estimate of the retailer margin), as consistency with the UCLL price point section method was considered important to meet the relativity requirement.
9. In this section we discuss each of these points from previous Commission decisions and in section 3 we relate them to this UBA price review.

### Emphasis on dynamic efficiency

10. In selecting a price point in its initial telecommunications regulatory decisions the Commission placed greater emphasis on dynamic efficiency over considerations of static efficiency. For example, in its 2002 Decision 477 on TelstraClear's application for determination for designated access services, the Commission (2002, pp. 37, and 39-40) commented:

*... the Commission is of the view that it is appropriate to place relatively more weight on dynamic efficiency considerations. In other words, if it were the case that setting prices too low would significantly jeopardize incentives for investment in access networks, the trade-off between higher prices and more investment on the one side and lower prices and short-term consumer gains on the other would be resolved by the Commission in favour of the former.*

*... the Commission concludes 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.*

11. In its UCLL Decision 609 the Commission (2007) restated its emphasis on dynamic efficiency (paragraph 207):

*The Commission has previously stated that where tensions exist between static efficiency and dynamic efficiency, it takes the view that dynamic efficiency will generally better promote competition for the long-term benefit of end users. This remains the Commission's position.*

12. We agree with the Commission's view as reflected above (and explain why in Appendix 1), that in giving best effect to the purpose of section 18 dynamic efficiency considerations should be emphasised over static efficiency ones where there is a tension between them. We note the above determinations were made prior to the amendment in 2012 that inserted sub-clause 2A into section 18. We consider this amendment strengthens and does not weaken the emphasis of section 18 on dynamic efficiency (and we set out our reasons for this in Appendix 1).

## Regulatory error and asymmetric risk

13. The Commission is faced with setting the UBA price by way of benchmarking, as set out in the IPP. This approach, as with much regulatory decision-making, is prone to error (in this case potentially choosing a price that does not reflect the additional costs to provide the service) due to the limited information available to the Commission and that the correct price is unknown.
14. In the face of such probable error, it is useful to consider whether the economic effects of erring in one direction or the other is less harmful (i.e. asymmetrical), as if so the Commission could give best effect to section 18 by intentionally erring in the direction that would do the least harm.
15. The Commission has recognised previously the possibility of error in its choice of a price point, and that the economic effects of error are asymmetrical in favour of a higher rather than lower price, and in this context has settled on taking the 75th percentile of its price estimates (or equivalently the 25th percentile where the estimate is of a retailer mark up). For example, in its draft Wholesale Determination on the TelstraClear Application for Determination for "Wholesale" Designated Access Services, the Commission (2002a) stated (paragraph 527):

*... the Commission acknowledged the importance of dynamic efficiency and emphasised the asymmetry in selecting a price point that both encouraged retail-level competition in the market, while not discouraging investment and innovation in infrastructure in the longer term. It is the view of the Commission that in a situation of imperfect information, the loss in efficiency that would result from under-pricing wholesale access by any given margin outweighs the risks of over-pricing by the same margin. Therefore, a modest conservative bias in setting the initial benchmark may be appropriate."*

16. In Decision 477, the Commission (2002) stated (paragraph 169):

*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 75<sup>th</sup> percentile of the range.*

17. In Decision 497 the Commission (2003b) stated (paragraphs 732 and 735):

*Given the considerable uncertainty in terms of any necessary adjustment, in conjunction with the variation in benchmark discounts across all States considered by the Commission, it is difficult to settle on the precise size of any required*

*adjustment. In this context, it is worth noting that, for reasons of asymmetric risks, the Commission has already decided to apply discounts from the lower end of the benchmarked range. The Commission has placed some weight on this issue in exercising its judgment in selecting a discount rate from the lower end of the range.*

*In the current case, the Commission considered that the 25th percentile value of 16.0% is appropriate, taking into account both the theoretical merit of the relative factor cost arguments, as well as the Commission's concerns regarding incentives to invest in infrastructure.*

18. And in Decision 525, in which the Commission (2005) settled similarly on the 25th percentile for its retailer margin estimates, it stated (paragraph 274):

*For reasons of asymmetric risk and consistency with Decision 497, the Commission has decided to apply discounts from the lower end of the benchmarked range.*

19. The Commission has applied this same reasoning in relation to regulatory error and asymmetric risk to its estimation of the weighted average cost of capital (WACC). For example, in its gas control inquiry, the Commission commented:

*The Commission notes concerns about the asymmetric nature of errors in assessing WACC, i.e., underestimation is the more serious error because it may lead to underinvestment by the regulated companies. (Commerce Commission, 2004, p. 9.19)*

*Given that the consequences of judging excess profits to exist when they do not are more severe than the contrary error, the Commission has used as a benchmark the WACC value from the 75th percentile of the WACC distribution... (Commerce Commission, 2004, p. 9.24)*

20. In its consideration of input methodologies for electricity and gas pipeline services (in which WACC was set at its 75th percentile estimate) the Commission (2010, p. 168) argued the need to provide ongoing that incentives to invest and innovate should be given greater consideration that the adverse consequences associated with excessive profit taking:

*Incentives for dynamic efficiency can have significant benefits for consumers over the long term, so it is important to preserve incentives to invest and innovate. Accordingly, this consideration has been given greater weight than limiting suppliers' ability to extract excessive profits.*

21. We agree with the Commission's view as described above (and explain why in Appendix 1), that in giving best effect to the purpose of section 18 it should take account of the probability of error in its decision making and that this error can be expected to result in asymmetrical economic effects.
22. However, in its Decision 609 on UCLL the Commission (2007) came to the view that the median point in a range of benchmark prices best addressed dynamic efficiency considerations. The Commission based this decision on its view of the need for access seekers to invest when taking UCLL, and in relation to the implications of UCLL pricing for incentives to invest in fibre networks. It then applied this same price point section method to the first UBA pricing determination

shortly thereafter, and used the relativity requirement (relativity between UCLL and UBA pricing) as a reason to do so. We discuss these distinctions in the next section.

## Distinctions made in relation to UCLL and UBA pricing

### Investment incentives of access seekers

23. In Decision 609 the Commission (2007) considered UCLL provided the opportunity for access seekers to differentiate their service through their investment in service-specific assets (i.e. in DSLAMs and associated equipment) and that the UCLL price level needed to be set in a manner that retained incentives for such investments. This was expressed as follows (paragraph 208 and 209):

*In the case of the UCLL, long run cost-based access pricing which promotes competitive entry and static efficiency, also promotes dynamic efficiency. ... access to the UCLL does not simply represent resale of the local loop which only allows for minimum service differentiation and similar broadband speeds. Overseas experience has shown that UCLL access encourages innovation and investment by Access Seekers, and by the incumbent in the incumbent's network.*

*In the UK and Australia, UCLL-based entry has led to Access Seekers deploying digital subscriber line access multiplexers (DSLAMs) at the incumbent's exchange. This investment has allowed Access Seekers to use the incumbent's raw copper network and offer an enhanced and differentiated Asymmetric Digital Subscriber Line (ADSL) broadband service to end users based on ADSL2+ technology, which has higher bandwidth than the original ADSL service offered by the incumbent. In addition, access to the UCLL has provided end users with new and innovative services such as Internet Protocol TV (IPTV).*

24. In section 3 we discuss the relevance of this consideration for access seeker investments in the case of UBA pricing.

### Implications of pricing for incentives to invest in fibre

25. The Commission (2007) also supported the decision to use the median price estimate with the following view of the relationship between UCLL and fibre network offerings (paragraph 219 and 220):

*A UCLL service does not provide access to the fibre rolled out to the node/cabinet/home, and the Commission understands that it may no longer always be feasible for Telecom to supply a UCLL service to Access Seekers once a fibre access network has been built. Therefore, a price that is too low for the UCLL service is likely to provide Telecom with stronger incentives to invest in fibre, as it could avoid having to supply a service that it did not believe was earning an adequate rate of return. Conversely, a price for the UCLL service that exceeds cost, providing above normal returns to Telecom, could dampen its incentives to undertake a fibre investment.*

*The Commission considers that a median UCLL access price point will therefore have the least distortionary impact on Telecom's incentives to invest in a fibre access network.*

26. We explain in section 3 why we consider this reasoning does not reflect current market circumstances, inclusive of the UFB programme, and is contrary to section 18 (2A) considerations (which we note was not in place at the time of Decision 609).

### **Implications of relativity requirement**

27. Shortly after Decision 609 the Commission (2007a) issued the first UBA determination (Decision 611) and in that determination, which was based on a retail-minus pricing method, it adopted the median estimate for the retail discount, using the following reasoning (paragraphs 159 – 162):

*In the draft UBA STD, the Commission adopted a median discount value of 18%.*

*Telecom argued that the Commission should use the 25th percentile, and considered that the use of a median value would not take into account Telecom's perceived risks associated with regulation. Telecom argued that this may discourage UCLL based competitive entry, and encourage inefficient retail entry. Telecom also submitted that their commercial discount of 18% involved a number of complex trade-offs of price and non-price terms, and that it would be inappropriate to view the discount in isolation.*

*In setting the price and non-price terms, the Commission has considered the interactions between those terms, and relativity between those terms for the UBA service with the terms for the UCLL service. The Commission has previously selected the median data point in the UCLL STD, and is of the view that selection of the same data point for the UBA service will ensure relativity between UCLL and UBA, and best promote competition for the long-term benefit of end-users.*

*Accordingly, the Commission has retained the median discount of 18%.*

28. The IPP for UBA pricing has been amended since this determination. Under the new IPP we consider the price point selection methods used for UCLL and UBA pricing do not need to be aligned in order to ensure the relativity requirement is met. We explain why in section 3.

## 3. Relevance of distinctions for UBA pricing

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29. In this section we discuss the relevance to UBA pricing of the three distinctions, as outlined in section 2, that the Commission made in its initial UCLL and UBA determinations that resulted in adopting mid-point estimates for price point selection. These three distinctions are:
- investment incentives of access seekers;
  - implication of pricing for incentives to invest in fibre; and
  - implication of the relativity requirement.

### Investment incentives of access seekers

30. As described in section 2, one reason the Commission cited for adopting a mid-point price estimate for UCLL (rather than a 75th percentile estimate) was due to the perceived need to maintain access seekers' incentives to invest in DSLAMs in order to complete the broadband service offering. This ability of access seekers to invest opened up an opportunity for them to differentiate their service offerings. The evidence the Commission (2007) cited for this service differentiation was UK and Australian examples where access seekers were reported to have invested in ADSL 2+ DSLAMs in regions where the incumbent had invested in only ADSL technologies (paragraphs 209 and 212).
31. This investment by access seekers in DSLAMs (and associated equipment such as cages to house the DSLAMs, or in roadside cabinet space) is not needed for the UBA service as the UBA service incorporates all these components and provides the access seeker with the layer 2 service for which DSLAMs are required. Thus the access seeker investment requirements identified by the Commission in the case of UCLL, and their associated ability to differentiate the broadband service by way of these investments, do not apply in the case of the UBA service.
32. Chorus informs us that there are not other investments that access seekers are required to make when taking the UBA service that are similar to those investments required when taking UCLL (i.e. investments that are service specific and provide an opportunity to differentiate the quality of service). The UBA service is a layer 2 service that extends from the customer premise to the first data switch. The first data switch may or may not be located in one of the exchanges at which a point of interconnection (POI) with access seekers is also located. Where they are not co-located the access seeker is able (if it does not own its own backhaul) to purchase UBA backhaul from Chorus (or from other suppliers where it is available), either in its regulated form and price (inclusive of monthly pricing) or commercial versions of backhaul.
33. From the POI the access seeker needs to provide backbone capacity to match its end customer requirements. For many customers this will be capacity to access the internet domestically and internationally, but for others it may be specific point to



point capacity requirements. It is usual for an access seeker to aggregate at the POI its backbone capacity requirements arising from UBA customers with capacity required by other customers and to purchase, or provide this capacity as required.

34. In terms of provisioning the UBA service (or most other Chorus services), Chorus offers a manual or automated interface. The manual interface is low cost to establish but more time consuming per service, whereas the automated service usually requires the access seeker to invest in some set up costs, with the amount usually being a function of scale (number of product types and units of each type) and the flexibility of their system. Few of these costs are UBA specific as most are to do with establishing an interface for any Chorus service.
35. The extent to which marketing investments by an access seeker are specific to UBA is at the discretion of the access seeker and depends on its marketing and business strategies.
36. Thus access seekers are not required to make investments in service specific assets when taking UBA (but Chorus is required to), and are not in a position to differentiate the quality of service in the way that they are when taking UCLL. It follows in the case of the UBA service the Commission need not and should not weigh the access seeker incentives for such investments against the access provider incentives to invest in infrastructure, as the access seeker investments are not required for the UBA service.
37. Further, as the UBA price rises so the incentives strengthen for access seekers to take UCLL and invest themselves in DSLAMs. Thus, in the case of UBA pricing the investment incentives on access providers (of UBA) and access seekers (using UCLL) scale in the same direction; as the UBA prices rises so their incentives strengthen to invest in UBA and UCLL respectively.

## Implications of pricing for incentives to invest in fibre

38. The Commission (2007) in its 2007 UCLL decision articulated a view on the relationship between UCLL and fibre networks that is quite different to what is in fact happening now; that view was (paragraphs 219 and 220):

*A UCLL service does not provide access to the fibre rolled out to the node/cabinet/home, and the Commission understands that it may no longer always be feasible for Telecom to supply a UCLL service to Access Seekers once a fibre access network has been built. Therefore, a price that is too low for the UCLL service is likely to provide Telecom with stronger incentives to invest in fibre, as it could avoid having to supply a service that it did not believe was earning an adequate rate of return. Conversely, a price for the UCLL service that exceeds cost, providing above normal returns to Telecom, could dampen its incentives to undertake a fibre investment.*

*The Commission considers that a median UCLL access price point will therefore have the least distortionary impact on Telecom's incentives to invest in a fibre access network.*

39. It appears to us the Commission had in mind a market in which the access provider could and would supply only one access mode; either copper or fibre, but not both. In this context, regulatory price pressure on one service would strengthen incentives on the access provider to switch that service off and invest only in the other service.
40. However, in the market today Chorus is rolling out fibre under the UFB programme alongside its copper service in the regions for which it won the UFB mandate. In the other regions the UFB roll out is being undertaken by an access provider other than Chorus. In all regions the UFB service will, from the perspective of consumers, be a potential substitute broadband access service to the copper-based UBA service. Further, in some regions other service providers are providing fibre services (e.g. Vector, TelstraClear and City Link), or cable-based broadband (e.g. TelstraClear), or fixed wireless- based broadband (e.g. Woosh and Kordia).
41. In our view (as set out in Appendix 1) the relevant section 18 considerations in this context relate to the incentives to innovate and to invest, and the risks to investors in at least the following; in the UBA service itself, in possible upgrades of the existing UBA service (e.g. to VDSL 2), and in substitutes to the UBA service (e.g. as described above, in fibre and fixed wireless-based broadband services).
42. Professor Jerry Hausman (1997, p. 36) from the Massachusetts Institute of Technology has previously criticised the US Federal Communications Commission (US) for setting access prices for the copper local loop too low for its adverse effects on both investment and innovation:
- ... the FCC has once again focused on static cost efficiency questions and failed to account for the demonstrated large gains in dynamic economic efficiency that arise from new investment. Through its regulatory actions, the FCC has decreased the chances that U.S. residential customers will have access to broadband fiber networks in the near future, whether offered by local exchange carriers or by competitive new entrants. By setting network prices below competitive levels, the FCC has discouraged the local exchange carriers from new investments in infrastructure. It has also discouraged new entrants from investing in their own infrastructure because they can buy the services at below-competitive prices and less risk from the carriers.*
43. In our view sub-clause 2A of section 18 reinforces the need (already implied in sub-clause 1 and 2 of section 18, see Appendix 1) for section 18 considerations to extend to substitutes of the regulated UBA service.
44. In the context of potential substitute services, if the price of the regulated service is reduced, incentives to invest and innovate in substitute services are diminished, and risks faced by investors in those substitute services are increased. We conclude the direction of the relationship between the UBA price and incentives to invest in fibre (or in other modes of delivering broadband services) is in the opposite direction to the inverse relationship suggested by the Commission in Decision 609. In our view as the UBA price increases so incentives to invest and innovate in fibre increase, and risks faced by investors in fibre reduce. The reverse also applies; as the UBA price decreases, so incentives to invest and innovate in fibre decrease, and risks faced by investors in fibre increase.



45. The implication of this conclusion, taken together with the Commission’s emphasis on dynamic efficiency when determining how best to give effect to section 18, means on this issue the Commission should adopt its practice of taking the 75th percentile price point (i.e. to err toward the high side) in this UBA price determination.

## Implication of the relativity requirement

46. The initial pricing principle (IPP) for UBA includes a relativity requirement as follows:

*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).*

47. The context of this relativity requirement was changed in the 2012 amendments (but the requirement itself wasn’t), as the IPP for UBA previously was a retail-minus method, but now requires benchmarking the “additional costs incurred in providing the unbundled bitstream access service ...”.

48. In Decision 611 the Commission (2007a) discussed the relativity requirement in relation to pricing as follows (paragraph 431):

*The Commission has used two approaches to considering pricing relativity:*

- *the likely costs that would be incurred by an Access Seeker using the UCLL service to replicate Telecom’s UBA service (‘bottom up approach’); and*
- *the likely costs that would be avoided by the Access Seekers when supplying a retail broadband service to an end-user using the UCLL service rather than the UBA service (‘top down approach’).*

49. In its discussion on these two approaches (paragraphs 432 to 440) it did not come to any numerical conclusion on the relativity issue, but concluded (paragraph 440):

*The Commission also notes that the UBA price is set according to a retail-minus pricing principle, whereas the UCLL price is cost-based. UBA prices will therefore equal or more likely exceed the costs of providing a UBA service. One consequence of this is that Access Seekers will face an incentive to invest in their own infrastructure to the extent that such investment minimises their cost of providing retail services.*

50. It is not clear from the discussion in Decision 611 how it came to this conclusion that “UBA prices will therefore equal or more likely exceed the costs of providing a UBA service.” However, when considering price point selection issues in that determination the Commission stated (paragraph 161):

*In setting the price and non-price terms, the Commission has considered the interactions between those terms, and relativity between those terms for the UBA service with the terms for the UCLL service. The Commission has previously selected the median data point in the UCLL STD, and is of the view that selection of the same data point for the UBA service will ensure relativity between UCLL and UBA, and best promote competition for the long-term benefit of end-users.*

51. Thus it appears one reason for the Commission to adopt the median data point when setting the level of the retail discount was to align the UBA price selection method with the one used for UCLL in order to “ensure relativity between UCLL and UBA ...”.
52. The IPP for UBA now requires the Commission to benchmark the “additional costs incurred in providing the unbundled bitstream access service ...”. In this context it appears to us the price relativity that the Commission was concerned about in Decision 611 is addressed more directly in the IPP method itself and that it is not necessary to align the price point selection methods to ensure this is achieved. Rather, under the current IPP it is possible to determine how best to give effect to the section 18 considerations with respect to these “additional costs” in their own right, as they are benchmarked in their own right, rather than needing to necessarily align the price point selection method for UBA with that used for UCLL to ensure this relativity requirement is met.

## Conclusions

53. In its initial UCLL determination in 2007 the Commission adopted a median price point estimate, based on balancing investment incentives for access seekers in DSLAMs with those of access providers, and on its perception of the inverse relationship between UCLL pricing and incentives to invest in fibre networks. We have shown above that neither of these distinctions apply in the case of the current UBA pricing review.
54. In its initial UBA determination in 2007, completed shortly after the UCLL determination, the Commission aligned the price point selection method for UBA with that used for UCL (i.e. the use of the median data point), to ensure the relativity requirement was met. We have demonstrated above that, due to a change in the IPP in 2012 for the UBA service, it is no longer necessary to align these price point selection methods to ensure the relativity requirement is met.
55. We discuss in section 4 the implications for these conclusions for price point selection for the UBA price determination.

## 4. UBA price point selection

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56. In section 2 we summarise the Commission's view from previous determinations on the need to emphasise dynamic efficiency when determining how best to give effect to the purpose of section 18. In practice this approach resulted in the Commission selecting price estimates at the 75th percentile (or the 25th percentile when setting retail discount amounts) in order to address the risks of error in these estimates. We support this approach and explain why in Appendix 1. We also explain why we consider the amendment in 2012 to section 18 strengthens, and not weakens, this approach.
57. In section 3 we describe the three distinctions the Commission made in relation to the pricing of UCLL and UBA in 2007 that led it to it, in those instances, adopting the median price point estimate. We explain in section 3 why none of those distinctions apply to this UBA price review.
58. In our view the best way to give effect to the purpose of section 18 in this UBA price review is to adopt the following approach, which is consistent with the Commission's initial views on this issue:
- section 18 considerations can be best given effect by emphasising the dynamic efficiency effects of the pricing of UBA;
  - the economic effects of error in the estimation of the UBA price are asymmetric, that is a price set slightly below the costs to provide this service will inflict greater economic harm than one set slightly above;
  - the IPP method to estimate the UBA price is prone to error, and the correct price remains unknown;
  - in this circumstance the Commission can best give effect to the purpose of section 18 by selecting a price point above the mid-point of the distribution of its benchmarked prices; and
  - in past determinations the Commission has selected the 75th percentile price point in such circumstances (or the 25th percentile when determining the level of a discount), and that it should do likewise in this determination.

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# Appendix 1

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59. In this appendix we set out the economic rationale for emphasising dynamic efficiency over static efficiency considerations to best give effect to the purpose of section 18, and for concluding that the economic effects of error in estimating the price for UBA are asymmetric.

## Context

60. Section 18 of the Telecommunications Act reads:

### 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.*

61. Section 19 reads:

### 19 Commission and Minister must consider purpose set out in section 18 and additional matters

*If the Commission or the Minister (as the case may be) is required under this Part or any of [Schedules 1, 3, and 3A] to make a recommendation, determination, or a decision, the Commission or the Minister must—*

*(a) consider the purpose set out in section 18; and*

*(b) if applicable, consider the additional matters set out in Schedule 1 regarding the application of section 18; and*

*(c) make the recommendation, determination, or decision that the [Commission] or Minister considers best gives, or is likely to best give, effect to the purpose set out in section 18.*

62. In its initial telecommunications price determinations the Commission selected a price point other than the mid-point of its benchmarked distribution of prices in order to take account of its view of the balance of risks (i.e. the asymmetry in these risks) in the relevant markets. This involved taking:
- the 75th percentile price point in the interconnection determination in Decision 477; and
  - the 25th percentile value for the retailer discount, in Decisions 497 and 525.
63. In other regulated sectors the Commission (2010) has adopted the 75th percentile of its estimate of the weighted average cost of capital (WACC) to reflect its view on the asymmetry of risks of error in this estimate.

### **Economic nature of s 18 considerations and importance of dynamic efficiency**

64. From an economic perspective we understand sub-clauses (1) and (2) to be directing the Commission to consider the economic efficiencies that will result, or will be likely to result, from its determination. Clause (2) is explicit in this direction. Clause (1) refers to *“the long-term benefit of end-users of telecommunications services with New Zealand”*. We are not aware of any Court interpretation of this term in the Act as we understand the Courts have yet to analyse section 18 in any detail. However, a similar term, the *“long-term benefit of consumers in New Zealand”* features in the purpose (s 1A) of the Commerce Act and has been interpreted as being consistent with economic efficiency.<sup>2</sup> Similarly, the objective of the Electricity Authority (2011) includes the phrase *“the long-term benefit of consumers”* (s 15) and this has been interpreted by the Authority as an economic efficiency test.
65. Efficiency in competition economics is multifaceted encompassing several different concepts. Allocative and productive efficiency are static concepts of efficiency.<sup>3</sup> Static efficiency refers to holding society’s technological know-how constant (Kolasky & Dick, 2003, p. 247). On the other hand, dynamic efficiency refers to the efficiency benefits achieved through research, development, and innovation, including the diffusion of technology to produce new products and processes (Fox, 2008). Dynamic efficiency brings benefits to consumers either through the introduction of improved new products that buyers value more highly (product

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<sup>2</sup> E.g. *Air NZ v Com Com* 2004 11 TCLR 347 on the revised 1A being consistent with an economic efficiency test and that wealth transfers between New Zealand consumers and producers should be treated as neutral (paragraphs 241 and 242), and which was affirmed in *Powerco and Vector v Com Com* 2007

<sup>3</sup> Productive efficiency exists when all goods are produced at the minimum possible total cost so that there is no possible rearrangement or alternative organization of resources (such as labour, raw materials, and machinery) that could increase the output of one product without necessarily forcing a reduction in output for at least one other product (Kolasky & Dick, 2003, p. 244).

innovations), or through the use of new, lower cost ways of producing existing products (process innovations) (Commerce Commission, 2003a, p. X).

66. In regulatory decision-making, where there is a trade-off between static and dynamic efficiency considerations, there is general agreement in economics that the long-term benefit of consumers is best served by placing a greater emphasis on dynamic efficiency because it is the driver of product and process and innovation that underpin consumer benefits over time.
67. According to a New Zealand Treasury working paper, both economic arguments and empirical studies of the literature confirm dynamic efficiency gains are more important for social welfare than static efficiency gains (Evans & Hughes, 2003, p. 12). Similarly, Professor Eleanor Fox (2008, p. 78) of New York University has observed:

*Dynamic efficiency gains can easily swamp static efficiency gains: that is, they can swamp the gains that result from pushing price closer to costs.*

68. According to Judge Easterbrook (1992, pp. 122-123):

*An antitrust policy that reduced prices by 5 percent today at the expense of reducing by 1 percent the annual rate at which innovation lowers the cost of production would be a calamity. In the long run a continuous rate of change, compounded, swamps static losses.*

69. The Australian competition access advisory body, the National Competition Council (2001, p. 85), has recognised that access regulation, in the form of Part IIIA of the then Australian Trade Practices Act 1974, could impose potential costs on infrastructure owners with other adverse implications for infrastructure investment and dynamic efficiency.

*It is important to avoid applying Part IIIA in ways which may yield short-term static gains in technical and allocative efficiency but which constrain the realisation of longer-term dynamic efficiency gains.*

70. According to Professor Lewis Evans of Wellington University and Professor Robert Hahn of the University of Manchester (1992, pp. 122-123), regulation that delays investment and innovation may delay beneficial effects on future surpluses that can arise from such things as lower costs and new products. In turn, regulation that results in a missing market will result in the loss of the entire consumer and producer surplus.<sup>4</sup> Similarly, a delay induced by regulation will see the total surplus of that market missing for the period of the delay. Professor Austan Goolsbee (2006) of the University of Chicago has observed that the entire combined consumer and

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<sup>4</sup> Consumer surplus represents the amount that consumers benefit by being able to purchase a product for less than what they would be prepared to pay. Producer surplus represents the amount that producers benefit by selling at a market price that is higher than the lowest amount they would be willing to sell for.



producer surplus in a market usually dwarfs a traditional deadweight loss triangle.<sup>5</sup> Similarly, writing specifically in relation to telecommunication markets, Professor Jerry Hausman (1997, p. 24) from the Massachusetts Institute of Technology has observed:

*... the consumer welfare cost of holding up the introduction of a new good is much larger than the effects of higher prices or other regulatory effects on demand, because the entire compensating variation is lost when regulatory delays cause demand to be zero.*

71. When applying the above considerations of efficiency to section 18, we understand sub-clause 2A to be directing the Commission to consider the dynamic efficiency effects in relation to “*new telecommunications services that involve significant capital investment and that offer capabilities not available from established services*”. From an economic perspective we consider sub-clause 2A draws attention to a subset of issues also covered by sub- clauses (1) and (2), in that dynamic efficiency effects with respect to this defined group of services are, in our view, subsumed within the wider economic efficiency test (as described above).
72. However, sub-clause (2A) draws attention specifically to this subset of dynamic efficiency issues and thereby serves to strengthen, and not weaken our view for the need to emphasise dynamic efficiency effects when considering how best to give effect to the purpose of section 18.

### **Regulatory error and asymmetric costs**

73. It has been recognised for over 20 years that regulators will never be able to precisely extract all monopoly rents leaving investors with an appropriate competitive return. Kolbe and Tye (1992, p. 160n) observed:

*Regulators can never be sure the allowed rate of return is exactly equal to the cost of capital, and chance events mean investors can expect realised returns above or below the cost of capital even if regulators have estimated everything perfectly.*

74. According to Ergas, Hornby, Little and Small (2001), regulators operate without full information about the regulated firm, and must therefore estimate the relevant parameters, such as the WACC. Under these circumstances, any given determination of a regulator is likely to include some estimation error. While the regulator over many different estimates may be correct on average, any single estimate is likely to be wrong and as such the average consequence would be an economic loss if there is an asymmetry in the economic effects of error.
75. It has been argued the long term consequences of setting a regulated price that is too low is far more severe than setting a regulated price that is too high. This is on the basis that setting a price that is too low could ultimately lead to the non-provision of

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<sup>5</sup> Under monopoly, some of the consumer surplus is absorbed, or transferred across into the producer surplus. In addition, there is a complete loss of producer surplus and consumer surplus. This complete loss of consumer and producer surplus is known as the deadweight loss. The deadweight loss is often referred to as the net social cost of monopoly.



the service, or a degradation in the service, whereas setting a price that is too high may reduce its consumption (depending on its price elasticity of demand), but does not eliminate, the provision of the service (Productivity Commission, 2001, p. 82). According to former Australian economic consultancy the Network Economics Consulting Group (Network Economics Consulting Group, 2001, p. 16):

*There are strong economic reasons in many regulated industries to place particular emphasis on ensuring the incentives are maintained for efficient investment and for continued productivity increases. The dynamic and productive efficiency costs associated with distorted investment incentives and with slower growth in productivity are almost always likely to outweigh any allocative efficiency losses associated with above-cost pricing.*

76. The Australian Productivity Commission (2001, p. 83), has arrived at the view that regulators should discriminate in favour of investment when attempting to eliminate monopoly rents in the case of infrastructure projects:

*... the Commission accepts that there is a potential asymmetry in effects:*

- *Over-compensation may sometimes result in inefficiencies in the timing of new investment in essential infrastructure (with flow-ons to investment in related markets), and occasionally lead to inefficient investment to by-pass parts of a network. However, it will never preclude socially worthwhile investments from proceeding.*
- *On the other hand, if the truncation of balancing upside profits is expected to be substantial, major investments of considerable benefit to the community could be forgone, again with flow-on effects for investment in related markets.*

*In the Commission's view, the latter is likely to be a worse outcome. Accordingly, it concurs with the argument that access regulators should be circumspect in their attempts to remove monopoly rents perceived to attach to successful infrastructure projects.*

77. Thus the long run implications of under-pricing services are more severe than over-pricing. In the case of over-pricing the service will still be provided even if there may be a loss of allocative efficiency. On the other hand, under-pricing could potentially lead to the eventual withdrawal of the service, the refusal to invest in asset renewals when required allowing service quality to degrade, or investing in new assets with lower capital cost but higher operating and overall life-cycle costs (Network Economics Consulting Group, 2001, p. 22n).

### **Application in Draft UBA price review**

78. The Commission's views in the Draft UBA price review appear to implicitly move away from its previous position that dynamic efficiency considerations should be emphasised over static ones where there is a tension. In paragraph 117 it states:

*At this stage it is uncertain whether the implications of the "too-low" benchmark price are greater or smaller than the affects of a price that is "too-high", For instance:*

- *a price that is "too high" raise prices to end-users*

- *a price that is “too-low” may discourage investment by access seekers in UCLL and competitive bitstream services that would benefit end-users in the long-run.*
79. An emphasis on dynamic efficiency would resolve this tension in favour of investment incentives by access seekers in UCLL and competitive bitstream services, as the first point is a static analysis of allocative efficiency.
80. The Commission’s analysis of the implications of the UBA price for investment in UCLL and fibre-based services (inclusive of UFB) is unclear to us. In paragraphs 121 and 122 it states (2012, p. 29):
- Our view is that, in the case of setting the UBA price, the Commission does not need to decide whether the s 18 (2A) requirements refers to the UFB rollout or to UCLL unbundling, since the implications for the UBA would be the same in either case. For both UCLL and UFB the issue is whether the UBA price encourages investment and a take-up of competing services that will benefit end-users.*
- It is unclear whether a UBA price higher than the mean is likely to lead to investment in new innovative services, whether over copper or fibre, since access seekers will have an incentive to upgrade to fibre in order to differentiate their services from copper-based services. Accordingly, our preliminary view is that the mean price point best gives effect to the interests of end-users.*
81. The first paragraph refers to both UCLL and to UFB services, but the second paragraph asserts (without evidence) that access seekers will have an incentive to move to fibre for service differentiation reasons. This analysis provides no insights as to effects of the level of the UBA price on incentives on access seekers or access providers to innovate and to invest in UCLL, in UBA upgrades, in UFB, or in other competing delivery platforms (e.g. other fibre providers or fixed wireless).
82. We understand the Chorus UBA service can be substituted (where available) by UCLL (with the access seeker investing themselves in DSLAMs), by UFB and other fibre-based services, by fixed wireless and cable-based broadband services. Underpricing of UBA can be expected to diminish incentives to innovate and invest in these substitutes, and to raise the risks to investors from doing so. We come to this conclusion on the basis that price is one factor consumers take into account when considering substitute broadband access services, and the lower the price of UBA the less uptake there will be of the other services, holding the quality differentiation factors constant.