



ENABLE NETWORKS LIMITED AND ULTRAFAST FIBRE LIMITED

SUBMISSION ON APPLICATION OF EQUIVALENCE AND NON-DISCRIMINATION OBLIGATIONS UNDER PART 4AA OF THE TELECOMMUNICATIONS ACT 2001

31 OCTOBER 2019

1. Introduction

1.1 This submission is made by Enable Networks Limited and Ultrafast Fibre Limited in response to the Commission's consultation document *We seek your views on the report from our expert economic advisor, Dr Ingo Vogelsang, on the interpretation of the equivalence and non-discrimination obligations on local fibre companies* dated 18 October 2019.

1.2 The Commission seeks stakeholder views on the contents of Dr Vogelsang's Report, and responses to questions asked by the Commission, which "*will be considered when we develop our guidance on equivalence and non-discrimination*".

1.3 As explained in detail below

(a) we agree with Dr Vogelsang's conclusion that

- (i) there are several pricing methods that meet the equivalence standard and there can be a range of equivalent prices based on legitimate pricing methods and measurements; and
- (ii) the top-down pricing methodology (which we have used to calculate our prices on an equivalence basis) is the preferable model in the New Zealand context;

(b) we disagree with Dr Vogelsang's conclusion that

- (i) if the equivalence standard is met, an additional non-discrimination test must be satisfied. We explain how the non-discrimination obligation where the service provider supplies itself with a relevant service is identical to the equivalence obligation;
- (ii) separate prices for the feeder fibre and distribution fibre are two-part tariffs or pricing by element which breach the non-discrimination obligation. We explain why this is not the case; and
- (iii) a price which satisfies the equivalence obligation but is incompatible with one of the purposes set out in s156AC must be excluded. We explain why, when the equivalence obligation is satisfied, there is no role for s156AC to play;

(c) Dr Vogelsang's economic analysis is also wrong, because

- (i) separate pricing of the feeder fibre and distribution fibre components of the layer 1 service is not a two-part tariff, but simply follows from the cost structure of the unbundled service;
- (ii) component pricing does not lead to geographic differentiation of prices; both component and linear prices can be (and in this case have been) applied in a uniform geographic way;
- (iii) component pricing reflects the long-run efficient cost of providing the unbundled service; and
- (iv) the fact that unbundling is attractive only to larger access seekers is neither discriminatory nor harmful to competition.

1.4 We also set out our concerns about the current consultation process:

(a) we agree that there was clear public benefit in the Commission developing, in a transparent way, its views on what the equivalence obligation in the Fibre Deeds involves

long before our obligation to announce unbundled prices on 30 September 2019 had crystallised;

- (b) we requested such guidance from the Commission in September 2018, but were advised the Commission was not in a position to meaningfully discuss its expectations;
- (c) we have accordingly relied on expert legal, economic and accounting advice to calculate our layer 1 prices on an equivalence basis and have kept the Commission fully briefed throughout that process;
- (d) the commencement of a public consultation after we had finalised our unbundled prices driven in part by “*stakeholder concerns*” is inappropriate; guidance cannot be given for past conduct;
- (e) Vodafone and Vocus in their letter to the Commission of 11 April in relation to Chorus’ draft prices were clear that the Commission had a “*limited window*” to act. That window closed on 30 September 2019;
- (f) the position is made worse by the circulation by the Commission of the Vogelsang Report which expresses in provocative language the opinion (with which we strongly disagree) that the pricing structure we have adopted is in breach of the Act and Undertakings;
- (g) consultation about the legality of past conduct with parties with opposed interests is not a process contemplated by the Act and is inconsistent with the Commission’s enforcement role under s156Q(2) of the Act; as the Commission has acknowledged, “*the decision maker on what the Fibre Deeds actually require would be the High Court.*”¹

1.5 We attach with this submission a public version of a report prepared for us by WIK-Consult GmbH on *EOI pricing for unbundled services for LFCs* dated 7 June 2019 which advised us on our future pricing of the layer 1 unbundled services to meet the equivalence requirement. We provided a confidential version of this report to the Commission in June 2019.

2. Equivalence

2.1 We agree with Dr Vogelsang’s conclusions on equivalence of price:

- (a) “*since the regulated firm typically does not charge itself internally any prices for the inputs it supplies to itself...the prices for equivalence purposes have to be imputed*”;²
- (b) “*the concept of equivalence does not specify a single price level, to the extent that several pricing methods could yield equivalence*”;³
- (c) “*for each pricing method there may exist a range of measured prices depending on assumptions about items, such as asset lives, or measurement issues, such as determining WACC. Thus, one can get a range (a) based on different legitimate methods and (b) legitimate measurement outcomes for each method*”;⁴ and

¹ NZCC, Fibre unbundling price, letter to Vodafone and Vocus, 4 June 2019 [9]

² Vogelsang p9

³ Vogelsang p28

⁴ Vogelsang p24

(d) *“a number of pricing methods are available to the incumbent and the regulator that would satisfy equivalence”.*⁵

2.2 These conclusions are consistent with Dr Vogelsang’s advice to the Commission in its consultation on Part 6 of the Act:

*“according to Clause 6.3(b) Chorus currently has to offer the “Input Service to itself and the Access Seekers...on the same terms and conditions...”. Since Chorus is a single entity, it does not charge itself a price for the input. Thus, this price has to be imputed. There is no unique way to do such an imputation. Rather, different methods yield a range of possible results.”*⁶

2.3 Dr Vogelsang also discusses a layer 2 retail-minus approach as an alternative to cost-based pricing, noting that *“the choice between these two approaches is one between promoting competition or saving resource costs and supporting the incumbents’ investments in new generation networks”*.⁷ He observes that when layer 2 prices are below cost to drive penetration (as in NZ as a consequence of the CIP price caps), *“an alternative view is that L1 pricing based on a retail minus approach will also be below cost and are therefore going to be inefficient”*.⁸

2.4 This is the view expressed by WIK-Consult at [81] – [83] of the WIK Report. While Dr Vogelsang calls this *“the second-best argument”* because *“pricing L1 at resource cost in this situation would create a distortion in the incentives for L1 and L2 investments by access seekers”*,⁹ he nevertheless accepts it is a valid reason to not adopt a retail minus costing methodology; indeed he suggests a retail-minus methodology should only be considered by the Commission as a safe harbour *“after penetration pricing is over”*¹⁰ (i.e., when the CIP price caps cease to apply). It would even then however take some years for prices to increase sufficiently to cover costs, or for uptake to increase to a level where current prices cover cost.

2.5 Importantly, the Vogelsang Report is focussed on guidance the Commission could give on pricing safe harbours for administrative screening purposes. A decision by the Commission at some stage in the future that a layer 2 pricing model is one of several methodologies that satisfy the equivalence test does not affect in any way the fact that the top-down costing approach we have adopted is another pricing methodology that meets the equivalence standard.

2.6 Finally, it must be remembered that any guidance given by the Commission has no legal effect; as the Commission has acknowledged *“the decision maker on what the Fibre Deeds actually require would be the High Court.”*¹¹ The Act has left it to the network operator (not the Commission) to select a pricing methodology that meets the equivalence standard; provided the chosen methodology is one that would *“yield equivalence”*, clause 6.2(b) of the Undertakings, and s156AD(2)(c)(iii) of the Act, are satisfied. The Commission does not have the power to itself determine which of the *“several pricing methods [that] could yield equivalence”* must be used by an LFC.

2.7 As the Commission is aware, we have adopted top-down cost-based pricing methodologies. The Vogelsang Report concludes this methodology meets the equivalence standard; indeed, Dr Vogelsang states:

⁵ above

⁶ Vogelsang and Cave, Pricing under the new regulatory framework provided by Part 6 of the Telecommunications Act, 16 May 2019 [39]

⁷ above

⁸ Vogelsang p25

⁹ above

¹⁰ above

¹¹ NZCC, Fibre unbundling price, letter to Vodafone and Vocus, 4 June 2019 [9]

“internationally the most common pricing method ...has been pricing at long-run incremental cost (LRIC)...Given constraints imposed on Chorus and the other LFCs and given that a building block model (BBM) is likely to be used for PQ regulation in NZ, the top-down approach to LRIC pricing appears to be preferable to a bottom-up approach in the current context”.¹²

2.8 It follows that we have both satisfied our pricing equivalence obligations.

3. **Non-discrimination**

3.1 Dr Vogelsang expresses the opinion that, as well as satisfying the equivalence obligation, LFCs' unbundled layer 1 prices must in addition be compliant with the non-discrimination obligation:

“For each pricing method there may exist a range of measured prices depending on assumptions about items, such as asset lives, or measurements issues, such as determining WACC. Thus, one can get a range (a) based on different legitimate methods and (b) legitimate measurement outcomes for each method. Then the question is if the method or measurement range also satisfies the ND rule”.¹³

3.2 He concludes that we are in breach of our non-discrimination obligations in setting separate prices for the feeder fibre and the distribution fibre:

(a) *“It is well known that two-part tariffs for intermediate inputs favour large buyers and, in particular, favour the regulated firm that is typically its own largest buyer. Thus, a large up-front payment is not compatible with equivalence nor with ND”;¹⁴*

(b) *“The alternative to pricing based on cost components is an aggregated price over all components in the form of a uniform connection charge. This would...result in a single price for the L1 service, thereby avoiding discrimination”;¹⁵*

(c) *“Pricing by element tastes like a way to get around the Act's prohibition of geographic price discrimination, because it effectively means a low price per connection in high-density areas and a high price in low-density areas...Pricing by element is simply a misinterpretation of equivalence and is discriminatory”;¹⁶*

(d) *“The only and very significant constraint added by ND is that the equivalence provision has to hold for each access seeker. This constraint would in particular not allow for ...two-part tariffs that would favour large over small buyers. L1 tariffs would therefore have to be linear or close to linear”.¹⁷*

¹² Vogelsang p13

¹³ Vogelsang p24

¹⁴ Vogelsang p4

¹⁵ Vogelsang p17

¹⁶ Vogelsang pp25-226

¹⁷ Vogelsang pp20-21

- 3.3 We disagree with Dr Vogelsang's analysis and conclusions.
- 3.4 There is no possibility that prices that comply with our equivalence obligations could nevertheless be in breach of our non-discrimination obligations, as the non-discrimination obligation where a service provider supplies a relevant service to itself is in effect identical to the equivalence obligation:

*“non-discrimination, in relation to the supply of a relevant service, means that the service provider must not treat access seekers differently, **or where the service provider supplies itself with a relevant service, must not treat itself differently from other access seekers**, except to the extent that a particular difference in treatment is objectively justifiable and does not harm, and is unlikely to harm, competition in any telecommunications market”*

- 3.5 The use of the word “or” in the definition of non-discrimination is important, as it makes clear that the non-discrimination obligation where the service provider supplies itself with a relevant service is different to the non-discrimination obligation where it does not self-supply. In the former case, discrimination occurs when the service provider treats itself differently from access seekers; in the latter case, discrimination arises when the service provider treats access seekers differently.
- 3.6 The non-discrimination obligation for self-supply is therefore identical in effect to the service provider's equivalence obligation to treat third party access seekers the same way to its own business operations. Consequently, when the equivalence test is satisfied, the non-discrimination test for self-supply is automatically satisfied.
- 3.7 Our equivalence obligations require us to treat third party access seekers the same way to our own business operations in relation to the price of the unbundled layer 1 service. The separate charges for feeder fibre and distribution fibre reflects the cost structure we incur internally, as discussed at [42] of the WIK Report.
- 3.8 If, as Dr Vogelsang asserts, we must charge third-party access seekers a uniform connection charge to comply with our non-discrimination obligations, we would not be treating them as to price in the same way as our own business operations and would consequently be in breach of our equivalence obligations.
- 3.9 It follows that Dr Vogelsang's conclusion that if a price meets the equivalence standard “*then the question is if the method or measurement range also satisfies the ND rule*” is wrong in law.
- 3.10 Even if Dr Vogelsang were correct, there would be no breach of the non-discrimination obligation in this situation. The non-discrimination obligation where there is no self-supply is that the service provider not treat access seekers differently in relation to the **supply** by it of a relevant service. The fact that some access seekers are better able to take up a service because of their size, resources or other factors does not relate to the supply of the service by the service provider but relates instead to the characteristics and attributes of the access seeker.

4. **Section 156AC Purpose Statements**

- 4.1 The Commission also asked Dr Vogelsang whether the purpose statement in s156AC introduced additional constraints on whether a price satisfied equivalence and non-discrimination obligations. He concluded it did; as several pricing methods would satisfy equivalence, “*other considerations such as the Act's purposes would come into play*”.¹⁸
- 4.2 In Dr Vogelsang's view, once it is established that a price satisfies equivalence and non-discrimination requirements:

¹⁸ Vogelsang p28

“one has to find out if the approach adopted in determining the L1 price is consistent with the Part 4AA purpose...If a pricing methodology is incompatible with one of the requirements it is excluded, while if there is more than one compatible method then they can create a price range to choose from. A safe harbour would then either mean this range or the one method that best achieves the Part 4AA purpose”.¹⁹

- 4.3 He then discusses the differing purposes of s156AC(a) (to promote competition) and s156AC(c) (to facilitate efficient investment). He observes in relation to s156AC(a) that *“to the extent that competition by unbundlers is deemed desirable the most important concern would be to avoid price squeezes that foreclose efficient unbundlers”*, and in relation to s156AC(c), *“facilitating efficient investment here can concern the unbundlers investments in availing themselves of L1 services and downstream to produce L2 services competing with those of the incumbent.”²⁰*
- 4.4 Dr Vogelsang does not come to a view on how the purposes of promotion of competition and facilitating efficient investment purposes should be balanced, noting only *“the choice between these two approaches is one between promoting competition or saving resource costs and supporting the incumbents’ investments in new generation networks”*.²¹ He suggests the choice is one for the Commission *“if the Commission believes that L2 services should remain viable”²²*, based on *“the extent that competition by unbundlers is deemed desirable.”*
- 4.5 In our view, the s156AC purpose statements do not place any additional constraint upon LFCs. The Act is clear that the key question is how we price our layer 1 services to our own business operations. Parliament has left it to the network operator to identify the price of its internal supply. The cost-based pricing methodology adopted by us is accepted by Dr Vogelsang as meeting the equivalence standard. There is therefore no role for s156AC to play.
- 4.6 In any event, the cost-based methodology we have adopted is consistent with the s156AC purpose statement of facilitating efficient investment.

5. **Economic analysis**

- 5.1 In addition to Dr Vogelsang’s conclusion being wrong in law, his economic analysis is also wrong.
- 5.2 Separate pricing of the feeder fibre and distribution fibre components of the layer 1 service is not a two-part tariff, but simply follows from the cost structure of the unbundled service. It should also be noted that Dr Vogelsang has in many papers argued that two-part tariffs are superior in welfare terms to linear tariffs.
- 5.3 Component pricing does not lead to geographic differentiation of prices; both component and linear prices can be applied in a uniform geographic way, which is how our prices have been set.
- 5.4 Component pricing reflects the long-run efficient cost of providing the service. A single per connection pricing model advocated by Dr Vogelsang would lead to inefficient entry and under-utilised splitters (Vodafone argues that a *‘notional competitor has about 5-6 connections per splitter on average’²³*), with the costs of that inefficiency borne by us. It would not lead to an efficient choice between layer 1 and layer 2 wholesale services.
- 5.5 The fact that unbundling is attractive only to larger access seekers is neither discriminatory nor harmful to competition. The ladder of investment concept places unbundling as a higher rung on

¹⁹ Vogelsang p24

²⁰ Vogelsang p21

²¹ Vogelsang p2

²² Vogelsang p19

²³ Vodafone/Vocus, Fibre unbundling price letter to NZCC, 11 April 2019, C2

the ladder above resale and wholesale services, available to an access seeker who has developed sufficient scale to justify the necessary unbundling infrastructure investment.²⁴ This is clear from New Zealand's experience with copper local loop unbundling, which was taken up by only the larger access seekers, and sub-loop unbundling which was not taken up by any of them because it was inefficient to do so.

6. The Consultation Process

- 6.1 On 28 September 2018, at an early stage of our work developing our layer 1 pricing methodologies, we sought guidance from the Commission on its expectations in relation to our equivalence obligations for the layer 1 service post 2020. The Commission advised us on 4 October 2018 that *"we are not yet in a position to meaningfully discuss our expectations of the unbundled layer 1 services post 2020. However, we will be in a position to discuss the matter at some point in the future and will be in touch at that time"*²⁵.
- 6.2 We met with Commission staff on three subsequent occasions (most recently on 11 June 2019) to keep the Commission informed on the steps we were taking to meet our pricing obligations; staff were not able to give any indication of the Commission's interpretation of the equivalence obligations at any of these meetings.
- 6.3 We have accordingly relied on our own expert legal, economic and accounting advice to calculate our layer 1 prices on an equivalence basis. We have kept the Commission fully briefed throughout that process, providing the Commission with an expert report on EOI pricing prepared for us by WIK Consult²⁶, and a copy of our respective pricing methodologies based on that expert report, and advice from PwC.
- 6.4 We had an obligation under our Wholesale Services Agreements to give retail service providers 60 working days' notice of our final layer 1 fibre unbundling prices. We have complied with this obligation; our final prices were announced on 30 September 2019.
- 6.5 On 18 October 2019 the Commission commenced consultation on *"what the equivalence and non-discrimination obligations in the Fibre Deeds involve"* by publishing on its website a report from its expert economic advisor, Dr Ingo Vogelsang on his interpretation of the equivalence and non-discrimination obligations imposed on local fibre companies. The Commission is seeking stakeholder views on the contents of that report, which it intends to consider when it develops its guidance on equivalence and non-discrimination.
- 6.6 While we agree that there was *"clear public benefit in the Commission developing, in a transparent way, our views on what the equivalence and non-discrimination obligations in the Fibre Deeds (and other deeds) involve"*²⁷ before the obligation to determine prices had crystallised, as is evident from our request in September 2018, that time has passed; as Vodafone and Vocus foreshadowed in their letter to the Commission of 11 April, the Commission had *"a limited window"*²⁸ to act.
- 6.7 That window closed on 30 September 2019. In circumstances, where the Commission failed, despite request, to provide any guidance on these issues **before** we had determined our final

²⁴ *"The basic principle of the LOI approach consists of gradually offering potential entrants different levels of access to the incumbent's network. The entrants begin with acquiring access at a level which requires little investment to provide their services (e.g., resale level). Then, as the entrants' customer bases grow, they are encouraged to invest in the network elements necessary to bypass this first level of access. The entrants then climb the investment ladder, and acquire access at the next level, and so on."* (Bourreau, Marc, Pinar Doğan, and Matthieu Manant. 2010. A Critical Review of the "Ladder Investment" Approach. Telecommunications Policy 34(11):683-696, p683,

²⁵ NZCC email to MinterEllisonRuddWatts, 4 October 2018

²⁶ WIK-Consult GmbH, EOI pricing for unbundled services of LFCs, 7 June 2019 (WIK Report)

²⁷ NZCC, *We seek your views on the report from our expert economic advisor, Dr Ingo Vogelsang, on the interpretation of the equivalence and non-discrimination obligations imposed on local fibre companies*, 18 October 2018 [7]

²⁸ Vodafone/Vocus, Fibre unbundling price letter to NZCC, 11 April 2019 p1

prices, the current public consultation process commenced **after** we have finalised our pricing is inappropriate; guidance cannot be given for past conduct.

- 6.8 The Vogelsang Report expresses in provocative language the opinion (with which we strongly disagree) that the pricing structure we have adopted is in breach of the Act and Undertakings; according to Dr Vogelsang it “*tastes like a way to get around the Act’s prohibition of geographic price discrimination*”²⁹ and “*is a misrepresentation of equivalence and discriminatory*”³⁰.
- 6.9 Consultation about the legality of past conduct with parties with opposed interests, driven in part by “stakeholder concerns,” is not a process contemplated by the Act, and is inconsistent with the Commission’s enforcement role under s156Q(2) of the Act. As the Commission has noted “*the decision-maker on what the obligations in the Fibre Deeds actually require would be the High Court*”.³¹

7. Response to Commission questions

Q1 What is your view on the implications of potential penetration pricing (downstream pricing below cost) for the EOP obligation on the PON Fibre Access Service?

As the WIK Report concludes, a layer 2 retail price methodology will derive an efficient layer 1 price only where the layer 2 price is efficient “*that is, cost based or competitively set*”.³² As this is not the case in New Zealand, WIK’s conclusion is “*the current Layer 2 price cannot be the reference point for determining the L 1 price*”.

Dr Vogelsang comes to a similar conclusion, recommending that the layer 2 methodology be considered for safe harbour purposes only when penetration pricing has ceased.

Q2a What are your views on the conclusion in the expert report that the EOP obligation does not require a particular pricing methodology or structure, but it does entail certain restrictions on the pricing freedom of the service provider?

We agree with Dr Vogelsang that the equivalence obligation does not require a particular pricing methodology or structure - “*several pricing methods could yield equivalence*”; “*a number of pricing methods are available to the incumbent and the regulator that would satisfy equivalence*”.

We do not agree that, when the equivalence test is satisfied, there are any additional restrictions on the pricing freedom of the service provider.

As discussed at paragraph 3.4–3.8 of this submission, when the equivalence obligation is satisfied, the non-discrimination self-supply obligations are automatically satisfied, and, as discussed at paragraph 4.5, the s156AC purpose statements have no role to play.

Q2b What are your views on the conclusion in the expert report that the EOP obligation requires that the LFCs’ own downstream operations can profitably supply the downstream product if faced with the upstream access price (ie, a form of ‘no price squeeze’ test has to be satisfied based, at least, on an ‘equally efficient competitor’ standard)?

The Vogelsang Report does not reach this conclusion.

²⁹ Dr Ingo Vogelsang, *Equivalence and non-discrimination in New Zealand telecommunications markets: The case of layer 1 unbundled access to fibre networks*, 16 October 2019 (“Vogelsang”) p25

³⁰ Vogelsang p26

³¹ NZCC, Fibre unbundling price, letter to Vodafone and Vocus, 4 June 2019 [9]

³² WIK Report [8]

It concludes that while a layer 2 retail-minus pricing methodology is one of several pricing methodologies which may “*yield equivalence*”, if layer 2 prices are below cost as a consequence of the UFB contracts there is a view that “*L1 prices based on a retail minus approach will also be below cost and are therefore going to be inefficient*”.

For this reason, the Vogelsang Report concludes that retail-minus pricing should not be considered as a safe-harbour until “*after penetration pricing is over*”.

Even in that case however, the Vogelsang Report does not conclude or suggest that the equivalence obligation **requires** that the ‘no price squeeze’ test be satisfied. The Report’s conclusion is only that the retail-minus approach is one of several pricing methodologies that may (if the layer 2 price is competitively set) meet the equivalence standard.

- Q2c ***What are your views on the conclusion in the Vogelsang Report that there is an optional approach to establish a ‘safe harbour’ price level for the upstream price, based on the formula provided in paragraph 15 which, if demonstrated to hold, would be presumed to satisfy the EOP obligation?***

See response to Q2b above.

- Q3 ***What are your views on each of the following conclusions in the Vogelsang Report?***

- (a) ***Any price structure that deviates from a single price per unit (aside from de minimis deviations) or that impacts different access seekers differently (from each other or an LFC’s own downstream operations) can be considered to fail the non-discrimination obligation unless it qualifies for the exemption in the relevant provision of the Fibre Deeds.***

As discussed in paragraphs 3.4–3.7, Dr Vogelsang’s conclusion is based on a misinterpretation of the non-discrimination obligation in so far as it applies to a service provider who supplies itself with a relevant service.

Even if that were not the case, the theoretical basis for the alleged discrimination (“*this constraint would in particular not allow for ...two-part tariffs that would favour large over small buyers.*”) is unsound.

As discussed at paragraph 3.10, the obligation on the service provider is not to treat access seekers differently in relation to the **supply** of a relevant service by it. The fact that some access seekers are better able to take up a service because of their size and resources is not an aspect of the supply of the service, but a characteristic of the receiver of the service.

- (b) ***Pricing practices that are likely to favour large access seekers can be presumed to fail the non-discrimination obligation, since they are likely to harm competition.***

Both of Dr Vogelsang’s conclusions are wrong in law.

As discussed in paragraphs 3.4 - 3.7 of this submission he has misinterpreted the non-discrimination test as it applies to self-supply; if the equivalence test is satisfied, the non-discrimination test for self-supply is automatically satisfied.

As discussed at paragraph 3.8, even if the non-discrimination obligation required that the service be supplied on the same terms to all access seekers, no breach has occurred. The Act does not impose an additional obligation on a service provider to take account of the wide range of differing attributes and characteristics of its wholesale customers to ensure

that none of them will be at a disadvantage to the others in taking the service. The obligation is only to make the service available to all on the same terms.

The proposition is also wrong in economics. The ladder of investment concept sees unbundling as a higher rung on the ladder above resale and wholesale services, available to an access seeker who has developed sufficient scale to justify the necessary unbundling infrastructure investment. This is clear from New Zealand's experience with copper local loop unbundling, which was taken up by only the larger access seekers, and sub-loop unbundling, which was not taken up by any of them.

Component pricing reflects the long run efficient costs of providing the service, and therefore sets the right incentives for efficient investment in unbundling.