

Report for TelstraClear

# A review of Telecom's critique of the OXERA cost benefit analysis

Unbundling the local loop in New Zealand

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## 0 Executive summary

Telecom's consultants attack the OXERA cost-benefit analysis on theoretical grounds and challenge its data, calculations and assumptions. Following a review of these critiques we find that in all respects the core of the OXERA model remains intact and that for reasonable values of the assumptions substantially positive net benefits are obtained from unbundling.

A main plank of Telecom consultants' objections to the OXERA approach is its failure to assess dynamic efficiency. While we agree that the analysis does not encompass any dynamic effects, Telecom has provided no evidence to support its implicit assumption that these effects amount to a disbenefit to New Zealand as Telecom's proposed investment in the next generation network (NGN) will not proceed should unbundling occur. Telecom's consultants fail to take into account dynamic efficiencies emanating from new entry and fail to demonstrate that the NGN and unbundling are mutually exclusive.

With respect to the OXERA data, calculations and assumptions, in our view Telecom's consultants have identified only three issues which possibly may have a significant effect on the results:

<i>LECG Issue</i>	<i>Analysys/Network Strategies' view on impact on net consumer benefit</i>
Failure to deaverage costs	Increases net benefit
A spreadsheet error	Increases net benefit
Failure to take into account existing 'competitive' areas	Net benefit may decrease. Note however that it will not decrease by as much as Telecom's consultants suggest as the removal of whole ESAs is inappropriate. Typically net entrants' networks do not cover the whole of ESAs, therefore to remove whole (partially competitive) ESAs would lead to an underestimate of the benefits of unbundling.

**Exhibit 0.1:** *Impact of three LECG issues on net consumer benefit [Source: Analysys/Network Strategies]*

With respect to the issues concerning data and assumptions which LECG claim are most significant, we believe that their suggested changes are inappropriate or insignificant as illustrated in Exhibit 0.2:

<i>Issue</i>	<i>LECG impact on consumer surplus for full unbundling<sup>1</sup></i>	<i>Analysys/Network Strategies impact on consumer surplus for full unbundling</i>
1. Voice prices are set too high due to spreadsheet error	+14%	Analysys/Network Strategies are unable to confirm that it is an error
2. GST counted as benefit	-9%	-1.6% <sup>2</sup>
3. Mis-allocation of fixed costs	-35%	-9%
4. Payback periods too long	-45%	-6.6%
5. Onset costs understated	-23%	Analysys/Network Strategies do not believe that onset costs should be explicitly modelled as they have already been included in benchmark charges
6. Market share penetration rates too high	-69% (lower estimate)	Analysys/Network Strategies believe that OXERA's approach is correct and LECG have incorrectly estimated market share
7. Collocation costs understated	28% – 47%	Analysys/Network Strategies believe that LECG's collocation costs are not understated due to benchmarking evidence and the possibility of less expensive options
<i>Aggregate impact</i>	Correcting for four issues results in low or zero benefits for full unbundling	Analysys/Network Strategies believe, as shown above, that the above issues are either incorrect or have only a small impact on consumer surplus

1: Based on LECG's new base consumer surplus estimate

2: Analysys/Network Strategies believe that GST should be included in residential prices and we have included GST in all residential prices

**Exhibit 0.2:** *Impact of LECG issues on consumer surplus [Source: Analysys, Network Strategies]*

Finally, we demonstrate that New Zealand retail ADSL prices are comparable with those in other countries only at low usage rates. As usage increases, New Zealand prices are relatively expensive. The criticisms levelled by a Telecom consultant at our earlier ADSL benchmarking study are unfounded and the proposed replacement methodology is invalid due to errors, omissions and inappropriate data.



# A review of Telecom’s critique of the OXERA cost benefit analysis

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# 1 Introduction

Telecom contracted Charles River Associates (CRA), Professor Jerry Hausman and LECG to perform critiques of the OXERA cost benefit analysis report<sup>1</sup> and model. These three critiques were published as appendices to Telecom's submission<sup>2</sup>:

- *Economic and technical critique of the OXERA unbundling cost benefit analysis: economic review*, Charles River Associates, 29 October 2003 (referred to as the CRA report)
- *Economic and technical critique of the OXERA unbundling cost benefit analysis: consideration of dynamic efficiencies under unbundling*, Jerry Hausman, 29 October 2003 (the Hausman report)
- *Economic and technical critique of the OXERA unbundling cost benefit analysis: focussing on model data, calculations and assumptions*, LECG, 29 October 2003 (the LECG report).

In addition Telecom commissioned Bronwyn Howell to respond to the Network Strategies' retail ADSL price benchmarking analysis<sup>3</sup>. This response was published in an additional appendix to Telecom's submission:

- *Benchmarking analysis*, Bronwyn Howell, 31 July 2003.

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<sup>1</sup> OXERA (2003), *Modelling the impact of unbundling the local loop and fixed public data network*, October 2003.

<sup>2</sup> Telecom New Zealand (2003) *Telecom's response to the Commerce Commission's draft report*, 29 October 2003.

<sup>3</sup> Network Strategies (2003) *ADSL retail price benchmarking*, report for TelstraClear, May 2003.

The three critiques and the response to the benchmarking are reviewed in this document. Section 2 reviews the CRA critique, section 3 comments on Hausman and section 4 reviews the LECG critique. Section 5 reviews the Howell report, and finally, in section 6, we present our concluding remarks.

Although this paper has been commissioned by TelstraClear, the views expressed are entirely those of Network Strategies and Analysys Consulting Limited.

## 2 Review of CRA critique

### 2.1 Introduction

In this section we address the following issues covered by the CRA report:

- theoretical economic issues (section 2.2)
- OXERA assumptions (section (2.3)
- the Covec report (section 2.4).

### 2.2 Theoretical economic issues

#### 2.2.1 Dynamic efficiency

CRA emphasises the importance of taking into account dynamic efficiencies. In section 2 and parts of section 3 within its report, CRA in effect provides the theoretical basis for the Hausman paper. While they acknowledge the possibility that new entrants may provide dynamic efficiencies, CRA's main criticism of OXERA is that there has been a failure to measure dynamic efficiency. As we stated in our own critique of OXERA, we too believe that dynamic efficiencies have not been taken into account. However this leaves open the possibility that unbundling, in opening the industry up to competition, will produce dynamic efficiencies by the new entrants. CRA raises the spectre of Telecom's potential non-investment in next generation networks (NGN), just as Hausman raises the non-investment in cable TV, however both steer clear of drawing attention to the dynamic efficiency gains arising from new entrants using unbundling. Note that there is a related

issue in that the transfer of wealth may be to the new entrants and may trigger the efficiency gain. In other words, any wealth transfer to new entrants cannot simply be dismissed out-of-hand because it may spark efficiency gains from the new entrants.

In summary, the dynamic efficiency gains from new entrants should be recognised. Furthermore, despite the (Hausman) demonstration that there could be dynamic efficiency gains, neither CRA nor Hausman have provided an estimate of the alleged NGN loss. They simply accept Telecom's proposition that it will not proceed or will delay NGN while in fact there is no evidence that Telecom will do so. Furthermore no evidence is provided that NGN would take place (in the stated timeframes or otherwise) in the absence of unbundling or that NGN is the optimal (from a dynamic efficiency perspective) network solution for Telecom. It is quite plausible that as new entrants deploy their own NGN-like facilities over the unbundled loops, innovation will follow and subsequently Telecom will in fact be driven to deploy its NGN or otherwise risk losing revenue and/or market share (which is the exact opposite of Hausman's claims). In any event, we would expect Telecom to deploy its NGN if it can build a robust business case for it. While currently that business case may rely on utilising existing monopoly rents, we assume that should monopoly rents decline, Telecom may still be able to construct a viable business case, raising capital in other ways.

It should also be noted that the introduction of unbundling provides entrants with a 'middle way' between resale of Telecom services and infrastructure build. If Telecom considers the resale of its JetStream service undesirable, then unbundling will provide additional benefits, as entrants become less dependent on resold services for their business. This aspect was not included within OXERA's model.

### 2.2.2 Wealth transfers

CRA claims that the OXERA model is flawed because it treats wealth transfers as a benefit of unbundling. CRA suggests that wealth transfers are an outcome of unbundling and do not improve the welfare of society as a whole. Further, CRA states that stripping out the wealth transfers reduces the claimed benefits of unbundling.

The results of the OXERA model rely on the introduction of competition. Either under the specification or designation option Telecom will reduce its price. Indeed it is inevitable that in introducing competition there will be a reduction in monopoly profits of the incumbent and in the process there will be an increase in consumer welfare and benefits. It is in fact difficult to see, barring the establishment of a duopoly or cartel, how this process would not translate into higher net benefits to end-users.

The elementary theory of consumer demand would suggest an interpretation of a reduction in the price of a good as follows: firstly the price fall lowers the relative price of the good and increases demand for it; secondly the price fall increases the real income of the consumer and this increase in real income will bring about an increase in the demand for all goods, including those whose price has fallen. Both the fall in the relative price and the real income effect can trigger off both static and dynamic efficiency gains and losses on the part of producers. The use of the term 'wealth transfer' does not improve or alter the analysis. In the consumer surplus analysis (see Figure 2.3 in the OXERA report), the triangle represents the benefits arising from the total increase in demand for the service; the rectangle represents the real income effect less the additional demand for the service over and above the relative price fall.

Another way of approaching this issue is to consider the impact of monopolistic profits on end-users. In the absence of any redistributive tax or competition, these profits represent a rent levied for the benefit of Telecom shareholders (including over 80% foreign shareholders) and executives on the rest of New Zealand. The introduction of competition will reduce this rent. We would also expect downstream efficiency effects with the reduction of the costs of communications. This will translate into more business being transacted using communications networks.

CRA states that OXERA does not identify the incidence of its transfers. This is true as interindustry transactions have been netted out. However this does not invalidate the OXERA findings.

### 2.2.3 Static analysis

CRA points out that the counterfactual in OXERA assumes static prices (as we would indeed expect of a static analysis!) and ignores the possibility that the threat of competition would induce Telecom to lower prices, improve productivity and innovate. While we agree that this may be possible, we can only speculate about how effective such a threat would be in practice. In other words, there is no guarantee that the threat of competition would be an effective inducement for Telecom to behave differently.

### 2.2.4 Regulatory error

CRA points out (on page 20) that the potential for regulatory error is very high and that the 25% reduction in benefits assumed by the Commission due to the possibility of regulatory error seems low in comparison with figures used in the Airports Inquiry. They go on to suggest that rather than apply an arbitrary figure the Commission should directly model the effect of unbundling on efficiency.

We agree that that it is inappropriate to apply an arbitrary figure for the possible effect of regulatory error. In effect this is a way of applying a margin of error to the point estimates from the OXERA analysis. We suggest that a better approach would be to estimate a range from the OXERA analysis as opposed to point estimates. This would seem a more scientific way of allowing for error. We also suggest that, given the results of our sensitivity analysis, any ranges of estimates OXERA can produce would still indicate a positive benefit.

### 2.2.5 CRA's FCC examples

We do not believe that CRA has fully and accurately represented the FCC literature. CRA states that:

It is instructive to note that the FCC has recently (February 2003) pulled back on unbundling regulation in the US, with the priority being to ensure that investment in next generation technology occurs [Paragraph 72, p24]

While it is true the FCC has re-evaluated its approach to the obligations of the 1996 Act, it has not set just one priority. The FCC's three primary goals are to:

- continue implementation and enforcement of the 1996 Act's market opening requirements
- apply unbundling with recognition of market barriers faced by new entrants and societal costs of unbundling
- ensure investment in telecommunications infrastructure will generate substantial, long-term benefits for all consumers.

## 2.3 OXERA assumptions

### 2.3.1 Model output

CRA portrays the OXERA model as:

...not a test of the hypothesis that unbundling provides net benefits. Rather, it is a collection of assumptions that unbundling provides net benefits with a calibration of these assumptions to some empirical values [Paragraph 2, p2]

As we stated in our report *Unbundling the local loop in New Zealand: a review of the OXERA cost benefit model* (October 2003) the OXERA model is a standard application of consumer welfare theory to the issue of local loop unbundling and unbundled network elements. We emphasised that while the OXERA cost-benefit model is a satisfactory application of the theory, as with any model the data and assumptions used are partly subjective, and thus could be replaced by different data and assumptions by model users.

The approach adopted by OXERA is essentially an attempt to estimate costs less the benefits of unbundling. There are naturally other approaches which may be used to address the question as to whether unbundling delivers benefits to end-users. A different approach was indeed adopted in the UK, where the question asked was, in effect, given the costs of unbundling what changes would be necessary in order that a positive benefit would be achieved. In other words the focus was not on the absolute amount of benefit but the likely

magnitude of key parameters required to achieve a positive benefit. For example, what percentage increase in efficiency would be required? It is worth noting that OfTel's mandate is to promote competition so even if the outcomes are the same for both competitive and monopoly scenarios the competitive model will be selected.

This has a parallel in the OXERA approach. It is simply whether the cost-benefit model delivers positive benefits for reasonable values of the assumptions, as opposed to focusing on the absolute values delivered by the analysis.

CRA also states (in paragraph 2, p.2) that 'the OXERA model is incapable of producing a negative estimate of the benefits of unbundling'. However in a footnote CRA adds that:

...if adjusted to correctly account for onset costs, the model can produce negative benefits – see the accompanying LECG report.

Thus CRA appears immediately to contradict its original statement. Furthermore, we note that in the LECG report a number of amendments were made to the model's assumptions which resulted in negative net benefits.

In our report we showed that it was possible to produce negative net benefits albeit when applying unreasonable assumptions. Indeed we conducted sensitivity testing of the model in order to ascertain how robust the results are to a wider range of tests and key parameter values. This included variations on retail prices, elasticity of demand, return on sales, consumer surplus discount rate, Telecom's profitability and annual gain in efficiency, Internet penetration, churn, interference and costs. Under a range of reasonable assumptions for the key sensitivities under designation the present value of the consumer surplus remained positive for designation of full unbundling, line sharing, bitstream and PDN.

Furthermore OXERA takes a very conservative approach in their modelling and they do not take account of dynamic efficiencies, thus their results are likely to understate the true benefits.

In summary the model does address the issue of whether net benefits will result from unbundling. The fact that it is difficult to produce a negative result under any reasonable

assumptions is not surprising – given experience from other jurisdictions<sup>4</sup>, we would expect a positive outcome due to the inherent benefits of unbundling, especially when measured against the current status quo.

### 2.3.2 Higher benefit to business customers than residential customers

CRA states:

... the OXERA model is flawed...The majority of OXERA's calculated benefits accrue to business customers, whereas the Commission's statutory concern is with end-users. [Paragraph 5, p3]

It is true that business customers will benefit from the introduction of competition, but any such benefits will eventually flow through to other consumers, such as householders who buy the services of business.

Analysys/Network Strategies believes that CRA is confused regarding the term end-user. In the Act the term end-user is not limited to residential users. Residential users, business users and businesses which use a service to provide to their staff (for example a small company with a JetStream connection) are all valid end users. In any case benefits to business users in a competitive market flow on to residential users.

### 2.3.3 Modelled Telecom response price is too low

CRA states:

OXERA's assumed competitive price level appears to be below the price required by Telecom to recover all of its efficiently incurred costs and below the price established in those markets that the Commission already considers to be competitive. [Paragraph 5, p4]

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<sup>4</sup> A case study on the Italian experience is presented in the Annex.

CRA has provided no basis at all for this statement. They simply appear to be saying that they believe that the calculated  $P_1^T$  is too low but provide no justification to support this assertion.

### 2.3.4 WACC

CRA states:

A post-tax WACC has been applied to a pre-tax framework. OXERA uses a cost of capital of 13%. We believe that this is post-tax because this value is consistent with other costs of capital used by the Commission, which have been post-tax. Further, a pre-tax cost of capital of 13% (implying a post-tax rate of 8.7%) is well below any realistic return required by shareholders on investments in assets as risky as those of IT. [Paragraph 100, p33]

We must assume that the Commission have provided OXERA with an appropriate cost of capital for their calculations. Furthermore, if 13% is a post-tax WACC, this would imply an unrealistically high pre-tax rate of over 19%.

### 2.3.5 Considerable price reductions under designation

CRA states:

The reduction in prices from current levels to those assumed under designation with two entrants is considerable. For example, under PDN unbundling the variable price of business connection is assumed by OXERA to drop from [ ]Telecom **RI** per annum to [ ]Telecom **RI**. [Paragraph 119, p36]

Analysys/Network Strategies expects the adoption of cost-based pricing to result in considerable price decreases. In the latest OXERA model the price drops to [ ]Telecom **RI** – CRA are quoting from the older version of the model.

### 2.3.6 Model only recovers 50% of onset costs under designation

CRA states in respect of designation:

In addition, only 50% of onset costs, a legitimate overhead of delivering services under unbundling, are recovered from consumers over a five-year period (it is not explained how the rest is recovered). All costs are an essential element of the cost benefit analysis. [Paragraph 126, p37]

In fact CRA has confused OXERA's treatment of onset costs under designation with their treatment under specification. The 50% onset cost recovery relates only to the specification case. In the designation case OXERA states that onset costs have been accounted for via the benchmarked Covec access prices [*Further information on the cost-benefit model*, Commerce Commission, 14 October 2003, p15]:

In the NPV entry calculations, IS system set-up costs are assumed to be included in the wholesale connection charge, where the charge assumptions are based on the COVEC data.

### 2.3.7 Low LLU costs under specification

CRA states:

LLU costs are set at [ ]Telecom **RI** per connection. The figures provided by OXERA used to derive this value suggest a figure of at least [ ]Telecom **RI** per connection is more appropriate (based on [ ]Telecom **RI** business and residential lines by 2010 under full unbundling with [ ]Telecom **RI** in onset costs to be recovered over five years at 13% cost of capital. This is the most conservative estimate possible: other scenarios have less lines to allocate costs over and larger onset costs.) [Paragraph 129, p39]

It should be pointed out that the [ ]Telecom **RI** per connection was used in the original version of the model. This figure was replaced with [ ]Telecom **RI** per connection in the version released on 14 October. It also appears that the number of business and residential lines has increased slightly to [ ]Telecom **RI** in this version. The Commission also stated that it was their intention that the full [ ]Telecom **RI** is not to be recovered by the entrants

(50% of the cost is to be borne by the incumbent) so that **Telecom RI** is recovered by the entrants (as stated in section 4.2.3 of the OXERA report).

## 2.4 CRA comments on the Covec report

CRA point out that the Covec study is flawed. In particular they criticise:

- the method of currency conversion
- the lack of adjustment of data to account for New Zealand conditions, or of selecting benchmark jurisdictions on the basis of similarity with New Zealand.

While we recognise these problems, the important question then becomes whether addressing these issues will affect the conclusions made from the OXERA model results – that is, if consumers will benefit from local loop unbundling.

It should also be noted that while the Commission’s benchmarking exercises for the purposes of setting interconnection rates require a high level of accuracy, the nature of this current investigation is very different. The Commission is not setting an actual price, but is looking to determine whether consumers will benefit from unbundling the local loop. Thus a less rigorous approach is acceptable, if it can be shown that the resultant conclusions are not affected by a range of different benchmark estimates. As we discussed above in section 2.3.1, OXERA’s approach concentrates on whether the cost-benefit model delivers positive benefits for reasonable values of the assumptions, as opposed to focusing on the absolute values delivered by the analysis.

### 2.4.1 Exchange rate conversions

We recommend the use of purchasing power parity (PPP) rates for currency conversion in benchmarking work. As we discussed in an earlier report<sup>5</sup>, PPP rates are widely used for benchmarking as not only do they convert interconnection prices to a common currency unit, but also adjust for average cost differences between countries.

<sup>5</sup> Network Strategies (2002) *Currency conversion for telecommunications benchmarking*, report for TelstraClear, June 2002.

However, given that the Commission has at various times used a mix of PPP and market rates, or purely market rates, we can only assume that Covec's method of currency conversion is acceptable to the Commission. The Commission should ensure that the currency conversion methodology be consistent with that used within its interconnection determination.

CRA notes that Covec's currency conversion differs from that used by the Commission in its final interconnection determination, but found that if Commission's methodology was used, there was only a 'relatively minor' impact on the results from OXERA's model.

#### 2.4.2 International benchmarking

The Commission, in its determinations on interconnection and wholesaling, did not adjust the benchmark data for New Zealand conditions, but selected benchmark jurisdictions on the basis of demographic and other similarities with New Zealand, including the use of forward-looking cost-based approaches. Our view is that this is a valid approach<sup>6</sup>.

If the Commission was to adopt a similar approach to that was used for interconnection, the benchmark countries would be limited to those with forward-looking cost-based approaches. Countries using historical cost approaches tend to have higher prices, so that if these countries were omitted, we would expect the benchmark estimates to be reduced, thus resulting in a higher consumer benefit.

As CRA rightly notes, differences in population density and size may result in significant differences in costs of different jurisdictions. However, these are not the only factors that may influence costs, as is evident by an inspection of the Covec data.

The benchmark jurisdictions are mostly European countries, with the addition of Australia, Canada, Japan, South Korea and the United States. While CRA states that the population density in New Zealand is 'an order of magnitude smaller than most of the European countries that make up virtually all' of Covec's sample, we note that the population density

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<sup>6</sup> Network Strategies (2003) *Unbundling the local loop in New Zealand: a review of the OXERA cost benefit model*, report for TelstraClear, October 2003, section 4.1.1.

in Australia is much lower than that of New Zealand, yet its full unbundling prices (which are forward-looking cost-based) are lower than the average (and the median) of the sample countries, and are also lower than prices in Japan, United Kingdom and the US average – all of which are much larger markets with higher population densities.

While Sidak and Singer<sup>7</sup> found that the price obtained from a benchmark model for Ireland was 42% higher than that of an average of European countries, note that this average was based on a sample of only ten European Union countries. Covec's sample was more than twice as large, covering 23 countries. There is no evidence to suggest that prices in New Zealand would require an adjustment of similar magnitude, nor that New Zealand shares any characteristics with Ireland other than population size.

In the absence of a sophisticated econometric analysis, it is impossible to state categorically that New Zealand should be, for example, amongst the jurisdictions with the highest priced services. The only feasible approach is therefore to take some middle value, such as the average, or our preference, the median from a large sample.

### 2.4.3 Resultant findings of the OXERA model

While we find CRA's criticisms of the Covec study to be valid, this does not affect the conclusions obtained from OXERA's model. Even when increasing the benchmark estimates to account for different currency conversion methods, or if (as we tested<sup>8</sup>) the third quartile was used instead of the average value (similar to the Commission's approach for interconnection), the outcome is still a positive consumer benefit.

Without performing an appropriate analysis it is difficult to quantify how benchmark estimates may differ if adjustments were made for differences between New Zealand and the countries within the benchmark sample, nevertheless high-price scenarios (through use of the third quartile as an estimate) can still be examined with OXERA's model.

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<sup>7</sup> Sidak, J.G. and Singer, H.L. (2002) 'How can regulators set nonarbitrary interim rates? The case of local loop unbundling in Ireland', *Journal of Network Industries*, 3:273–295.

<sup>8</sup> Network Strategies (2003) *Unbundling the local loop in New Zealand: a review of the OXERA cost benefit model*, report for TelstraClear, October 2003.

## 2.5 Summary

We have not found in our review of the CRA report any issues which would substantively alter the findings of the OXERA model nor negate the theoretical core of the model. While we agree that some of the assumptions would have been strengthened with further explanation, we have successfully applied sensitivity tests to ensure that the findings are robust to a range of different assumptions.



### 3 Review of Hausman critique

Professor Hausman equates dynamic efficiency with investment in the delivery of a new service. Note that this is not quite the same thing as innovation – that is, the commercial application of a new technique which is, of course, much more difficult to measure. Hausman estimates the benefits to the consumer of Telecom’s investment in cable TV. However in a striking leap of faith he goes on to assert quite simply that with unbundling all these benefits will be lost because Telecom will not proceed with the investment.

The Hausman paper falls down in a number of major respects:

- no evidence is provided that Telecom would roll-out NGN in the absence of unbundling (within the claimed timeframes or not).
- no evidence is provided that a roll-out of NGN is the optimal (dynamically efficient) network solution for Telecom.
- no evidence is provided that Telecom would not roll-out NGN if unbundling is introduced, or that such a roll-out would be delayed. Hausman simply takes Telecom’s word for it.
- even if we accept that the Hausman approach does allow us to estimate the gains from what he calls ‘dynamic efficiency’, he has completely disregarded the benefits to consumers of other service providers’ investments in the delivery of new services. Entrants utilising unbundled access may well make the investment on their own NGN services if Telecom decided it would not proceed as fast (or at all) with its NGN plans.

One feasible scenario under unbundling is that new entrants will offer television – note that TelstraClear has a current television product which it would offer beyond its cable network) and Telecom would respond by offering TV, deploying NGN to allow it to do so.

The competition between Sky TV, TelstraClear and Telecom would increase diversity of programming and reduce price more than a duopoly in TV between Sky TV and Telecom.

Thus it is entirely plausible that unbundling would result in Telecom rolling out NGN faster than in the absence of unbundling, which is the opposite of what Hasuman is assuming. This is a market response that can be observed elsewhere. For example, Woosh's wireless network entry in Southland has resulted in Telecom rolling out DSLAMs in Southland faster than it otherwise would have.

## 4 Review of LECG critique

LECG undertook a review of OXERA's data, calculations and assumptions. Each item that LECG identified in their report is considered below in Section 4.1 and we summarise the significance of issues identified by LECG in Section 4.2.

### 4.1 Data, calculations and assumptions reviewed by LECG

#### 4.1.1 Incorrect cell references for voice $P_2$ prices

LECG claims that the OXERA spreadsheet contains errors:

In the full unbundling option (option 1), benefits from the expected decline in voice prices are understated, as the spreadsheet references the incorrect cells (columns DO to DT, and DV to EA in spreadsheets OutputSpec, and OutputDes), and thereby the decline in prices is not incorporated in the benefit calculation. We correct this error by changing the cell references to pick up the estimated declining voice prices for each year. [Section 3.1.1, p5]

LECG found that this issue adds \$26 million to the base case surplus of \$180 million.

We have located the alleged error, which refers to the calculation of the price effect for the voice-only service. Noting that the calculation for the data plus voice service is correct as described in the OXERA report, the calculation for the voice-only service has a number of differences, one of which is the alleged error. However based on the information provided in the OXERA report we do not understand the reason for the differences. Thus, we are unable to confirm that it is in fact an error.

#### 4.1.2 GST incorrectly included in residential $P_0$ s

LECG claims that GST should not be included within the residential prices:

Table 5.1 of the OXERA report quotes counterfactual retail prices ( $P_0$ ) for 5 residential voice and data products that include GST. The data provided by OXERA indicates no GST has been included in  $P_1$  and  $P_2$  factual prices. The estimated welfare benefits of unbundling therefore incorrectly include the amount of GST incorporated in the  $P_0$  price. We correct for this by subtracting GST from all  $P_0$  prices where it is included. [Section 3.1.2, p6]

LECG includes a footnote to the final quoted sentence:

It could be argued that GST should be added to the  $P_1$  and  $P_2$  prices, but the difference from doing so would be minor.

We note that:

- under specification the formula for  $P_2$  is  $P_2 = P_0 - \% \Pi - \text{efficiency} + \text{LLU costs}$ . Since the LLU costs<sup>9</sup> do not include GST<sup>10</sup> and the residential  $P_0$  do include GST, the result  $P_2$  is ambiguous. However the LLU costs are relatively small and we estimate that the addition of GST to the LLU costs would not have a great effect on  $P_2$ .
- under designation  $P_2$  is calculated using a bottom-up approach, using the costs incurred to implement the service. However, as under specification, the costs used for residential customers are the same as for business customers and so are assumed to exclude GST. Therefore  $P_2$  is incorrect by the amount of GST.
- the other prices,  $P_1^E$  and  $P_1^T$ , are proportional to  $P_2$ , so any error will be propagated in the same proportion.

Network Strategies and Analysys are of the opinion that GST should be included in all residential prices, because the consumer must pay GST and so it should be taken into account when calculating the benefit to the consumer. Exhibit 4.1 illustrates the results of

<sup>9</sup> OXERA CBA report, p40.

<sup>10</sup> Although the costs are not explicitly described as not including GST, they are the same costs that are used for the prices for the business customers.

including GST. As expected there has been a slight decrease for the specification option, and for full unbundling under designation, because of the increase in price for the residential customers (which make up a minority of the total customers). However the consumer surplus has increased for line sharing (and bitstream to a lesser extent) under designation due to an increase in residential customers. We have not been able to investigate this result further within the time available.

<i>Option</i>	<i>New benefit estimate (\$ millions)</i>	<i>Change from central case</i>
<i>Specification</i>		
1: Full	6.4	-0.40%
2: Line sharing	12.2	-0.43%
3: Bitstream	54.8	-0.63%
<i>Designation</i>		
1: Full	177.8	-1.58%
2: Line sharing	46.8	22.70%
3: Bitstream	161.0	5.95%

**Exhibit 4.1: GST**  
included in  
residential prices  
(under specification)  
[Source: Network  
Strategies]

Note PDN unbundling is not included because it only connects business customers.

#### 4.1.3 Incorrect allocation of fixed costs over five-year period

LECG criticises the OXERA approach regarding the allocation of fixed costs:

In options 1–3, under designation, the OXERA model allocates fixed costs incurred by the entrant to enter an ESA (e.g. collocation and DSLAM costs) over the five-year study period. These costs also form part of the  $P_2$  price calculation. However, the allocation method used does not take account of the time value of money over the period, but rather permits the recovery of a fifth of the fixed costs in each of the five years. OXERA appears to partially address this issue with a 15% uplift on all costs (except on ISP costs) to “allow for an appropriate return”.

To allocate these fixed costs in a manner that reflects properly the time value of money requires calculating a stream of annual payments over the 5-year period which has a present

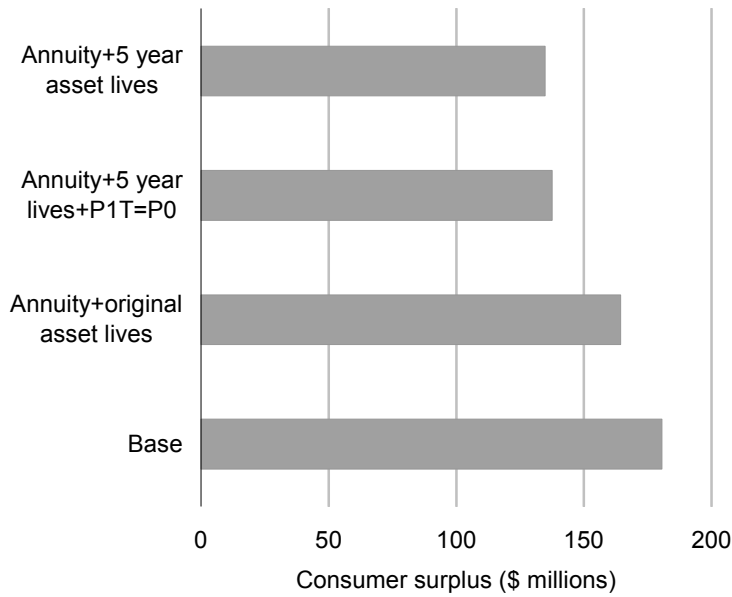
value equal to the fixed costs (this is consistent with the costing approach used by the Commission in calculating its draft decision on the TSO costs). The approach we suggest to correct for this is to remove the 15% uplift on all fixed costs, and adopt an annuity[.] [Section 3.1.3, p7]

While we agree that LECG's recommendation is reasonable we note that LECG have applied a 19.4% cost of capital in their recalculation. As discussed in 2.3.4 the OXERA cost of capital of 13% is the appropriate (pre-tax) figure. LECG have assumed that 13% is a post-tax WACC and have adjusted it. This adjustment is inappropriate.

We re-ran the model to test the effect of using an annuity rather than a simple allocation of the fixed costs. First we applied the original asset lives used by OXERA, and in a second run each asset was given a life of 5 years, as was applied by LECG. In each run the return on sales was also set at zero.

In the run where the asset lives were set at 5 years, we noted that under full unbundling the prices increased sufficiently to force  $P_1^T$  higher than  $P_0$ . We therefore ran an additional scenario where  $P_1^T$  was set to  $P_0$ .

The results are shown in Exhibit 4.2 below.



**Exhibit 4.2:**  
*Application of annuity to full unbundling case*  
 [Source: Network Strategies, OXERA]

We believe that the appropriate adjustment to be made to the OXERA model uses the original asset lives and a 13% WACC. This results in a reduction in the surplus of approximately 9%, not 35% as claimed by LECG<sup>11</sup>.

#### 4.1.4 Asset lives

LECG believes that the asset lives assumed by OXERA are too long:

The OXERA model assumes assets lives of 20 years for entrant assets for backhaul and switch & infrastructure connectivity, 15 years for collation costs, and 10 years for DSLAMs. Given the manner in which the model works, these lives can best be thought of as expected pay-back periods required by entrants, prior to committing to invest.

<sup>11</sup> Reduction in consumer surplus from \$206 million to \$133 million

In our view these lives, particularly for switch & infrastructure connectivity and DSLAMs (where we understand technology is moving quickly), are implausibly long pay-back periods for entrants. [Section 3.1.4, p8]

LECG performed a sensitivity study using asset lives of five years for the switch and infrastructure connectivity and DSLAMs. In its presentation to the Commerce Commission on 11 November LECG described asset lives as payback periods. Using payback periods of five years for switch and infrastructure connectivity and DSLAM costs LECG found that the benefit from full unbundling almost halved.

In their presentation on 11 November LECG noted (verbally) that these payback periods were in part derived from information provided in Annex B of TelstraClear's submission of 29 October 2003. However this annex was discussing connecting customers to the TelstraClear network, and it is important to note that the payback period for connecting a customer is very short - [TelstraClear RI - because if the customer churns then the asset becomes unused (and hence the contract periods of up to three years). However the payback period for network investment, such as the equipment TelstraClear would install in the incumbent's exchanges, is longer because even if individual customers churn it is likely there will always be some customers connected to contribute to the payback of the investment.

It is important to note that TelstraClear does not calculate a payback period on an asset by asset basis, but rather on a project by project basis. Thus we question the applicability of the LECG test.

In practice, TelstraClear uses the following asset lives:

- backhaul, fibre – [Telstraclear RI years,
- ducts and manholes – [TelstraClear RI years
- switch and infrastructure – [TelstraClear RI years
- collocation setup – [TelstraClear RI years
- DSLAMs – [TelstraClear RI years, which may be reduced to [Telstraclear RI years in the future. (Note that TelstraClear's own unbundling model uses a life of [TelstraClear RI years for DSLAMs.)

Using TelstraClear's switch and infrastructure costs may mean LECG's sensitivity study overestimates the change from the OXERA central case.

Exhibit 4.3 shows the results when using TelstraClear's asset lives. Only full unbundling and line sharing under designation are affected by the entrant's asset lives. In the case of full unbundling the impact is only a 6.6% decrease in benefit from the central case while for line sharing the benefit increases substantially.

<i>Option</i>	<i>New benefit estimate (\$ millions)</i>	<i>Change from central case</i>
1: Full	168.8	-6.6%
2: Line sharing	58.7	53.9%

**Exhibit 4.3:**  
TelstraClear asset  
lives used in model  
(under designation)  
[Source: Network  
Strategies]

#### 4.1.5 Omission of onset costs

LECG claims that onset costs, and some other types of costs, have been omitted from the OXERA model:

Under specification, it takes the lower bound estimate provided by Telecom on 8 August to Telecom's onset costs of [Telecom RI and allocates 50% of this cost over all connections of the incumbent and entrants [Telecom RI, spread over a 5-year period (a simple average is used). The result is a charge of [Telecom RI per annum per connection, and this amount enters the P2 calculations.

Under designation OXERA assumes the COVEC prices include an allowance for onset costs, but the COVEC report does not state that this is the case. The COVEC prices are drawn from unbundled regimes for full unbundling, line sharing and bitstream only (options 1, 2 and 3). The other COVEC prices are based on benchmarking international prices for wholesale (not unbundled) data tails for option 4. COVEC lists "a selection of supplementary charges associated with unbundled telecommunications services in European Union countries" in an appendix, suggesting that there are additional charges in

some regimes but it appears this list is not comprehensive. Furthermore, it appears none of these additional charges have been used in the OXERA model. Thus overall it appears onset costs have not been accounted for explicitly, and in options 1–3 some contribution may have been included implicitly, but we are unable to confirm this or the amount from the documentation.

No on-going costs to implement unbundling, either for the incumbent or the entrant, are included. [Section 3.1.5, p9]

Analysys/Network Strategies agrees that some of the additional charges listed in the appendix of the Covec report should be taken into account in the prices used in the designation case of the OXERA model. Note that not all of these costs should be included as onset costs; indeed, some should be annualised and included in the ongoing costs (e.g. disconnection charges).

We expect that any onset costs and ongoing unbundling costs incurred by the incumbent and passed on to the entrants have been included in the benchmarked connection and ongoing charges and therefore do not need to be included explicitly.

The entrants' onset and ongoing charges are discussed in section 4.1.8.

#### **4.1.6 Market share assumptions inconsistent with overseas experience**

Market share can be estimated from OXERA's take-up and churn assumptions. LECG states:

The OXERA model assumes entrant uptake of 5% of the incumbent's customer's base each year, and no churn back to the incumbent. The incumbent's customer base includes projected growth from estimated price reductions (and assumed elasticities), and that it loses an additional 5% each year to competing technologies. [Section 3.1.6, p12]

It should be noted that the 5% churn per year represents a *net* churn – i.e. the overall churn away from the incumbent over the year, not the gross churn. Section 3.1 of the Analysys/Network Strategies review of the OXERA cost-benefit analysis noted<sup>12</sup>:

The churn modelled is the net churn of customer migrating from Telecom to the new entrants. That is, it does not model the total number of customers migrating from each operator, meaning that the cost of connecting and disconnecting customers will be underestimated.

In theory, as the market approaches equilibrium, net churn tends to zero. However, in practice there would be short-term movements in net churn, as all players will be striving to increase market share and counter the strategies introduced by their competitors.

Therefore, we consider that an assumption of a constant 5% net churn over the five year period to be a conservative view – that is, a constant net churn rate will be incurring higher costs than if the churn was assumed to decrease over time.

The LECG critique also notes:

The 5% entrant uptake results in entrant market share at the end of 5 years of between 28% and 72% in areas where entry has occurred. International experience indicates this is implausible.

On 11 November 2003 at the local loop unbundling conference, LECG admitted that this calculation was an error, and that the correct uptake is between 28% and 47%. We are unable to replicate these figures, and consider them to still be in error. Our calculations show penetrations of between 14% and 36%.

#### 4.1.7 Cost of collocation space understated

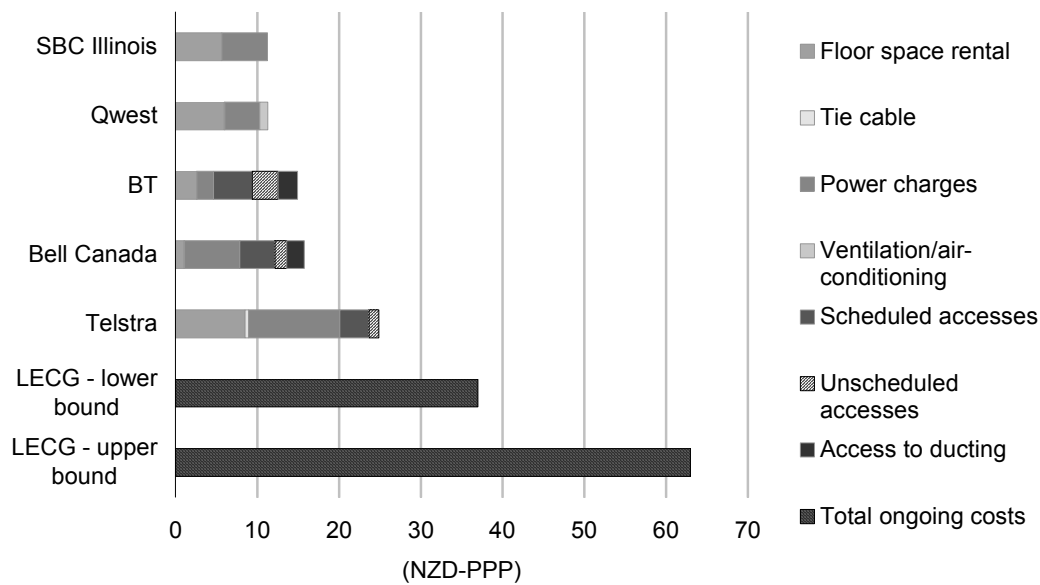
LECG notes that some collocation costs have been omitted:

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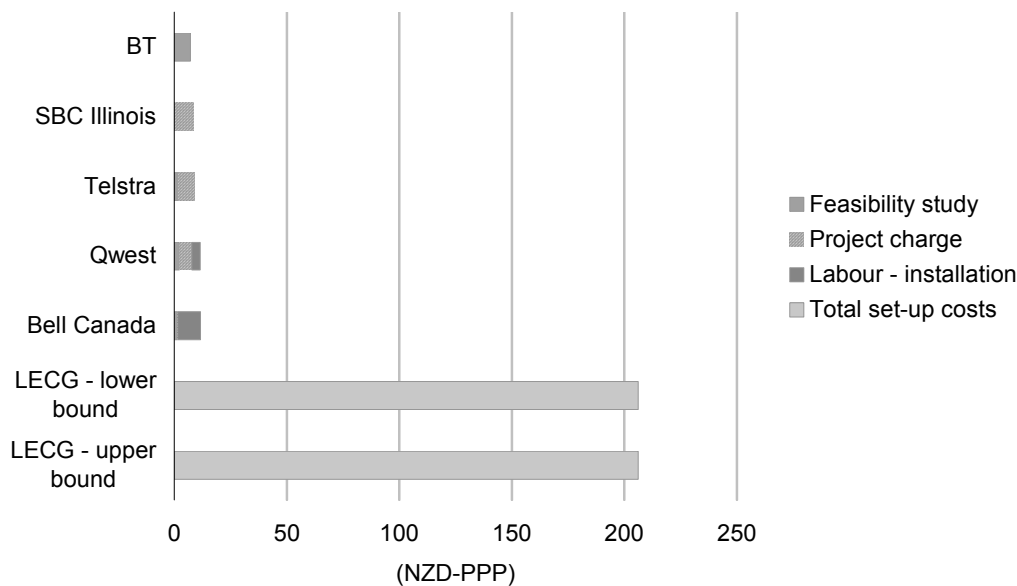
<sup>12</sup> Network Strategies (2003) *Unbundling the local loop in New Zealand: a review of the OXERA cost benefit model*, report for TelstraClear, October 2003.

In relation to collocation costs, the OXERA model has only accounted for the costs to establish collocation space in an existing exchange site. The costs of the space itself (i.e. rent) is omitted. We adjust collocation costs for full unbundling and line sharing only (options 1 & 2), as the collocation requirements for bitstream and PDN unbundling options appear to us to be over-stated in the OXERA model (and adding collocation space costs would exacerbate this). [Section 3.1.7, p13]

Analysys/Network Strategies agrees that ongoing collocation costs have not been included. However TelstraClear advises that the collocation rental cost is **[[TelstraClear RI** per annum for two racks in larger exchanges, and **[[TelstraClear RI** for smaller exchanges where only one rack is required. When compared with the results of the benchmarking in Exhibit 4.4 and Exhibit 4.5 below it appears the LECG costs are high.



**Exhibit 4.4:** Ongoing collocation charges for selected incumbent operators and LECG LLU inputs [Source: Network Strategies, LECG]



**Exhibit 4.5:** Set-up collocation charges for selected incumbent operators and LECG LLU inputs [Source: Network Strategies, LECG]

In the majority of exchanges TelstraClear’s model predicts fewer than 1000 connections. For these exchanges a less expensive option than collocating within Telecom’s exchanges may be to install one or two cabinets (each with a capacity of 400–500 lines) outside the Telecom exchange, as has occurred in the UK. In this situation the only costs incurred are the installation of the cabinet, the tie-line from the Telecom MDF to the cabinet, plus the ongoing power costs.

For example TelstraClear estimates that the installation cost (including plinth, cabinet, power and installation) is about [TelstraClear RI]. The cost of the DSLAM would be required if collocation is being used so is not included. The cost of the tie-line between the cabinet and the Telecom MDF would vary greatly between exchanges and cabinet locations and has not been estimated. At 1kWh at 15 cents per unit, the ongoing power cost would be about \$1300 per annum. Installing one or two cabinets could therefore significantly reduce the overall cost to an entrant and may increase the number of exchanges that can be unbundled. In addition from previous benchmarking studies we are well aware that ongoing collocation costs can vary substantially from one operator to the next.

Thus we conclude that ongoing collocation costs may not be significant. Furthermore, if an allowance were to be included in the model for these costs, the Commission should note that while these costs differ widely across jurisdictions, the existing Telecom estimate appears to be at the very high end.

Note that collocation costs do not make sense for bitstream and PDN because the entrant does not install equipment in the incumbent's exchange in these options, and indeed these costs are not included<sup>13</sup>

#### 4.1.8 Entrant onset costs ignored

LECG states that onset costs were omitted from the OXERA model:

The OXERA model does not appear to include any costs that the entrant would incur to implement unbundling (i.e. entrant onset costs) These costs should include modifications to its information system, and business processes (e.g. fulfil, bill, assure) to implement unbundling. [Section 3.2.1, p14]

Analysys/Network Strategies agrees that the entrant's onset costs have not been included. However we do not expect the omitted costs to be high, given that entrants are most likely 'wholesaling' (reselling) Telecom's retail services already and have established systems which would only need incremental improvement. TelstraClear do not include any onset costs in its unbundling model for this reason.

#### 4.1.9 Commission's costs implausibly low for designation

LECG considers that the Commission's costs assumed by OXERA are low:

The estimated costs of the Commission at [Telecom RI (for designation) over the five years appears to us to be implausibly low... Overseas unbundling has resulted in very extensive regulator activity... [Section 3.2.2, p14]

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<sup>13</sup> OXERA report, section 4.4.2.

It is difficult to obtain benchmark data for the costs of regulation. We assume that the Commission provided this information to OXERA and have no reason to doubt it.

#### **4.1.10 Zero regulatory costs under specification not plausible**

LECG believes that the OXERA model should include some regulatory costs under specification:

“Regulatory costs” have been set at zero for specification, with the rationale that “there would be no costs associated with a pricing decision under specification”

While this point with respect to pricing may be true, under specification it is expected that the regulator would be involved in the setting of non-price terms and, judging from overseas experience, this would involve substantial work on the part of the regulator. [Section 3.2.3, p15]

While it is possible that some regulatory costs would be passed on to the operators under specification, it is feasible that they may be negligible.

#### **4.1.11 Failure to de-average costs and prices by geography**

LECG notes that OXERA did not use geographically de-averaged costs and prices:

OXERA has elected to use geographically average costs and prices. For example, the COVEC price estimates are not differentiated with respect to density, and where costs were supplied on a ESA-type basis such as for backhaul, OXERA has used a single average for all ESAs (based on the central case). This the OXERA model does not test whether or not the proposed prices are above the costs of supplying the unbundled element. [Section 3.2.4, p15]

Analysys/Network Strategies agrees with this observation (see the Analysys/Network Strategies review of the OXERA cost benefit analysis, p15).

In Australia, access and unbundled local loop pricing decisions incorporate geographically de-averaged prices. The ACCC identifies the advantages of this approach<sup>14</sup>:

- de-averaged pricing relates to the direct costs of service supply
- leads to efficient investment decisions
- reduces ‘cream skimming’, or the targeting by entrants of high volume, low cost consumers
- correct incentives enable the deployment of alternative technologies where most appropriate, such as in rural and remote areas.

If OXERA did incorporate geographic de-averaging within its model, we would expect that costs would decrease for urban ESAs and increase for rural ESAs. As the OXERA model found that only urban ESAs were unbundled, we would expect the consumer benefit to increase. Although the OXERA model is not capable of examining geographic de-averaging, this scenario may be simulated to some extent by examining the model results, firstly by reducing costs to those typical of low cost urban ESAs, and secondly, increasing costs to those of rural ESAs.

We note that jurisdictions with geographically de-averaged prices include Australia and some US states, whereas in Europe average prices tend to be used. It would thus be difficult to obtain geographically de-averaged benchmark prices due to the limited amount of data, and the different definitions used for urban and rural areas.

#### 4.1.12 Impact of possible deferral not estimated

OXERA did not consider a situation that would involve a slippage in the timing of the implementation of unbundling. LECG states:

It would seem conceivable (and possibly even probable given overseas experience) that unbundling, if recommended by the Commission, may not be implemented to the timeline expected in the OXERA model (in 2005). However OXERA do not indicate how its estimates would be impacted by a deferral. A deferral would include the need to discount

<sup>14</sup> ACCC (2002) *Pricing of unconditioned local loop services (ULLS)*, final report, March 2002.

the estimated net benefits for the period of the deferral, and may also have substantial effects on the counterfactual, for example it may require changing assumptions as to the level of prices for services, the number of ESAs which should be excluded as “competitive ESAs”, and so forth. [Section 3.2.5, p15]

We agree that with a delay many of the underlying assumptions would change, to reflect revised circumstances with regards to costs, prices and market characteristics. For example, some costs may increase (due to inflation, or increases in the underlying cost drivers) and some costs may fall (improvements in efficiency or technology), while the benchmark estimates of prices are likely to fall as prices in other jurisdictions decrease.

However, given that the sensitivity testing of the model undertaken by OXERA and ourselves found that under a range of different assumptions, the outcome continued to be a positive consumer benefit, these changes in the underlying assumptions may not affect the conclusion from the model.

A deferral of the realisation of the consumer benefit would necessarily reduce the benefit to be gained over the same five year period, as the fall in prices (and subsequent increase in take-up) due to unbundling is delayed. This illustrates the need for the Commission to ensure that unbundling is implemented according to the proposed timetable, and to eliminate the potential for any player to employ tactics that are designed to disrupt the timing of unbundling.

We would also note that, given New Zealand would be following the rest of the OECD (by introducing unbundling) it will be able to draw on the experience of overseas jurisdictions.

#### **4.1.13 Use of ESAs fails to align with boundaries of competition**

LECG claims that the use of ESA boundaries conflicts with previous investigations by the Commission:

The OXERA model analyses network competition based on ESA geographical boundaries. This is in conflict with the Commission's approach to the analysis of network competition in the business wholesale determination, in which network competition is analysed in terms

of customers' proximity to entrant's networks. These approaches need to be reconciled.  
[Section 3.2.6, p16]

Analysys/Network Strategies agrees with this in principle, however, it is not clear how significant this will be for the model results. The Commission attempted to test for the impact of this by removing five ESAs in which there is already competition (see paragraph 656 of the Draft Determination). However, in practice there is unlikely to be competition throughout the whole ESA, so removing an ESA entirely would overestimate the impact. A more appropriate adjustment would be to reduce the number of lines in each ESA by the lines that are competitive.

#### 4.1.14 Questionable assumptions in amendments

In section 3.3 of its report, LECG notes a number of other assumptions it considers questionable, concerning profit reduction, ISP charges, marketing and customer services costs and core network operating costs. These criticisms relate to changes in the OXERA model assumptions that were described in the Commission's second round of amendments (dated 14 October 2003).

LECG states:

The Telecom profit reduction assumed under specification was reduced from 15% to 10%, thus leading to higher  $P_2$  prices under specification than previously. However, the basis for the 15% and the 10%, and the reason for the change, is not clear. [Section 3.3, p16]

Analysys/Network Strategies agrees with LECG – we find no basis for this change and are unable to comment on whether 10% or 15% is more appropriate.

With regard to ISP charges, LECG states:

For residential customers in the full unbundling, line sharing and bitstream options, the ISP charges are set to \$35 in the counterfactual and \$20 in the factual scenarios (page 4). The rationale is that as customer' familiarity with broadband increases they migrate to higher-cost products which attract lower ISP charges. This change affects option 1–3 designation

prices, and entry costs. The learning assumption is questionable, as it assumes that learning about broadband and the movement to higher-cost projects occurs under unbundling only. Further, OXERA assumes the extreme case: *no* learning happens without unbundling; but under unbundling *all* customers migrate to projects with \$20 ISP charges. [Section 3.3, p16]

While the Commission's explanation of why ISP prices would fall from \$32 under the counterfactual to \$20 under the other pricing options is valid (customers over time would be expected to migrate from the starter broadband package to the more expensive products), this rationale will not apply to all customers, nor is it the only consideration in determining future price trends. Under the counterfactual, there will be no competition, and thus little incentive for ISP prices (as part of the broadband package) to fall. With unbundling, the presence of competition will provide pressure on the total price of the service, and so the ISP component should also be expected to decrease over time. We consider that \$20 (the current ISP charge for higher priced broadband services) to be a reasonable assumption.

OXERA reduced the costs due to marketing and customer services. LECG states:

Marketing and customer services costs were reduced from \$100 per connection per annum to \$50 per connection [per year] because of the inclusion of ISP charges in costs. It is claimed that this change reflects "economies of scope across the marketing customer service functions of providing a broadband connection and ISP services" (page 6). However presumably these economies existed even with the omission of ISP charges, but no further justification is provided. [Section 3.3, p17]

The Commission has provided insufficient information for us to judge whether this change is justified. We agree with LECG that the quoted economies of scope would have existed even if ISP charges were omitted – the reduction in the assumed cost therefore suggests that the original estimate of \$100 per connection per year was over-stated. Based on our own benchmark data \$50 appears more reasonable to us than \$100.

LECG states:

The \$83 cost for core network operating costs was originally calculated by dividing total estimated Telecom operating costs of \$141 million by the number of voice lines in New Zealand, 1.7 million. In calculating the \$83, no distinction was made between voice and data. In the amendment the operating costs for data-only lines were reduced to \$70, with no offsetting adjustment to the costs for voice-and-data lines (page 6). Furthermore, to be consistent with the OXERA method to estimate operating costs, it appears to us voice-and-data lines should incur twice the operating costs (i.e. 2\*\$83). [Section 3.3, p17]

The estimate of \$141 million was based upon the proportion of network operating costs to total operating costs, as determined from BT's wireline business<sup>15</sup>. The \$83 represents the cost *per average line*. However no information is given on the mix of voice-only, data-only and voice-plus-data lines within BT's wireline, so we cannot determine whether this figure is an average over all three types of lines or not.

Assuming that the \$83 does indeed represent an average over all three line types, then if the cost of data-only lines were to be assumed to be different from the average, then the costs of voice-only and voice-plus-data lines must also be modified, so that the weighted average remains \$83. If this does not occur, then the assumption regarding the applicability of the BT proportion to Telecom is invalidated.

We are not aware of any evidence that suggests operating costs of voice-plus-data lines to be twice the average cost.

## 4.2 Summary

In our view the following three issues may have a significant effect on the model results. The impact of two of the three issues will be to increase the consumer surplus, while the remaining issue is likely to decrease the surplus. We would not expect the net effect to be a change the consumer surplus to zero or negative.

- Failure to de-average costs – this could have a major impact because any variation in costs by area could lead to a large change in the number of exchanges which will be

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<sup>15</sup> OXERA report, section 5.2.3, p46.

profitable. Exchanges in rural and suburban areas that are more expensive than average are not unbundled in the analysis, and will become even less likely to be unbundled. Exchanges that are unbundled in the analysis are likely to be in areas that are less expensive than average and so are likely to have an increased benefit.

- Competition – areas that are currently competitive are the areas that are unbundled in the model, thus removing competitive areas will remove many of the unbundled areas and so the surplus will change.
- Incorrect cell references – as this does not take into account reduction in prices in time it is a reasonably important issue (LECG found it adds \$26 million to the base case of \$180 million).

Other issues identified by LECG which we regard as likely to have a minor or insignificant impact on the model results are as follows:

- GST – this only affects residential customers and so will not have a large impact on the results
- Allocation of fixed costs – LECG have applied an inappropriate WACC. Using the correct WACC there is only a 9% decrease in consumer surplus and not a 35% decrease as claimed by LECG.
- Asset lives – the biggest part of the cost is the annual access rental. Changing the asset lives to those used by TelstraClear in its model (as opposed to those used by LECG in its sensitivity study) has little effect.
- Omission of onset costs – we believe that the incumbent's onset costs are included in the access charges so there should be no effect.
- Market share assumptions – we agree that the results are very sensitive to churn (and hence market share) but we do not believe that the aggressive sensitivities that LECG assumed are necessary.

- Cost of collocation space understated – impact likely to be small as other options are available to the new entrant.
- Entrant onset costs – insignificant. Many costs will already be sunk (e.g. analyst costs) and others will be small.
- Commission’s costs (designation) – we have no reason to doubt Commission estimates of their own costs.
- Commission’s costs (specification) – we believe any such costs will be small and possibly not passed on to the operators.

Below we summarise in Exhibit 4.6 the seven key issues identified by LECG as having a significant impact on the consumer surplus. We also present in the same exhibit our findings on these issues.

<i>Issue</i>	<i>LECG impact on consumer surplus for full unbundling<sup>1</sup></i>	<i>Analysys/Network Strategies impact on consumer surplus for full unbundling</i>
1. Voice prices are set too high due to spreadsheet error	+14%	Analysys/Network Strategies are unable to confirm that it is an error
2. GST counted as benefit	-9%	-1.6% <sup>2</sup>
3. Mis-allocation of fixed costs	-35%	-9%
4. Payback periods too long	-45%	-6.6%
5. Onset costs understated	-23%	Analysys/Network Strategies do not believe that onset costs should be explicitly modelled as they have already been included in benchmark charges
6. Market share penetration rates too high	-69% (lower estimate)	Analysys/Network Strategies believe that OXERA's approach is correct and LECG have incorrectly estimated market share
7. Collocation costs understated	28% – 47%	Analysys/Network Strategies believe that LECG's collocation costs are not understated due to benchmarking evidence and the possibility of less expensive options
Aggregate impact	Correcting for four issues results in low or zero benefits for full unbundling	Analysys/Network Strategies believe, as shown above, that the above issues are either incorrect or have only a small impact on consumer surplus
<p>1 Based on LECG's new base consumer surplus estimate</p> <p>2 Analysys/Network Strategies believe that GST should be included in residential prices and we have included GST in all residential prices</p>		

**Exhibit 4.6:** *Impact of LECG issues on consumer surplus [Source: Analysys, Network Strategies]*



## 5 Response to Howell report

### 5.1 Introduction

Telecom commissioned a review<sup>16</sup> (referred to as the ‘Howell report’) of Network Strategies’ retail ADSL price benchmarking analysis<sup>17</sup>. This review also included an analysis based on Oftel’s February 2003 broadband pricing dataset.

In her report, Howell made the following criticisms of the Network Strategies benchmarking:

- our analysis only covered ADSL services
- Telecom’s JetStream service was benchmarked against inferior products
- Telecom’s 128kbit/s JetStream Starter service was not benchmarked against similar services
- our analysis did not consider differing cost bases or the existence of subsidies.

Howell’s report concludes that:

- as her study uses the Oftel methodology, it is more comprehensive than the Network Strategies’ study
- New Zealand services are similar in price to those in Germany and have a significant price advantage over services in provincial and rural Australia, whereas we found that Telecom New Zealand prices were high at anything over low usage levels

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<sup>16</sup> Howell, B. (2003) *Benchmarking analysis*, report for Telecom, July 2003.

<sup>17</sup> Network Strategies (2003) *ADSL retail price benchmarking*, report for TelstraClear, May 2003.

- higher prices in Australia and New Zealand are explained by underlying cost differences.

In section 5.2 below we address each of Howell's criticisms, and in section 5.3 we examine some of the flaws in Howell's own analysis. We summarise our conclusions in section 5.4.

## 5.2 Responses to Howell criticisms

### 5.2.1 Benchmarking restricted to ADSL

Howell states:

... Network Strategies analyses only ADSL products, despite the Commerce Commission having identified that the inquiry into unbundling is seeking to address issues pertaining to the entire broadband market in New Zealand, which encompasses a variety of infrastructure providers. Thus, the study ignores the role played in all examined markets of alternative infrastructures such as cable modem and satellite. [Paragraph 2]

The Network Strategies analysis does not attempt to benchmark all local loop Internet access technologies, just ADSL – the current broadband product which would be most affected by regulation. A range of other technologies exist for providing similar mass-market Internet services, including cable modem, Ethernet and broadband wireless. The deployment of satellite Internet access has been limited to rural or remote areas which are not served by other, cheaper technologies and we do not believe that satellite should be included in any mass-market technology benchmarking study. All of these broadband technologies – cable, Ethernet, broadband wireless and two-way satellite<sup>18</sup> – bypass the local loop and thus would not be directly affected by unbundling.<sup>19</sup> As these technologies are used by entrants and Telecom is the dominant supplier of broadband services in New

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<sup>18</sup> Asymmetric satellite services require some other service, such as PSTN, for the uplink path.

<sup>19</sup> However, the increase in competition due to the introduction of unbundling may result in pricing pressures being placed upon alternative broadband technologies.

Zealand, it is appropriate in considering the impact of regulation of Telecom's local loop to focus on Telecom's pricing.

We also note that the availability of lower prices using other technologies does not necessarily address the regulatory issue the Commission is considering since if Telecom is able to sustain broadband prices above not only international benchmarks but also the prices of its competitors in New Zealand while remaining the largest broadband provider, Telecom would seem to have capacity to act independently of its competitors.

The table regarding broadband market share (presumably the proportion of broadband lines by technology) in Appendix 2 of the Howell report is misleading – the figures for 2002 and 2003 (reproduced in Exhibit 5.1) are substantially different to those calculated from data<sup>20</sup> published by the ACCC, the Australian regulator (Exhibit 5.2).

<i>Technology</i>	<i>2002</i>	<i>2003</i>
Cable	40%	35%
Satellite	4%	4%
xDSL	54%	58%
Metro Ethernet	0.7%	0.7%
FWA	1%	3%

**Exhibit 5.1:**  
*Australian  
 broadband access  
 services technology  
 market share  
 [Source: IDC  
 Australia, 2003]*

<i>Technology</i>	<i>Proportion of total broadband lines</i>		
	<i>31 July 2001</i>	<i>30 June 2002</i>	<i>30 June 2003</i>
Cable	75%	55%	42%
Satellite	2%	3%	3%
xDSL	23%	42%	56%
Other	0.08%	0.04%	0.06%

**Exhibit 5.2:**  
*Broadband  
 technology mix,  
 Australia [Source:  
 ACCC, Network  
 Strategies]*

<sup>20</sup> ACCC (2003) *Snapshot of broadband deployment as at 30 June 2003*, <http://www.accc.gov.au>

### 5.2.2 Selection of comparable benchmark services

Howell states:

... by selecting a low speed (500kbps) for examining prices, and sampling only the lowest-priced products from the sample providers, the significantly faster standard New Zealand product (2000kbps) is benchmarked against significantly inferior products. This creates a biased impression of the relative price for quality in the New Zealand market.  
[Paragraph 3]

To suggest that Telecom's JetStream is superior to other operators' ADSL services by the sole virtue of its uncapped downstream data transfer rate is nonsense – like simply judging the quality of a car by how fast it is theoretically able to travel without consideration of how often such speeds are achievable (given speed limits and road conditions) or the car's reliability. As most frequent users of the Internet will acknowledge, when a file download occurs from an overseas server it is rare that the potential download rate is realised due to bottlenecks which will only allow the download to progress at the rate of the slowest link encountered.

The download rate is only one of many measures used by residential and business users in selecting a DSL service. Other measures of service quality include:

- bandwidth guarantees and contention ratios<sup>21</sup>
- timescales for installation and maintenance
- web hosting space on the ISP's servers
- extra value added services such as VPN, security features and email addresses
- availability of 24-hour/7-day technical support
- ability to have one telephone line for POTS telephony and data transfer (this is not the case with most SDSL solutions which do not support POTS telephony)
- provision of static IP addresses as standard
- download limits.

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<sup>21</sup> The contention ratio is the ratio of the potential maximum demand on a DSLAM from all users simultaneously to the capacity between the DSLAM and the ISP. For example, if there are fifty ADSL subscribers all attached to the same DSLAM who are trying to download at 2Mbit/s but there is only one 2Mbit/s leased line to the ISP from the DSLAM the contention ratio is 50:1, meaning that each individual's download rate may decrease to one fiftieth of its maximum value at peak times.

Our benchmarking selected services of similar characteristics and specifications to those on offer in New Zealand – the characteristics being more extensive than simply download speed. Our analysis involved the following steps:

- collection of ADSL pricing information with expert opinion being used to determine whether or not services should be included application of the OfTel methodology with usage levels of 500Mbytes, 2Gbytes and 6Gbytes per month to calculate prices per month in New Zealand dollars (using PPP exchange rates)
- grouping of services into residential and business categories for each usage level
- sorting the calculated prices by ascending order and removal of all but the lowest-priced service for each operator
- graphical representation of the remaining calculated prices.

In Howell's own analysis she states that services in New Zealand, assuming a low level of usage, are price competitive with European and North American services<sup>22</sup>. However these latter products offer consumers the ability to have much greater usage at no extra charge, whereas New Zealand consumers are charged substantial fees to enjoy usage levels typical of those found in European and American markets. Based on this measure, the New Zealand services are clearly inferior to those services claimed by Howell to be comparable.

Howell's analysis also seems circular: because there are significant download caps, New Zealanders use their services less than overseas consumers, but at those low usage levels the Telecom services are comparable in price to services in other countries which allow much higher usage levels for the same price. In other words, she reports that as long as New Zealanders do not use their broadband services very much, the services are comparably priced. This is consistent with our own observations that the download caps make Telecom services expensive compared to the retail pricing for equivalent levels of usage in other countries.

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<sup>22</sup> Paragraph 9.

### 5.2.3 JetStream Starter

We did not include Telecom's JetStream Starter within our benchmark analysis. Howell states:

... by eliminating products with speeds lower than 500kbps from the analysis, the alternative DSL product in the New Zealand market (128kbps) is not benchmarked against like products. As this has an approximate 40% market share of the broadband market, failure to benchmark this category results in a failure to compare actual usage patterns with actual prices paid. [paragraph 4]

The focus of the Commission's current investigation is the provision of broadband services – both Telecom and the Oftel study acknowledge that 128kbit/s does not constitute broadband. Oftel states<sup>23</sup>:

There are a wide range of services that are marketed as 'broadband' both in the UK and elsewhere. In particular the availability of services with downstream speeds in the range 128kbit/s to 256kbit/s is increasing. In monitoring take-up, Oftel includes all always-on services with downstream speed of 128kbit/s and above. This is consistent with the approach taken elsewhere and hence aids international comparisons...

In its review of the broadband market Oftel defined the broadband market to include always-on broadband services with a minimum downstream speed in excess of 256kbit/s.

Regarding price comparisons, it is useful, therefore, to distinguish 'entry level' services (always-on services with speeds between 128kbit/s and 256kbit/s) from services that offer the consumer speeds in excess of 256kbit/s...

Therefore Telecom's 128kbit/s service, JetStream Starter, is not a broadband product, and thus Howell is technically incorrect in stating that this product has 40% of the broadband

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<sup>23</sup> Oftel (2003) *International benchmarking study of Internet access (dial-up and broadband)*, June 2003.

market. However, despite defining broadband to have a minimum downstream speed of 256kbit/s, the Commission has included the JetStream Starter product in its analysis<sup>24</sup>.

ISDN services should not be included for the same reason – basic rate (128kbit/s) ISDN is not a broadband product, nor is it an ‘always-on’ service.

#### 5.2.4 Cost bases and subsidies

We were commissioned to provide a straightforward comparison of the price of DSL services in a range of countries. Howell states:

... the Network Strategies analysis shows no evidence of attempting to identify underlying differences in the nature of the markets selected for benchmarking that may contribute to the price differentials detected. Principally, despite having observed that the higher price prices in both Australia and New Zealand products appears to be a factor of low usage caps and high per megabyte charges for data transfer above the cap, there is no apparent analysis of the input costs of each market to determine whether market-specific factors may account for the observed differences. Neither is there any recognition of the role of government policies, such as state subsidy for infrastructure deployment, that may contribute to the observed differences. [paragraph 5]

Benchmarking is a useful tool, in which the analysis can be a relatively straightforward comparison or involve a more complex analysis, but benchmarking still has a number of shortcomings. The scope of our study did not allow for a rigorous examination and quantification of cost drivers. However, note that the modified Oftel methodology used by Howell also does not adjust for market-specific factors.

Network Strategies knows of no government policies, subsidies or any other contribution to the deployment of ADSL in any of the countries we studied, which included:

- Australia

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<sup>24</sup> Commerce Commission (2003) *Telecommunications Act 2001: Section 64 review and schedule 3 investigation into unbundling the local loop network and the fixed public data network*, amended draft report, October 2003, paragraph 33.

- Canada
- Denmark
- France
- Germany
- New Zealand
- Sweden
- United Kingdom
- United States.

Broadband take-up is particularly high in South Korea, which was not included in our study due to the unavailability of pricing and product information. This high take-up is due in part to the subsidies offered to infrastructure providers but also because:

- a high percentage of people live in apartment blocks
- the popularity of online gaming
- Koreans have a strong ‘every second counts’ (*pari-pari*) mentality
- Korea Telecom is state-owned.

### 5.2.5 The Oftel methodology

Howell’s own methodology is based on that used by Oftel:

[Howell’s] paper undertakes a more comprehensive benchmarking analysis based upon the Oftel methodology, but expanded to include Australian and New Zealand products. This analysis benchmarks all products by sector and product quality, including the low-speed 128kbps product, against products of comparable quality. Furthermore, this analysis benchmarks consumption not at the standardised quantities of the Network Strategies exercise, but at quantities that reflect average and median New Zealand usage. Thus, the comparison reflects not only differences in posted prices but differences in price at the levels of consumption that are actually occurring. [paragraph 7]

Network Strategies has used the Oftel methodology in numerous benchmarking analyses since its inception and is well aware of its applications and limitations. Our retail ADSL price benchmarking study uses the methodology and ensures that like-with-like services are

benchmarked. Despite criticism of the admittedly simple approach used, Howell's claim that her study is more comprehensive due to the inclusion of 'all products by sector and product quality, including the low speed 128kbps product, against products of comparable quality' is highly misleading. Her analysis is actually less valid due to the attempt to compare services with:

- **different target markets:** ADSL and cable modem services do not address the same market as SDSL and satellite
- **different cost bases:** different access technologies have different underlying costs
- **non-broadband products:** as discussed in section 5.2.3, products with download speed of 128kbit/s are not classified as broadband products
- **different value added services** included as standard. All of the services included in the Network Strategies analysis have very similar specifications. Service specifications are not considered in the OfTel methodology and expert judgement should be exercised in removing services which are not comparable with the 'average' service. For example, many ADSL services in the OfTel study include static IP addresses included as standard – Xtra charges an additional \$26.67 (excluding GST) per month per IP address.

To base levels of consumption on reasonable levels as opposed to observed levels is a valid approach. The relatively low level of usage may be a sign that users are overly cautious due to the low usage limits, lack of content and high over-usage charges. If the standard usage limits were raised without an increase in price we are confident that observed usage would rise. Network Strategies has defined levels of monthly usage as:

- low – 500Mbytes/month
- medium – 2Gbytes/month
- high – 6Gbytes/month.

### 5.2.6 Comparability of New Zealand to Germany and Australia

Howell finds that New Zealand prices are comparable to those in Germany and are cheaper than those in Australia:

Whilst this analysis confirms the broad finding of the Network Strategies exercise – that at high volumes the New Zealand products are more expensive than products in Europe and the United States – when correcting for the speed and quality factors the differences are far less than those found by Network Strategies. Indeed, for most levels of consumption and speed, the New Zealand products are very similar in price to products in Germany, one of the European Union’s earliest and most ardent practitioners of local loop unbundling. Moreover, at the average levels of consumption, New Zealand products enjoy a significant advantage over comparable Australian products. This difference is even greater if the Australian products are adjusted for the surcharges incurred by provincial and rural consumers, as New Zealand provincial and rural consumers face the same prices as their urban counterparts for the same services. [Paragraph 8]

Howell’s results are skewed by the inclusion of many expensive very high speed German and Australian ADSL/SDSL services. The ‘Interconnect’ products<sup>25</sup> by Deutsche Telekom’s T-Online are no longer offered and are not equivalent to those offered in New Zealand (we believe that these services used Deutsche Telekom’s data network instead of the Internet and therefore have superior performance). The SDSL products should be excluded, as should some of the Australian services whose prices and descriptions indicate that they connect directly to Telstra’s IP backbone and are intended for multi-user applications (such as Internet cafés). Removing all of the incomparable services will confirm Network Strategies’ original conclusions.

As implied above, it is inappropriate to try to compare services serving rural Australia with those serving urban New Zealand. It is also highly misleading to imply that all Australian provincial and rural users incur price surcharges: while many Australian ISPs certainly have geographically de-averaged DSL pricing<sup>26</sup>, customers of the nation’s largest broadband ISP, Telstra BigPond<sup>27</sup>, pay the same price for DSL services no matter where they are located.

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<sup>25</sup> Note that Interconnect is a product name, and does not reflect a service for wholesale interconnection in the traditional telecoms sense.

<sup>26</sup> Note that this reflects the structure of Telstra’s wholesale charges for unbundled local loop.

<sup>27</sup> Telstra’s 2003 Annual Report states that as at 30 June 2003, Telstra BigPond had 361 000 broadband subscribers. This comprises 70% of total broadband subscribers.

Furthermore, the Telstra charges used by Howell were the maximum fees – we describe below in section 5.3 the substantial discounts that are available to customers taking bundled services.

### 5.2.7 Cost differences between New Zealand and other markets

Howell states:

...by considering market and environmental factors, such as the higher costs of data transfer from the United States, it is possible to rationalise the per-megabyte charging practice in both Australia and New Zealand. That New Zealand prices are competitive with European and North American products over lower volumes, and that Australian products are also more expensive at higher volumes, suggests that underlying cost differences rather than strategic charging practices may offer the best explanation for observed prices.

[Paragraph 9]

To argue that per-megabyte charging exists because of ‘the higher costs of data transfer from the United States’ without further qualitative or quantitative analysis is weak as Telecom’s over-usage charges apply to both national and international traffic. If New Zealand prices are to reflect underlying cost differences then transfer of national traffic should incur minimal cost<sup>28</sup>.

We also note that at least one major ISP in Australia, TPG (not included within Howell’s sample), has unlimited usage DSL plans<sup>29</sup>, as does TelstraClear in New Zealand. As the Australian market becomes more competitive, such unlimited usage plans are likely to become more widespread.

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<sup>28</sup> TelstraClear charges 2 cents per megabyte for national traffic and 20 cents per megabyte for international traffic on its Paradise High Speed Internet cable modem service compared to [should insert the average or comparable Telecom price to show the TCL international price is not higher than the Telecom price]. TelstraClear has access to the same or similar cable systems as Telecom, such as Southern Cross, and therefore faces similar cost base for international content.

<sup>29</sup> As well as unlimited usage plans, TPG also offers a plan which has a monthly usage allowance with the download speed being reduced to 64kbit/s if the monthly usage is exceeded. Other plans include the more typical usage fee for usage exceeding the monthly limits.

### 5.3 Shortcomings of the Howell analysis

#### *Source data*

Within our benchmarking work, we have found that broadband prices experience significant price changes over relatively short time periods. It is likely that much of the Oftel source data used by Howell is no longer valid as it was collected in February 2003. The New Zealand and Australian prices, current as at July 2003, are therefore being compared with prices that were six months old. Furthermore, as indicated in section 5.1, some products included in the dataset are no longer offered.

We have previously noted that the source data, though checked by Oftel, may contain errors including:

- omitting installation and/or equipment costs
- using inconsistent contract durations (for example one year for one service provider and three for another)
- not using standard retail prices (i.e. special offers should be excluded)
- not comparing like-with-like – for example, including Telstra’s 500MB ADSL service in a comparison for the usage level of 1.2GB, rather than Telstra’s cheaper 1GB service (Figure 1, pages 5–6).

With regard to Australian broadband charges, connection fees vary according to the length of contract and whether the customer chooses self-installation. Howell does not specify what assumptions have been used, or even if connection fees were included (we note that no connection or installation charges are listed in any of the tables within Howell’s report, suggesting they may have been omitted, and indeed the Australian charges shown do not include connection fees).

Howell does not identify what other assumptions may have been applied, for example:

- the Australian ISP WebOne offers discounted charges for off-peak downloads – it is not specified what weighting may have been used to determine usage charges

- the Telstra charges appear to be the fees without preselection – Telstra offers substantial discounts<sup>30</sup> on monthly rental for customers who also use Telstra access and local call services and are preselected to Telstra for long distance calls. Given Telstra's significance presence in the access market, these reduced prices are available to the majority of Australian consumers<sup>31</sup>.

### *Application of the Oftel methodology*

The Oftel methodology amortises one-off charges (installation, equipment and connection) over three years. Howell's Australian and New Zealand prices do not include amortised charges, leading us to conclude that Howell omitted these once-off charges from her analysis.

The Oftel methodology includes sales tax in residential service comparisons and excludes sales tax from business service comparisons. Retail prices are significantly affected by sales tax rates which range in value from 7% (United States<sup>32</sup>) to 25% (Denmark and Sweden). The Australian sales tax rate is 10%. Howell's analysis correctly excludes sales tax from New Zealand business services but incorrectly includes sales tax in Australian business service prices – this results in the overstatement of Australian prices.

### *Selection of sample ISPs*

Howell's sampling of New Zealand and Australian ISPs exhibits major inconsistencies. While Howell selected New Zealand ISPs to include 'the major providers by market share', the Australian sample included Telstra, Optus and TransACT (WebOne) plus a sample (presumably random) of 75 other ISPs. There was no attempt to ensure that the Australian

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<sup>30</sup> The discount is higher for the lower value plans: just under 22% for the 500MB DSL plan, 18% for the 1GB plan, 15% for the 3GB plan, 8% for the 5GB plan and 5% for the 10GB plan.

<sup>31</sup> The widespread nature of Telstra's discounts means that the pricing strategies of all competitors need to address Telstra's discounted price rather than the maximum price. We note that Telecom does not offer bundled discounts.

<sup>32</sup> Based on an average of the New York and California minimum and maximum sales tax rates. Local (city-specific) taxes are included.

sample captured the market leaders, and indeed many of the ISPs included in the sample are small players, thus providing an inaccurate picture of what most Australians are paying for DSL services.

Telstra has the leading share of the DSL business market in Australia, with the other main players being Optus, Request, AAPT, Pacific Internet and iPrimus. Telstra also is the leading residential DSL provider, with OzEmail considered to be the second largest provider. Other major ISPs with DSL services for residential customers include iPrimus, AOL, Pacific Internet, Austar, ihug and TPG. We note that Howell's sample does not include Request, AAPT, AOL, Austar, ihug or TPG.

The prominence given by Howell to the Australian ISP TransACT (WebOne) is misleading: the TransACT services are available only in the ACT, with an addressable market comprising less than 2% of the Australian population. Indeed, WebOne states<sup>33</sup> that it has a customer base of over 8 000 (which includes services other than those using TransACT), so it is clearly not one of the major Australian ISPs.

We also note while Howell remarks upon 'the wide variety of providers in the Australian market', she does not equate this level of competition with the unbundling of the local loop.

Neither does Howell comment on the limited availability of various technologies within Australia – for example cable is deployed only in certain metropolitan areas.

Howell uses the sample of Australian ISPs to determine an average price for various downstream speeds. As discussed in section 5.2.2, characteristics of DSL products may vary considerably, even if all the products have the same speed. Hence it is highly likely that the products included within this sample may vary substantially in nature, offering a range of different features and possibly designed for different target markets (for example, high bandwidth multi-user products for Internet cafés). The average, therefore, would not represent a 'standard service'.

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<sup>33</sup> Data on company website, <http://www.webone.com.au>, accessed on 7 November 2003.

*Price comparisons*

Howell finds that Australian and New Zealand products are competitive with European and US products at low usage levels, but not at higher usage levels due to the pricing of usage beyond a maximum cap. By focusing on a comparison where usage levels are typical of those observed in New Zealand, Howell ignores the possibility of self-limiting users seeking to avoid the imposition of usage fees. In countries that do not impose such low limits, usage levels are far higher as consumers enjoy a wealth of multimedia content and applications that would incur significant cost for New Zealand consumers.

As discussed above in section 5.2.2, Howell time and again confuses downstream speed with quality of service. At no stage in her analysis does she attempt to determine what other differences may exist between services that may explain the relative differences in price.

Howell draws a number of price comparisons between different technologies. Given the differences in underlying costs of the various technologies (such as DSL, fibre and Ethernet) it is hardly surprising that such price differences exist.

## 5.4 Summary

While Network Strategies' retail ADSL price benchmarking report was not intended as a comprehensive benchmarking modelling exercise its findings are still valid and indicate that there are issues that the Commission needs to consider, namely that New Zealand prices are comparable with those in other countries only at low usage rates – as usage increases, New Zealand prices are relatively expensive.

Even with the acknowledged limitations of our earlier study, we find that Howell's criticisms of the Network Strategies ADSL benchmarking study to be unfounded. Furthermore we find that the results from Howell's modified Oftel methodology to be invalid, due to:

- the inclusion of services with different target markets, cost bases, non-broadband products and value-added services

- the apparent omission of connection or installation charges within the comparison, thus not providing a true picture of the total cost of a broadband service
- Howell's sample of Australian ISPs included numerous small players, but omitted a number of the major ISPs, whereas the New Zealand sample included all the major ISPs and was thus more representative of what most consumers pay for broadband services
- use of the undiscounted Telstra monthly rental charges, despite the discounts being available to the majority of Australian consumers
- Australian prices for business services are inflated due to the inclusion of sales tax, whereas the New Zealand business prices exclude sales tax, in accordance with the Oftel methodology
- the European and North American data was six months older than the New Zealand and Australian price data – given that broadband prices exhibit significant price changes over even a short time span, many of the older prices would be outdated
- several of the products in the Oftel dataset are no longer available
- use of observed New Zealand usage levels, which are constrained by the presence of usage fees, rather than the usage levels seen in countries where there are no limits or the limits are far more generous.

## 6 Concluding remarks

In paragraph 146 of its submission<sup>34</sup>, Telecom summarises the major criticisms of the OXERA CBA model made by its consultants, CRA, LECG and Hausman. These are reproduced in the table below and on subsequent pages, together with our responses.

<i>Telecom</i>	<i>Network Strategies/Analysys response</i>
In contrast to the orthodox approach, wealth transfers from producers to consumers are treated as a benefit (see CRA, section 3.3 and section 5.1 of these submissions for legal issues).	The introduction of competition will remove existing monopoly rent by reducing inefficiencies and creating efficiencies. In this sense the process may be interpreted as a reduction in monopolistic inefficiencies rather than as a wealth transfer.
The counterfactual assumes static prices (i.e. no account is taken of the pressure that the threat of network competition imposes on Telecom to lower prices, improve productivity and invest/innovate) (see CRA, section 3.10).	There is no guarantee that the threat of competition would be an effective inducement for Telecom to behave differently.
The model assumes a level of penetration by entrants well in excess of that achieved by entrants overseas (see CRA, section 3.4 and LECG, section 3.1.6).	The level of penetration by entrants implicit in the OXERA model appears to have been overestimated by Telecom's consultants.

**Exhibit 6.1:** *Response to Telecom's summary of OXERA problems [Source: Telecom, Network Strategies]*

<sup>34</sup> Telecom New Zealand (2003) *Telecom's response to the Commerce Commission's draft report*, 29 October 2003.

<i>Telecom</i>	<i>Network Strategies/Analysys response</i>
<p>The behaviour of competitors is not modelled, instead assumptions are adopted which appear to be inconsistent with international experience of unbundling, New Zealand circumstances and the literature which OXERA relies on. A sophisticated analysis is required to make and justify behavioural assumptions (e.g., Cournot or Bertrand) and to model such behaviour (see CRA, section 3.5).</p>	<p>We question whether such a sophisticated and time-consuming analysis would deliver an answer which we could rely on as being more robust than the assumptions which have been applied. Sensitivity testing of assumptions is an acceptable alternative.</p>
<p>OXERA's assumed competitive price level appears to be below the price required by Telecom to recover all of its efficiently incurred costs and below the price established in those markets that the Commission already considers to be competitive (see CRA, section 3.6).</p>	<p>No evidence has been presented to support the claim that the competitive price level in OXERA is below the price Telecom requires to recover costs.</p>
<p>OXERA calculates the allocative efficiency gain of LLU-induced lower (residential) prices by using a standard demand curve, rather than a compensated demand curve (see CRA, section 3.9).</p>	<p>CRA have not demonstrated that the use of a compensated demand curve would have a substantive impact on the results of the cost-benefit analysis.</p>
<p>Covec's report (on which OXERA relies) fails to consider the implications of service differences between the comparator countries and uses an inappropriate exchange rate conversion methodology (see CRA, section 4).</p>	<p>While we agree that the Cover report has limitations, testing of the OXERA model using benchmark estimates higher than those produced by Covec do not alter OXERA's conclusions – there is still a positive benefit to consumers from unbundling.</p>
<p>The Commission and OXERA do not consider the implications of the TSO for their analysis despite the Commission finding that a substantial portion of Telecom's local access network is supplied below cost under the TSO regime (see CRA, section 2.2).</p>	<p>Telecom is compensated for the delivery of TSO services where local access is supplied below net cost.</p>
<p>The 15 (or 10%) price drop under specification is not justified by the literature OXERA refers to (see CRA, section 3.7).</p>	<p>We agree that the Aston paper referenced by OXERA does not provide substantiation for the 15% or 10% price drop.</p>
<p>The OXERA CBA does not take proper account of the likely impact of the 'resale' regime. Without explaining the different treatment, the model assumes that negotiated discount rates for unbundling as a specified service will result in that retail prices will drop initially by 10% then by 3% per annum in contrast to designated resale services which are treated as a one-off 3% price drop in a 'sensitivity analysis' (see CRA, section 3.7).</p>	<p>OXERA in some instances does not justify its assumptions in sufficient detail. This is one of the reasons why sensitivity testing is important.</p>

*Exhibit 6.1 (cont.): Response to Telecom's summary of OXERA problems [Source: Telecom, Network Strategies]*

<i>Telecom</i>	<i>Network Strategies/Analysys response</i>
<p>The 25% reduction of benefits to account for potential regulatory error is not meaningful since it cannot change the ranking of the options under consideration or change a recommendation to unbundle into a recommendation not to unbundle (see CRA, section 3.2.1).</p>	<p>We agree that that it is inappropriate to apply an arbitrary figure for the possible effect of regulatory error. We suggest that a better approach would be to estimate a range from the OXERA analysis as opposed to point estimates. We also suggest that, given the results of our sensitivity analysis, any ranges of estimates OXERA can produce would still indicate a positive benefit.</p>
<p>The entry criteria are unrealistically generous to new entry, since a post-tax cost of capital is applied to a pre-tax framework and the 'option value' of postponing entry is ignored. In addition, the entry decision assumes entrants will earn a market share that is particularly generous in comparison to actual overseas experience (see CRA, section 3.4).</p>	<p>We expect that the Commission provided the appropriate cost of capital to OXERA. Telecom erroneously claims that the Commission applies a 6% cost of capital to their business – this is in fact a figure which is only relevant to the TSO business and is unlikely to apply to unbundled local loops.</p>
<p>OXERA's model assumes that unbundling would force Telecom to increase its productive efficiency by 3% per year. This assumption is not supported by the literature OXERA relies on. Indeed pressures to improve productive efficiency are likely to be significantly stronger under the counterfactual than under unbundling. Telecom has asked IBM to respond to OXERA's Report (<i>Efficiency Analysis to support Cost Benefit Analysis</i>). (see also CRA, section 3.8).</p>	<p>Overseas benchmarks suggest that unbundling will deliver benefits with a much lower productive efficiency gain than 3%.</p>
<p>Incorrect spreadsheet references mean that the net benefit of Option 1 is understated by \$50m (before correcting for other errors) (see LECG, section 3.1.1).</p>	<p>The calculation in which the alleged error occurs is not explained in the OXERA report, and hence we are unable to explain the calculation.</p>
<p>For the options under designation, the quoted counterfactual retail prices for residential voice and data products that include GST where as the prices under unbundling to not (see LECG, section 3.1.2).</p>	<p>GST should be included in all residential prices.</p>
<p>In options 1–3, under designation, the OXERA Model does not account for the time value of money in the way it allocates fixed costs incurred by the entrant over the five-year study period (see LECG, section 3.1.3).</p>	<p>While we agree that the LECG recommendation is appropriate, in their recalculation LECG have applied an incorrect cost of capital.</p>

**Exhibit 6.1 (cont.):** Response to Telecom's summary of OXERA problems [Source: Telecom, Network Strategies]

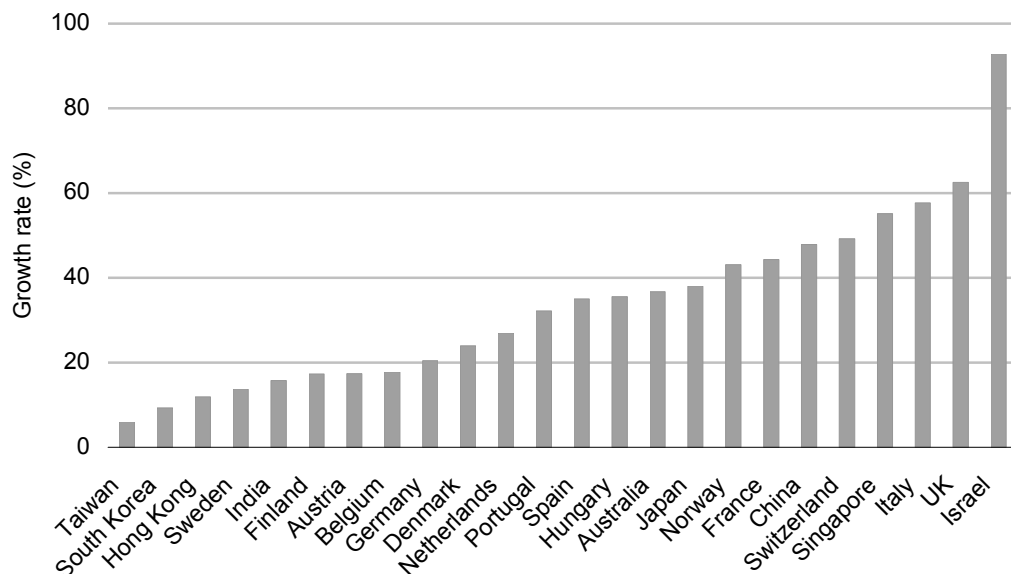
<i>Telecom</i>	<i>Network Strategies/Analysys response</i>
10/20 year asset lives for entrant assets for DSLAMs and backhaul, collocation, and switch & infrastructure connectivity assets, are implausibly long pay-back periods (see LECG, section 3.1.4).	Some of the asset lives used by OXERA are longer than those used by TelstraClear; however the lives proposed by LECG in its sensitivity study are too short.
The OXERA Model inappropriately limits Telecom's ability to recover its onset and ongoing costs from entrants (see LECG, section 3.1.5 and section 5.1 of these submissions for legal issues).	It is the Commission's view that 50% of the incumbent's onset costs are recovered from the entrants. However for designation the onset costs are not explicitly included in the model; they are included as part of the wholesale access costs.
Co-location costs are underestimated (see LECG, section 3.1.7).	While we agree that co-location costs may have been underestimated we believe that the impact is minimal as the new entrant may not require collocation space.
The OXERA Model does not appear to account for entrant onset costs (see LECG, section 3.2.1).	Onset costs for the entrant are not significant.
The Commission's estimated costs are implausibly low (see LECG, sections 3.2.2 and 3.2.3).	We find no reason to doubt estimates which are likely to have been provided by the Commission of their own costs.
Failure to geographically deaverage costs (see LECG, section 3.2.4).	We too note the failure of OXERA to geographically deaverage costs. The impact is likely to be an increase in the net benefits of unbundling.
The effects of a slower than expected introduction of unbundling are not factored in (see LECG, section 3.2.5).	Sensitivity studies show that the outcome continues to be a positive consumer benefit.
ESAs are used as geographical boundaries rather than proximity to an entrant's network (which is the Commission's usual approach) (see LECG, section 3.2.6).	We would expect the consumer benefit to decrease if the entrant's own network is taken into account. However it is not appropriate simply to delete whole ESAs from the results as entrants' networks do not typically cover whole ESAs. Thus deletion of whole ESAs would understate the benefits of unbundling.

**Exhibit 6.1 (cont.): Response to Telecom's summary of OXERA problems [Source: Telecom, Network Strategies]**

## Annex A: Case study: Italy

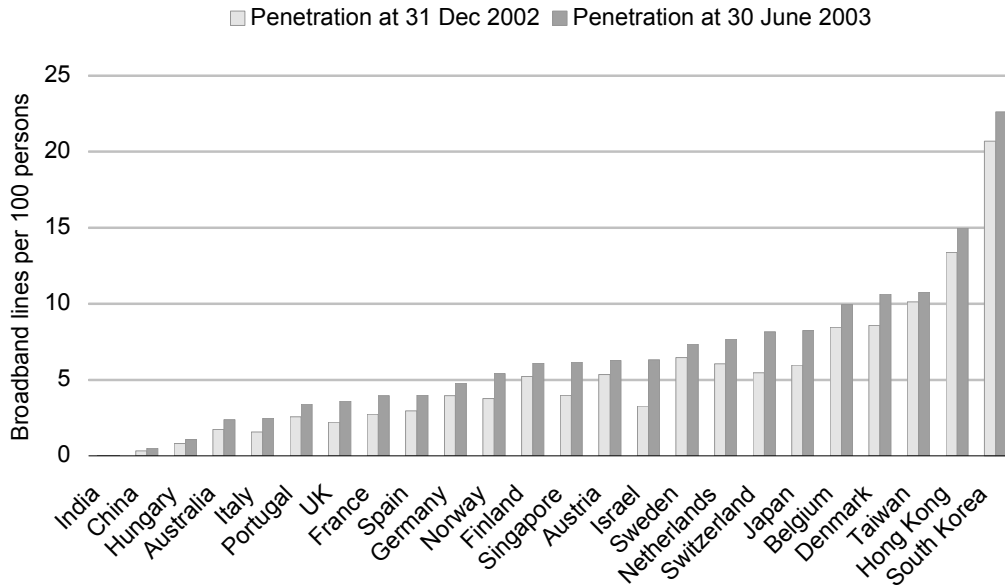
### *Broadband growth in Italy*

The broadband market in Italy has been undergoing strong growth. There were over 1.4 million broadband lines in Italy at the end of June 2003, a growth of almost 58% over the previous six months – one of the highest growth rates in the world (Exhibit A.1).



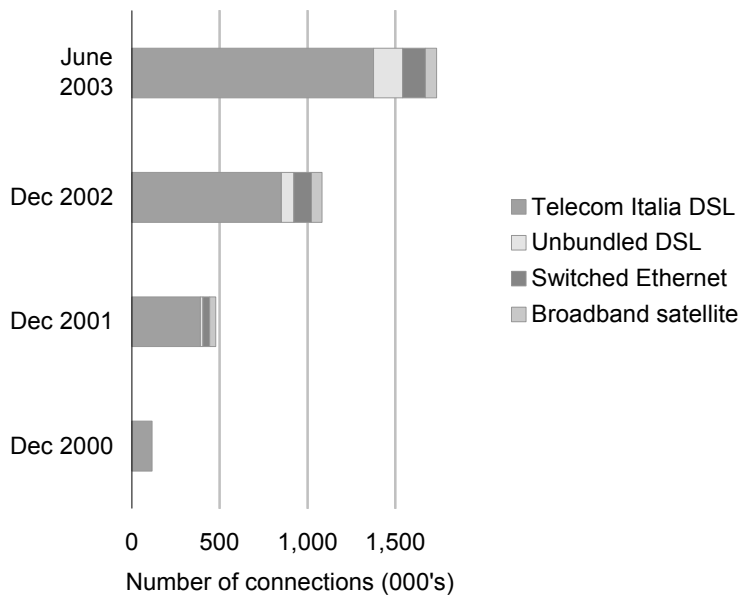
**Exhibit A.1:** Growth in broadband lines for the six months to June 2003 for selected countries  
[Source: Network Strategies]

Despite this explosive growth, the broadband customer base is still low in comparison with other countries (Exhibit A.2). With a penetration of only 2.5% there is plenty of opportunity for further expansion of the broadband market.



**Exhibit A.2:** Broadband penetration for selected countries [Source: Network Strategies]

Telecom Italia has extended its retail ADSL-based broadband services to over 60% of households and had a 79% share of the Italian broadband market at June 2003 (Exhibit A.23).



**Exhibit A.3:**  
*Total broadband connections in Italy*  
 [Source: Analysys]

The European Commission<sup>35</sup> points to the work of the Italian regulator, AGCOM, as the reason behind significant growth in full unbundled lines:

AGCOM has put much effort into providing an effective framework for unbundling and into defining rules for collocation.... In the last two years, AGCOM has intervened actively to obtain effective implementation. As a result, 31 agreements have been signed for local loop unbundling, and only two for shared access. [p99]

The EC states that there were 82 100 unbundled lines at the end of September 2002, compared to approximately one thousand at the end of September 2001.

The EC also notes a drop in the unbundling price:

<sup>35</sup> European Commission (2002) *Eighth report from the Commission on the implementation of the telecommunications regulatory package*, December 2002.

The price of full unbundling has fallen since last year, to well below the level of the line rental for both residential and business customers. TI's offer included significant cuts in the monthly charge for several services (shared access, sub-loop, etc.)... Also, the charge per full unbundled loop and the monthly average total cost are below the EU average and appear to set the conditions for competitive offers by new entrants in local access. [p99]

Clearly, competitive pricing has also played a role in stimulating the market.

*Alternative infrastructure providers in Italy*

Several alternative network operators in Italy are providing broadband services without resorting to Telecom Italia's unbundled local loop. In larger cities these operators are rolling out their own fibre-optic local loops, while in smaller urban areas there are joint ventures with local partners, and in more remote areas satellite technology is being utilised.

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|-------------------|--|
| e.biscom          | <ul style="list-style-type: none"> <li>• Supplies broadband access and services through its subsidiary FastWeb</li> <li>• First company in Italy to provide IP services through its own Ethernet LAN local infrastructure</li> <li>• Allows much faster connection than ADSL, therefore able to offer more content and services</li> <li>• 7 100km of local access infrastructure out of a network of 11 500km as at December 2002</li> <li>• continues to extend its fibre-to-the-building access infrastructure in major cities, serving both business and residential customers with a range of narrow and broadband services, including innovative video services</li> </ul> |
| Wind (Infostrada) | <ul style="list-style-type: none"> <li>• Began providing satellite access in November 2002 to those customers unable to be provided services via the terrestrial lines</li> <li>• Also provides access over the unbundled local loop to more than 30% of households in 165 municipalities, and intends to cover 70% of population by the end of 2004</li> </ul>  |

- |           |  |
|-----------|--|
| EdisonTel | <ul style="list-style-type: none"><li>• Partners with local utilities to establish local access in smaller urban areas</li><li>• For example, launched an FTTB switched Ethernet in Sassuolo</li></ul>   |
| Metroweb  | <ul style="list-style-type: none"><li>• Alternative network and local access operator</li><li>• Operates a fibre-optic network in Milan</li></ul>  |
| Netsystem | <ul style="list-style-type: none"><li>• Offers broadband one-way satellite Internet access to over 55 000 customers</li><li>• Users connect to the POP via a standard narrowband modem</li><li>• Down-stream data is provided by broadband satellite</li></ul> |