Ministry of Economic Development
Manatū Ōhanga

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Minister of Communications

# Benchmarking the Comparative Performance of New Zealand's Telecommunications Regime

## Executive Summary


This report assesses the comparative performance of the New Zealand telecommunications services market in respect of prices applying in mid 2006 for key telecommunications services and the availability and/or uptake of key broadband services, prior to the regulatory reforms announced during 2006 and enacted in December 2006.

Benchmarking is an imprecise comparison methodology and results must be treated with some caution. In general small differences should not be regarded as significant. However, larger differences may be significant especially where differences from OECD top half performance are substantial.

### Fixed telephone service relative performance

The specifications of the OECD fixed public switched telephone network (PSTN) services baskets were comprehensively revised in late 2005 and the basket specifications now include: low, medium and high residential user baskets; a small office/home office business user basket; and a small to medium enterprise user basket. In addition the ratio of fixed-to-mobile (FTM) calls to fixed network only calls in the baskets now vary between 25% and 47%, compared to 10 % previously.

The key fixed telephone service OECD basket benchmark results are summarised in the following table.

| OECD Fixed Telephone Service Basket - August 2006 | NZ Price as % of OECD average | Quartile rank | OECD Rank (out of 30) |
|---|---|---|---|
| Residential Low User | 119.3% | 4 | 25 |
| Residential Medium User | 114.6% | 4 | 24 |
| Residential High User | 112.1% | 4 | 24 |
| Business Small Office/Home Office | 125.2% | 4 | 24 |
| Business Small-Medium Enterprise | 121.5% | 4 | 23 |

In general, New Zealand's relative performance was ranked in the bottom quartile of OECD countries. Previous relative performance generally ranked in the third quartile. The significant increase in the number of FTM calls in the revised OECD comparison basket is the main reason for the apparent decline in relative performance.

### Cellular telephone service relative performance

The following table summarises New Zealand's cellular ranking using OECD cellular service basket comparison methodology. The OECD/Teligen results for New Zealand are based on Vodafone cellular service plans that require a three year commitment by a subscriber to the particular plan.

| OECD Cellular Telephone Service Basket as at August 2006 | % of OECD Average | Country Ranking (out of 30) | Voice calls per month |
|---|---|---|---|
| OECD low user | 119.5% | 20 | 30 |
| OECD medium user | 124.7% | 24 | 65 |
| OECD high user | 110.5% | 21 | 140 |

In general New Zealand's cellular service prices ranked in the third quartile of the OECD based on the Vodafone plans.

If use of a three year plan option was excluded, New Zealand's relative performance would rank in the bottom quartile of the OECD. There is a question about the relevance of including plans requiring a multi-year term commitment in the OECD price comparison basket although there are no rules that specifically exclude inclusion of such options. The Ministry intends to take this issue up with the OECD Secretariat with responsibility for OECD telecommunication service price benchmark methodology.

### Broadband service relative performance

Terrestrial based broadband access is available to ~95% of New Zealand's residential dwellings. As at June 2006 broadband Internet access service uptake in New Zealand was 11.7% per 100 people. New Zealand's overall relative ranking remains 22nd out of 30.

In the absence of an internationally recognised broadband service price benchmark comparison methodologies the Ministry developed a broadband service benchmark specification to assist in the evaluation of New Zealand's relative performance. The results of these New Zealand specific comparison baskets are summarised in the following table.

| Broadband Service benchmark as at May 2006 | % of OECD Average | Country Ranking (out of 30) |
|---|---|---|
| residential broadband service (for non-complying 128 kbps uplink speed) | 36% | 2 |
| business broadband service | 76.5% | 15 |

### 'Multiplay' broadband service relative performance

So called 'multiplay' broadband services are now available in a number of OECD countries. These types of broadband services provide two or more of the following services over a suitable speed single broadband connection:

- Internet access;
- a PSTN grade VoIP (voice over IP) calling service;
- real time video programmes (IPTV);
- WiFi based mobile to fixed network calls over compatible broadband enabled connections.

In the absence of an internationally recognised approach to benchmarking prices for multiplay broadband service packages the Ministry intends to progressively develop a suitable methodology to track New Zealand's progress in providing such services.

At present such packages are not generally available in New Zealand.

### Leased line data services relative performance

Leased lines, i.e. point-to-point data links with a specified data speed or committed bit rate, are used by a business centre, such as a bank processing centre, a head office or a supply warehouse, to link up with branch offices. These types of services are continuing to decline in importance with the development of cost effective IP packet switch network based services that can provide the required IP data transmission quality of service.

New Zealand's ranking in the OECD leased line baskets are summarised in the following table.

| **OECD leased line data service baskets May 2006** | % of OECD Average | OECD ranking |
|---|---|---|
| 64 Kbps | 137% | 22nd out of 25 |
| 2 Mbps | 60.8% | 6th out of 25 |
| Combined 64 Kbps and 2 Mbps | 72.6% | 11th out of 25 |

These types of services are provided over legacy network assets and are now being progressively replaced by IP based technologies and associated services such as Telecom's One Office, an IP based VPN service that can provide point-to-multipoint data connectivity.

In the absence of an internationally recognised approach the Ministry intends to develop a satisfactory methodology for benchmarking the equivalent IP based point-to-multipoint data connectivity services, in conjunction with key stakeholders, and discontinue the use of this leased line data service benchmark.

### Key Conclusions and Comments

Although there are some limited services on which New Zealand compares favourably with other OECD countries, in general there is a significant gap between New Zealand pricing performance and that of countries in the top half of the OECD.

Broadband service pricing developments and uptake continue to be mainly focused on services that have a maximum upstream speed of 128 kbps.

Advanced residential and small business user broadband telecommunications services with an extensive geographic coverage are becoming more widely available in a number of OECD countries.

At present advanced broadband service packages for residential and small business users are not generally available in New Zealand.

There is an ongoing need to benchmark New Zealand's performance relative to other OECD countries in delivering existing telecommunications services at cost based prices and promptly providing new and improved services. The nature and extent of future benchmark reporting by the Ministry has yet to be decided in view of the sector monitoring and reporting role that the Commerce Commission is required to undertake under the provisions of the Telecommunications Amendment Act (No 2) 2006.

A draft of this report was provided to Telecom, TelstraClear, Vodafone and TUANZ.

Telecom and Vodafone expressed a number of concerns, such as the use of OECD purchasing power parity exchange rates instead of some form of real exchange rates, the use of OECD cellular service usage baskets that differ significantly from New Zealand usage patterns, and the omission of international calls from the fixed PSTN services comparison basket.

The report takes into account their comments and includes a summary of their views.

### Recommendation

It is recommended that this report be publicly released (excluding confidential information).

# Benchmarking the Comparative Performance of New Zealand's Telecommunications Regime

## Purpose

1 The Ministry is required in its 2005-06 output agreement to report to you on the comparative performance of the New Zealand telecommunications regime in respect of prices and the uptake of key new telecommunications services.

## Introduction

2 This report assesses the comparative performance of the New Zealand telecommunications services market in respect of prices applying in mid 2006 for key telecommunications services and the availability and/or uptake of key broadband services, prior to the regulatory reforms announced during 2006 and enacted in December 2006.

3 Where applicable, the standard OECD tariff basket methodology was used to compare the price of major telecommunications service providers with a nationwide reach with those in other OECD countries using Teligen price data as at August 2006. However, the leased line services were carried out using data as at May 2006. At present there is no OECD standard methodology for comparing broadband service plan pricing across countries. All data used in this report preceded the telecommunications regulatory reforms enacted in December 2006.

4 Benchmarking is an imprecise comparison methodology and results should be interpreted with caution. In this report unless otherwise stated, the Ministry considers that small differences, for example <10%, should not necessarily be regarded as significant but that larger differences are likely to be significant especially where differences from OECD top half performance are substantial.

## Fixed Telephone network service performance

### Relative Performance Assessment

5 The following table summarises New Zealand's comparative pricing performance for fixed telephone services relative to OECD countries, using input price data as at August 2006. The results for the USA are based on the PacBell data[1].

6 The specifications of the OECD fixed public switched telephone network (PSTN) services baskets were comprehensively revised in 2005 and were introduced in Feb 2006. In particular the basket specifications now include: low, medium and high residential user baskets; a small office/home office business user basket; and a small to medium enterprise user basket.

[1] The Teligen results provide two entries for the US, Verizon and PacBell. This report is based on the PacBell results.

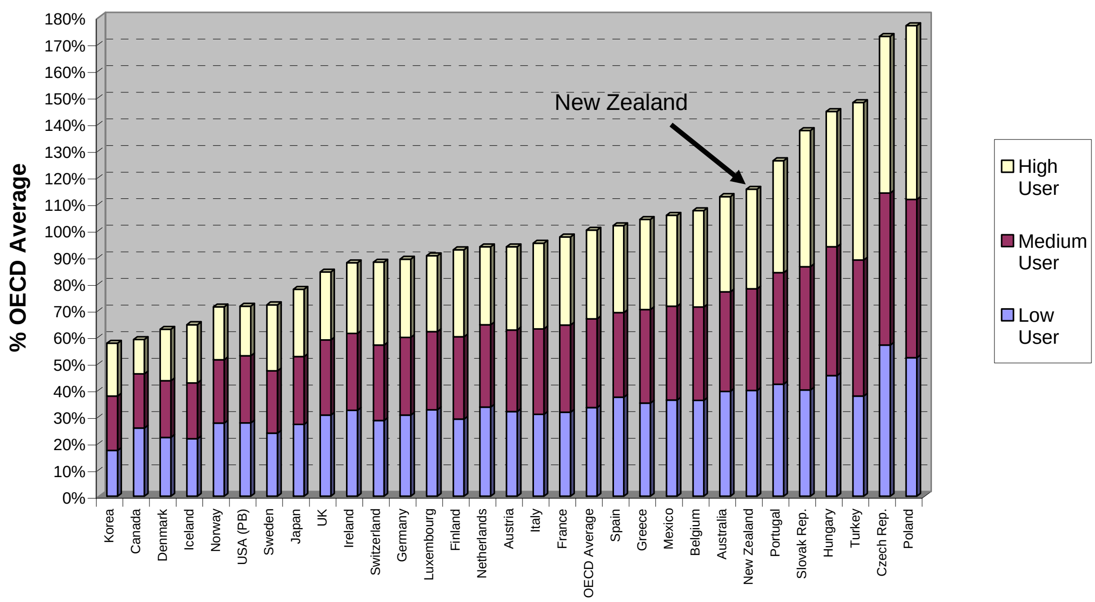
7 The ratio of fixed-to-mobile (FTM) calls to fixed network only calls in the baskets now vary between 25% and 47%, compared to 10 % previously. FTM calls are now considered to be a standard component of the fixed telephone service calls basket and consequently a separate (non-standard) FTM basket result is no longer necessary for standard benchmark reporting and has not been provided.

8 The rankings from the revised OECD fixed public switched telephone service comparison baskets place New Zealand generally in the fourth quartile for residential PSTN, small and medium business PSTN services. In order for New Zealand to place in the first quartile for OECD fixed PSTN pricing and performance:

- residential fixed PSTN services would need to reduce in price by approximately 30 percent;
- business fixed PSTN services would need to reduce in price by approximately 35 percent.

| OECD Basket at August 2006 | Per Annum US$/PPP | NZ Price as % of OECD average | Quartile rank | OECD Rank out of 30 | Price reduction to rank in | |
|---|---|---|---|---|---|---|
| | | | | | OECD 1Q | OECD 2Q |
| Residential Low User | 379.2 | 119.3% | 4 | 25 | 30.9% | 16.2% |
| Residential Medium User | 530 | 114.6% | 4 | 24 | 33.7% | 12.7% |
| Residential High User | 815.1 | 112.1% | 4 | 24 | 33.0% | 10.8% |
| Residential Composite Basket | 574.7 | 115.3% | 4 | 24 | 35.1% | 13.2% |
| Business Small Office/Home Office | 707.5 | 125.2% | 4 | 24 | 36.6% | 20.1% |
| Business Small-Medium Enterprise | 23,503 | 121.5% | 4 | 23 | 40.3% | 17.7% |

**Composite (High, Medium and Low) Residential Telephone Service OECD Benchmark**



## Previous OECD Benchmark Relative Performance

9 In previous years New Zealand's relative performance, assessed using the official OECD fixed telephone service tariff comparison basket, improved from ~22nd (in 2004) to about 18th as per the following table. These results did not include FTM calls at that time.

| August 2005 Data | % of OECD average price | OECD ranking (out of 30) |
|---|---|---|
| Residential, OECD standard method | 99.2 | 18th |
| Business, OECD standard method | 95.9 | 18th |

10 The apparent decline in 2006 in New Zealand's fixed telephone service relative performance (~18th to ~24th) arises from the adoption of the new fixed OECD PSTN services baskets which now include a substantial proportion of FTM calls. The relative ranking of the composite residential basket without FTM calls was roughly in line with previous years ranking as the following table results confirm.

| August 2006 | % of OECD average price | OECD ranking (out of 30) |
|---|---|---|
| Composite Residential basket no FTM calls | 104.6 | 20th |

## Other Relevant Factors

11 New Zealand is one of a small number of OECD countries where residential telephone users have capped price calling options that provide capped pricing of local, national and international calls. The benefits of such plans are generally not well represented by OECD price comparison baskets. However, such options are becoming more available across OECD countries in respect of broadband service based VOIP calling options.

12 The business telephone service price used in the comparison did not take into account lower prices in some areas, such as central business districts, where there is competitive provision of business access service for larger business users.[2]

13 On 21 April 2006 the Commission provided its Mobile Termination Reconsideration Final Report to the Minister of Communications, recommending that the termination rate for fixed-to-mobile calls be regulated. The responsible Minister's decision is pending.

14 The following infrastructure and service related factors should be borne in mind when considering relative performance issues. At the time:

- there was no infrastructure based alternative supplier of residential telephone service with a national reach;
- there was limited infrastructure-based competitive provision of residential and small business telephone service by TelstraClear in parts of Wellington, Kapiti and Christchurch;

[2] ie central business districts and industrial areas where TelstraClear and other facility-based service providers operate.

- there was infrastructure-based alternative supply of business telephone service by TelstraClear in larger central business districts;

- there was limited infrastructure based competitive provision of residential and small business telephone service by Woosh in parts of Auckland, Wellington, Christchurch and Southland;

- the price of residential telephone service is capped, in real terms, under the local telephone service TSO provisions;

- TelstraClear and some other service providers resell Telecom's residential telephone service under a regulated wholesaling agreement. The agreement is applicable in areas where TelstraClear does not have access line infrastructure.

15 At the time that the data applies to the following regulatory reforms announced on or after 3 May 2006 and enacted in December 2006 had yet to take effect:

- unbundling of Telecom's local loop and sub-loop copper-wire lines between telephone exchanges and users premises;

- removal of upload speed constraints on the existing regulated unbundled bitstream service and the inclusion of a requirement to provide bitstream access without a requirement to rent a telephone service;

- accounting separation and information disclosure of Telecom's fixed network business operations;

- a requirement for a robust three way operational separation split of Telecom's fixed network operations to address discriminatory supply behaviour.

**Cellular telephone service performance**

16 The following table summarises New Zealand's ranking for the low, medium and high user OECD cellular service baskets using input price data as at August 2006. The OECD Teligen results were based on Vodafone plans that require a three year commitment by a subscriber to the particular plan.

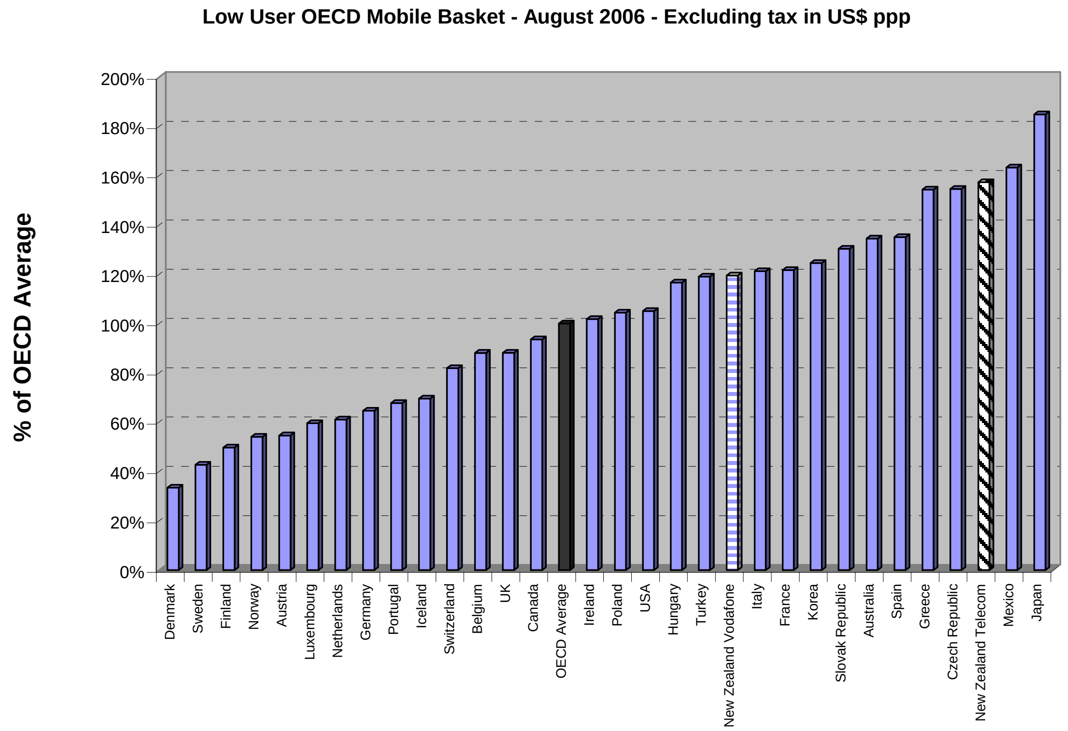
| OECD August 2006 results | % of OECD Average | Country Ranking (out of 30) | Per annum US$ PPP (ex GST) | Voice calls per month | SMS (texts) per month | Price reduction to rank in | |
|---|---|---|---|---|---|---|---|
| | | | | | | OECD 1Q | OECD 2Q |
| OECD low user | 119.5% | 20 | $ 197 | 30 | 33 | 47.4% | 16.3% |
| OECD medium user | 124.7% | 24 | $ 393 | 65 | 50 | 46.1% | 19.8% |
| OECD high user | 110.5% | 21 | $ 583 | 140 | 55 | 34.3% | 9.5% |

17 The following table summarises New Zealand's ranking for the low, medium and high user OECD cellular service baskets using cellular plans that do not require a 36 month contract.

| User Basket (August 2006) | Non 36 month Vodafone Plan US$ PPP | (Non 36 month) Telecom plan US$ PPP | Best non 36 month plan as % of OECD average | OECD ranking |
|---|---|---|---|---|
| Low user basket | 254 | 259.0 | 152% | 27 |
| Medium user basket | 434 | 633.3 | 137% | 26 |
| High user basket | 818 | 1,057 | 152% | 27 |

18 In general New Zealand's relative cellular service pricing performance ranks in the bottom half of the OECD for pricing based on Vodafone plans that require a three year commitment. If a three year plan option was excluded, New Zealand's relative performance ranks in the bottom quartile of the OECD.

19 The following graph shows the results for the cellular low user OECD basket. It is likely that this result is reasonably representative of many prepaid cellular service users in New Zealand, text messaging usage aside.




20 The following table shows New Zealand's relative rankings for 2005 and 2006 as a percentage of the OECD country average for the different user baskets. The table suggests that there has been a significant relative performance improvement. However, to the extent that three year commitment plans are the basis of this improvement, the improvement may not be representative of more widely used cellular service plans.

| | New Zealand ranking as % of OECD Country Average | |
|---|---|---|
| User Basket | **OECD August 2006 results** | **OECD May 2005 results** |
| OECD low user | 119.5% | 127% |
| OECD medium user | 124.7% | 172% |
| OECD high user | 110.5% | 174% |

## Comment

21 There is a question about the relevance of including plans requiring a three year term commitment in the OECD price comparison basket. At present there are no rules that specifically exclude inclusion of such options in the comparison basket methodology. The Ministry intends to take this issue up with the OECD Secretariat with responsibility for OECD telecommunication service price benchmark methodology.

22 The benchmark results do not include larger users, such as those with total cellular handset usage in excess of about 20,000 minutes a month, because such business is usually subject to competitive bidding and the average per minute pricing is not available.

23 The Vodafone three year cellular plan options have a number of limitations. For example, Vodafone Base plans are available on a 36 month contract and penalty fees apply for early withdrawal, although users can transfer to another Base plan for no charge or another contract plan (fees may apply). International roaming is not available on Base plans, and the plans are not eligible for any other Vodafone special, promotion or incentive.

## Other Relevant Factors

24 A number of capped price and special deal calling options are available; the benefits of which are generally not well represented by OECD price comparison baskets. Some examples of these are set out below.

- capped price off-peak calls, such as up to 60 minutes for a low set price;
- international calling for the same price as domestic calling;
- capped text pricing;
- Vodafone Bestmate option where for $6 a month, unlimited calling, texting and video calling to any one other Vodafone customer.

25 In July 2006 TelstraClear announced a $50m investment in Tauranga starting in 2007, to develop a high-speed wireless network that will provide a range of voice, broadband and mobile access telecommunications services to more than 100,000 household and business customers.

26 On 10 May 2006 the Commerce Commission announced that it will examine the reasons for the lack of new entry into the mobile services market as a prelude to deciding whether or not to commence an investigation into possible changes to the regulatory framework.

27 On October 10 2006 the Commerce Commission announced the conclusions of its mobile services market review. The main conclusions of the review were that the mobile services market is characterised by significant fixed costs and, in relation to voice calls, relatively high prices and low usage compared to most other OECD countries. In such a market, competition would be expected to lead to existing operators seeking to increase usage on their networks in order to benefit from

economies of scale. In the prevailing market conditions the Commission would ordinarily expect new entry.

28 The Commission also announced its intentions to commence Schedule 3 investigations:

- into whether or not to amend some of the terms of the current roaming service, such as whether the service should be moved from a specified service to a designated service dealing with both price and non-price terms, clarifying aspects of the service description dealing with matters such as, roll-out obligations, roaming on 3G networks and inter-network roaming.

- into whether or not to amend some of the terms of the current co-location service, such as whether the service should change to become a designated service, which will allow the Commission to set price terms. Should the Commission's current review of the co-location code submitted by the Telecommunications Carriers Forum reveal unresolved issues with non-price terms, the Commission may decide to expand the scope of its investigation to include such issues.

29 The Commission also said that there were reasonable grounds to commence an investigation under Schedule 3 of the Act into whether or not to regulate wholesale access to capacity on mobile networks, but decided not to begin such an investigation at this time. Instead, the Commission will monitor the commercial developments that are taking place around wholesale access and will wait to see if there is entry at the network level. If facilities-based entry does not occur in the near term, the Commission will reassess whether to commence such an investigation.

## Broadband Internet access service performance

### Overall Uptake of Broadband Service

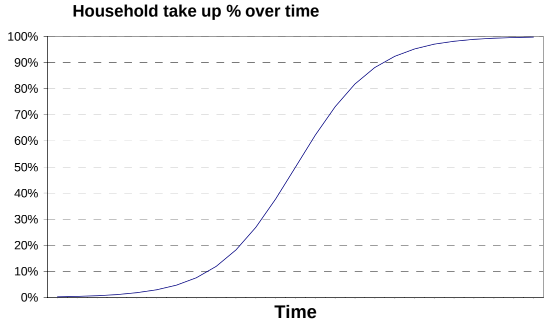
30 New Zealand has good terrestrial based broadband access availability to ~95% of dwellings. This compares favourably with other OECD countries. Most broadband access in New Zealand is through DSL on the existing copper local loop.

31 The following table reports broadband connections in OECD as at June 2006. Broadband Internet access service uptake in New Zealand was 11.7% per 100 people. New Zealand's overall relative ranking remains 22$^{nd}$ out of 30.

**OECD Country Broadband subscribers per 100 inhabitants, by technology, June 2006**

| | DSL | Cable | Other | Total | Rank | Total Subscribers |
|---|---|---|---|---|---|---|
| Denmark | 17.4 | 9.0 | 2.8 | 29.3 | 1 | 1 590 539 |
| Netherlands | 17.2 | 11.1 | 0.5 | 28.8 | 2 | 4 705 829 |
| Iceland | 26.5 | 0.0 | 0.7 | 27.3 | 3 | 80 672 |
| Korea | 13.2 | 8.8 | 4.5 | 26.4 | 4 | 12 770 911 |
| Switzerland | 16.9 | 9.0 | 0.4 | 26.2 | 5 | 1 945 358 |
| Finland | 21.7 | 3.1 | 0.2 | 25.0 | 6 | 1 309 800 |
| Norway | 20.4 | 3.8 | 0.4 | 24.6 | 7 | 1 137 697 |
| Sweden | 14.4 | 4.3 | 4.0 | 22.7 | 8 | 2 046 222 |
| Canada | 10.8 | 11.5 | 0.1 | 22.4 | 9 | 7 161 872 |
| United Kingdom | 14.6 | 4.9 | 0.0 | 19.4 | 10 | 11 622 929 |
| Belgium | 11.9 | 7.4 | 0.0 | 19.3 | 11 | 2 025 112 |
| United States | 8.0 | 9.8 | 1.4 | 19.2 | 12 | 56 502 351 |
| Japan | 11.3 | 2.7 | 4.9 | 19.0 | 13 | 24 217 012 |
| Luxembourg | 16.0 | 1.9 | 0.0 | 17.9 | 14 | 81 303 |
| Austria | 11.2 | 6.3 | 0.2 | 17.7 | 15 | 1 460 000 |
| France | 16.7 | 1.0 | 0.0 | 17.7 | 16 | 11 105 000 |
| Australia | 13.9 | 2.9 | 0.6 | 17.4 | 17 | 3 518 100 |
| Germany | 14.7 | 0.3 | 0.1 | 15.1 | 18 | 12 444 600 |
| Spain | 10.5 | 3.1 | 0.1 | 13.6 | 19 | 5 917 082 |
| Italy | 12.6 | 0.0 | 0.6 | 13.2 | 20 | 7 697 249 |
| Portugal | 7.9 | 5.0 | 0.0 | 12.9 | 21 | 1 355 602 |
| **New Zealand** | **10.7** | **0.5** | **0.6** | **11.7** | **22** | **479 000** |
| Czech Republic | 3.9 | 2.0 | 3.5 | 9.4 | 23 | 962 000 |
| Ireland | 6.8 | 1.0 | 1.4 | 9.2 | 24 | 372 300 |
| Hungary | 4.8 | 2.9 | 0.1 | 7.8 | 25 | 791 555 |
| Poland | 3.9 | 1.3 | 0.1 | 5.3 | 26 | 2 032 700 |
| Turkey | 2.9 | 0.0 | 0.0 | 3.0 | 27 | 2 128 600 |
| Slovak Republic | 2.2 | 0.5 | 0.2 | 2.9 | 28 | 155 659 |
| Mexico | 2.1 | 0.7 | 0.0 | 2.8 | 29 | 2 950 988 |
| Greece | 2.7 | 0.0 | 0.0 | 2.7 | 30 | 298 222 |
| OECD | 9.7 | 4.6 | 1.2 | 15.5 | | 180 866 265 |

32 Residential broadband household uptake will in general follow the well known s curve. On this measure the leading OECD countries are approaching saturation while others are still in take-up phase. From the residential user perspective, household take-up of broadband service is a more meaningful residential user measure than broadband subscribers per 100 population that also includes both residential and business users.




## Business Broadband Service Pricing

33 In the absence of an internationally agreed business broadband benchmarking methodology, the Ministry commissioned a consultant to develop an appropriate business broadband service benchmark specification taking into account typical small business needs and seek comments from ISPs on the draft recommended specification. The consultant also sough industry comment on the proposed benchmark.

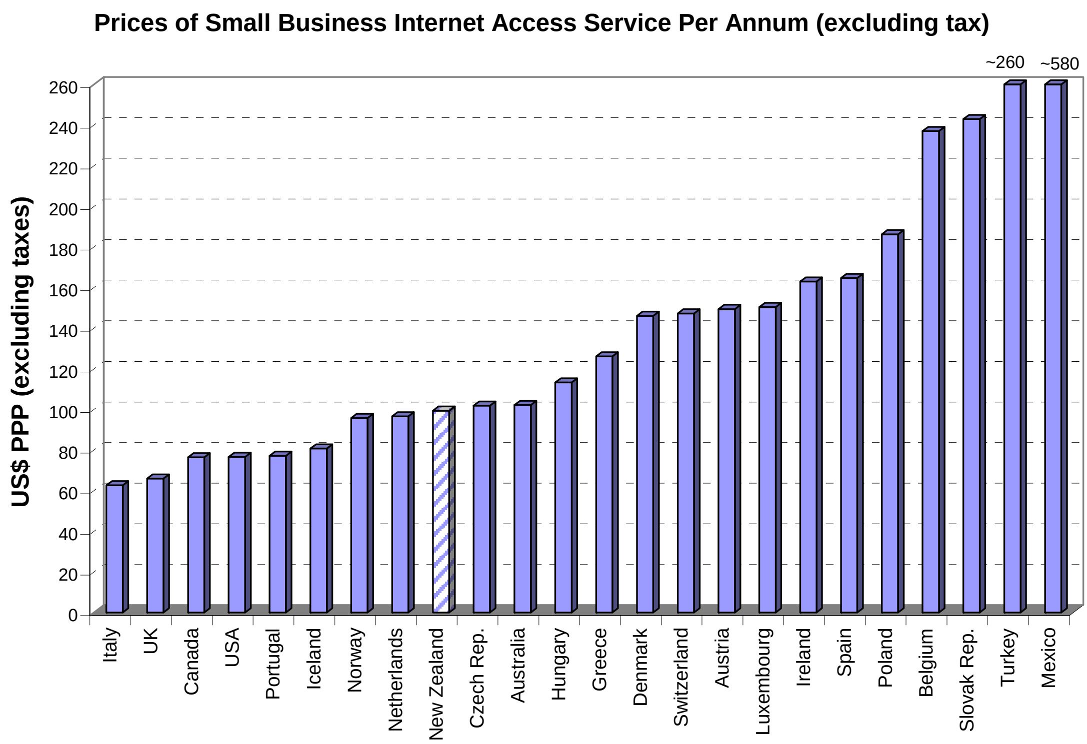
34 Two specifications were recommended for benchmarking small business broadband services.

*Asymmetric small business Internet service*

35 The first is a small business Internet service for general use:

| Service parameter | Business Internet |
|---|---|
| Down load speed | 2 Mbps |
| Up load speed | 512 Kbps |
| Data Volume | 30 Gbytes per month |
| Contention ratio | 20:1 |
| ISP fees | Included |

36 The first definition was used to compile the following relative performance rankings for small business Internet for suitable for general use.




37 The price of business broadband service in New Zealand was ranked 15th across OECD countries, close to the median OECD value and ~77% of the OECD average. It would need to reduce by ~52% to rank in the top quartile.

38 There has been a significant improvement in relative performance since 2005 when the ranking was 27th out of 28 OECD countries.

*Symmetric (or equivalent) small business Internet access service*

39 The second definition is a small business Internet access service where there are high outgoing speed and volume requirements (i.e. use of symmetrical DSL technology or similar to maintain a web site etc.)

| Service parameter | Business Internet |
|---|---|
| Down load speed | ~ 2 Mbps |
| Up load speed | ~ 2 Mbps |
| Data Volume | 30 Gbytes per month |
| Contention ratio | 20:1 |
| ISP fees | Included |

40 At present this type of SDSL based service offering is available in about 13 of the 30 OECD countries.

| | US$ PPP |
|---|---|
| Iceland | 80.1 |
| Netherlands | 128.5 |
| France | 206.6 |
| Austria | 218.9 |
| Norway | 224.4 |
| Denmark | 262.5 |
| USA | 320.0 |
| Germany | 343.2 |
| Switzerland | 346.9 |
| Australia | 402.7 |
| Belgium | 458.5 |
| UK | 583.1 |
| Luxembourg | 925.0 |

41 The nearest available Telecom New Zealand equivalent is a One-Office service option. However, the price for such an option was not available (because One-Office provides a range of different services for a bundled price and identifying the price of an individual component was not possible).

42 The Ministry intends to further develop this benchmark in future years in conjunction with the IP based data service replacement benchmark requirements (see leased line data services benchmark section of this report).

## Residential Broadband Internet Access Service Pricing

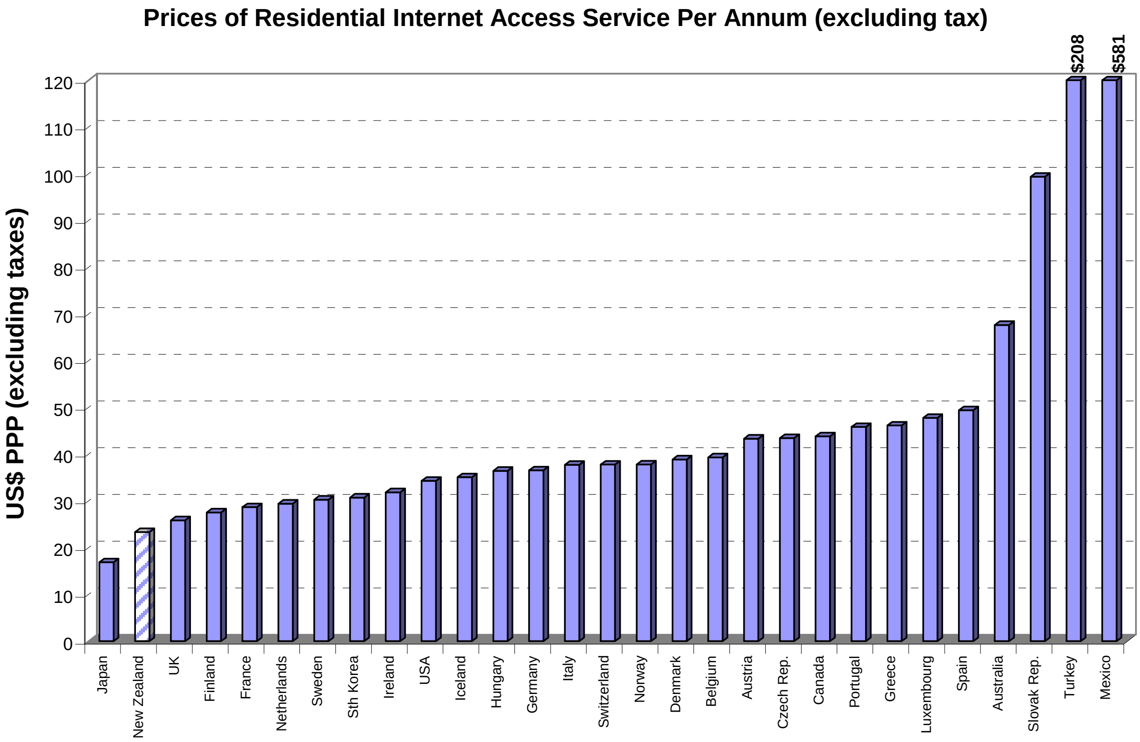
43 In the absence of an internationally agreed residential broadband benchmarking methodology, the Ministry also commissioned a consultant to develop an appropriate residential broadband service benchmark specification. Two specifications were recommended for benchmarking residential broadband services, the first one an Internet access service the second was the progressive development of a 'multiplay' broadband service specification. The consultant also sough industry comment on the first benchmark.

*Residential broadband Internet access service benchmark*

44 The following benchmark specification was recommended:

| Attribute | Value | Remarks |
|---|---|---|
| Downstream speed | 2 Mbps | |
| Upstream speed | 256 Kbps | 128 Kbps upstream speed accepted where 256 Kbps not available. |
| Volume | 5 GBytes | unlimited domestic + 1 GByte international accepted as an alternative. |
| Contention ratio | 50:1 | Not specified by many providers. |
| Internet access | Yes | |
| E mail service | Yes | |
| Static IP address | No | |

45 The results for this benchmark specification across OECD countries are presented in the following graph. The results were based mainly on the Point-topic data base.




46 Upstream speed issues aside (at the time of the survey New Zealand did not meet the 256 kbps requirement[3]), the pricing performance of residential broadband services ranked second in the OECD, at ~36% of the OECD country average, for this New Zealand specific benchmark comparison specification.

47 In general, most mid-range DSL-based residential user broadband plans in other OECD countries provide an upstream speed capability of 512 kbps.

[3] Telecom subsequently introduced faster upstream residential broadband plans in November 2006.

## Residential multiplay broadband service offerings

*What is a 'multiplay' service*

48 So called 'multiplay' broadband services are now available in a number of OECD countries. These types of broadband services provide two or more of the following services over the single broadband connection:

- Internet access;
- a PSTN grade VoIP (voice over IP) calling service;
- real time video programmes (IPTV);
- WiFi based mobile to fixed network calls over compatible broadband enabled connections.

49 The most commonly available multiplay packages are:

- Internet plus VoIP based calls bundled with a traditional cable or satellite TV package (North America).
- Internet plus IPTV bundled with either a traditional PSTN or a VoIP based calling package (Parts of Europe).

50 In the absence of an internationally recognised approach to benchmarking prices for multiplay broadband service packages the Ministry intends to progressively develop a suitable approach to track New Zealand's progress in providing such services.

51 At present such packages are not generally available to residential users in New Zealand.

52 The capability of multiplay broadband services is briefly outlined in the following summary of OECD country service developments and features.

*Multiplay broadband service developments*

53 There are a wide range of service and pricing developments occurring in OECD countries as ISP's, new entrants, cable operators and telco's begin to bundle voice and data and voice and video services. For example, an emerging trend throughout the OECD is for operators to charge a monthly flat rate for PSTN calls. Telecommunication and cable operators have found that this is one way to keep users from dropping fixed lines in favour of mobile phones. Many of these flat-rate plans are available separately from a broadband connection while others, such as the offer from Free in France and Homechoice in the United Kingdom, must be taken with a bundle of services.

54 There are other interesting trends for voice pricing appearing in the OECD. Companies in Sweden have moved away from charging users by the minute for calls and instead charge a connection fee when a call is answered. With TeliaSonera this service costs US$ 3.20 (PPP) per month and users pay roughly

US$ 0.05 (PPP) per call.  Telenor in Norway and TDC in Denmark also have cheap flat-rate calling plans but restrict users to call durations of one hour.

*Example of a leading multiplay service offering (Free's service offering)*

55 Free, a LLU based provider of broadband services in France, offers a quadruple play service priced at €29.99 per month (~$60 NZ) with or without the France Telecom PSTN service connection.  The set top box is provided free of charge.

56 The LLU based full broadband service currently offers:

- Internet access at up to 24 Mbit/s download and 1Mbit/s upload;
- access to Freebox TV audiovisual services (over 200 television channels, 100 of which are free-to-air channels);
- unlimited calls, using the Freebox, free of charge to fixed lines in: Germany, Austria, China, United States, Israel, Netherlands, United Kingdom, Australia, Canada, Spain, Ireland, Italy, Portugal, Singapore, including calls to mobiles in the United States and Canada;
- CanalPlay based video-on-demand service offering catalogue films at €1.99 each for 24 hour viewing and new releases at € 2.99 each.
- Free directory enquiries service;
- Customisable Ring Back Tone (up to 10 distinct ring tones for different callers);
- make and receive calls from any computer connected to the Internet, anywhere in the world, using the Freebox telephone account (with any SIP-enabled equipment/software);
- make calls from a mobile/WiFi phone at the Freebox call rates (including unlimited calls to landline phones in mainland France and 14 international destinations).  The mobile phone must be within the WiFi range of an HD Freebox and support either single-band WiFi, dual-band WiFi/GSM, WiFi/GPRS, WiFi/3G.

*Multiplay broadband service features*

57 In the US a range of advanced features are being offered with broadband VoIP based call offerings as follows:

- ***AT&T CallVantageSM Service***: converts voice into data that enables you to place and receive calls over your broadband connection.  Plug in between the computer and the Cable or DSL Modem, and plug in a standard household telephone.  Place and receive calls - with access to additional control through the Web browser.
- ***Personal Conferencing*** - Set up a “meeting room” with up to ten callers on the same line.

- ***Do Not Disturb*** - Receive calls only when you want. Forward calls to voicemail but let urgent calls ring in.

- ***Voice Mail + eFeatures*** - See and hear messages via the Web or through your phone and forward voice messages to your e-mail account. E-mail tells you when you have a message. Forward voicemail as an e-mail attachment.

- ***Call Logs*** - View a list of calls you placed and received, click on any number to automatically dial.

- ***Phone Feature Manager*** - Phone in to access AT&T CallVantageSM Service even when you don't have access to the Web. Follow prompts to make outbound calls or access Voice Mail + eFeatures, Locate Me, Speed Dial, and Do Not Disturb.

- ***Locate Me*** - Set your service so callers can find you at other numbers when you're not at your phone. Choose several locations and have them ring either one at a time or all at once.

## Telecommunications leased line service performance

58 Leased lines, i.e. point-to-point data links with a specified data speed or committed bit rate (CBR), are available from a number of providers. However, in many locations links provided by alternative suppliers will also comprise, at least partly, a data link supplied by Telecom.

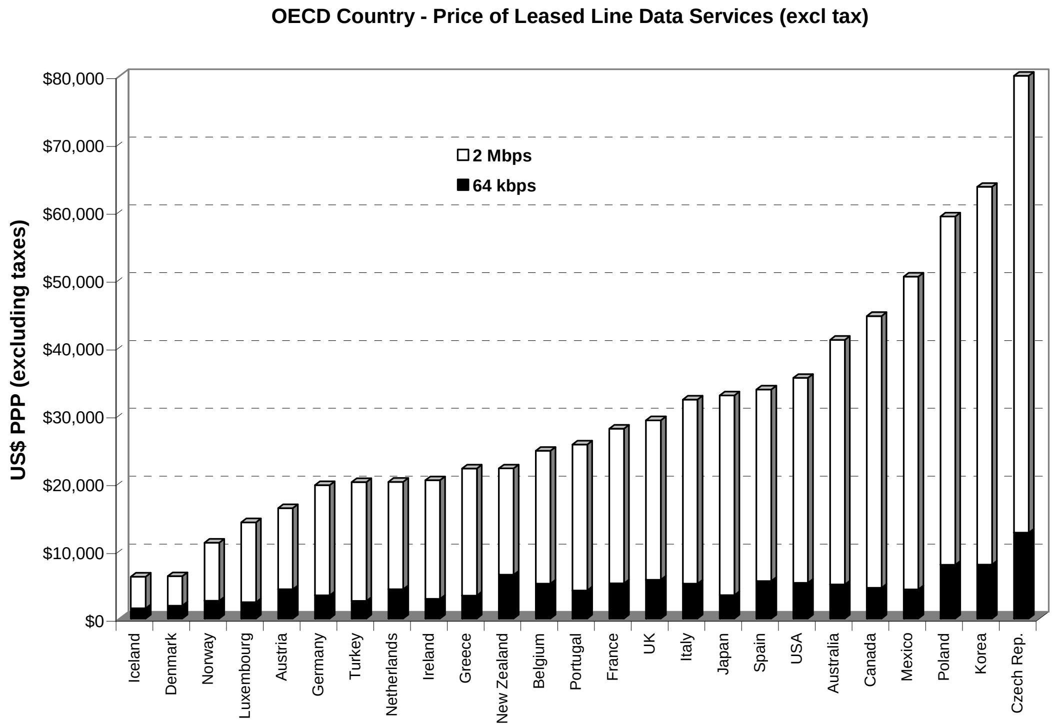
59 Comparing data link prices across the OECD is not straightforward because the OECD standard baskets assume specific technologies some of which are now obsolete. The comparison was limited to two specific data link service speeds, 64 kbps and 2 Mbps. The OECD standard data basket also includes a lower speed data service (<64 kbps) that is no longer available in New Zealand and this service was not included in the benchmarking. Where necessary an equivalent New Zealand data service based on current technology was used in the OECD basket comparison.

60 In general, low speed CBR data links are used by a business, such as a bank processing centre, a head office or a supply warehouse, located in a main centre, to link up with branch offices. Typically, such branch offices are located in suburban or urban areas, or in smaller towns, throughout New Zealand.

61 The results for New Zealand of the OECD leased line baskets are summarised in the following table.

| **OECD leased line data service baskets May 2006** | % of OECD Average | OECD ranking |
|---|---|---|
| 64 Kbps | 137% | 22 out of 25 |
| 2 Mbps | 60.8% | 6th out of 25 |
| Combined 64 Kbps and 2 Mbps | 72.6% | 11th out of 25 |

62 The following chart reports the combined price of a basket of 64 kbps CBR point-to-point data links and 2 Mbps links using the standard OECD data service basket methodology. New Zealand's relative performance ranking was the same as the 2005 benchmark ranking.




## Comment

63 Point-to-point data transmission links are continuing to decline in importance with the development of cost effective IP packet switch networks that can provide the required IP data transmission quality of service.

64 In the absence of an internationally recognised approach the Ministry intends to develop a satisfactory methodology for benchmarking the equivalent IP based point-to-multipoint data connectivity services, in conjunction with key stakeholders, and discontinue the use of this leased line data service benchmark.

## Background information

65 Typically, higher speed committed data rate links, such as a 2Mbps committed bit rate data link, are used by larger businesses, to link the organisation's network together between major locations or link with other networks such as an ISP or the telephone network.

66 In general, the majority of 2Mbps services are provided in larger centres where alternative infrastructure is likely to be available. Further, larger businesses typically have considerable bargaining power and a potential supplier will also consider building out an access link where alternative access infrastructure is not available. The 2Mbps benchmark results are consistent with these points.

67 The Commerce Commission’s 2003 investigation into local loop unbundling led to Telecom making available an unbundled partial private circuit (UPC) service at cost-based pricing. The service has an nx64Kbps committed bit rate speed, where n can range from 1 to 29 such that the data link can be used to support bit rates up to nearly 2Mbps. The UPC is a “data tail,” or end of a data circuit, that enables other service suppliers to provider point-to-point data services with speeds less than 2Mbps to customers beyond the reach of their own networks.

## Benchmarking Methodology Issues and Service Provider Input

### Methodology issues

68 The use of representative ‘baskets’ of telecommunications services is a widely accepted method of benchmarking the price of key telecommunication services between countries. An internationally recognised method of benchmarking a number of telephone services has been developed by the OECD that is based on an internationally agreed demand pattern as opposed to any one country’s pattern.

69 The relative accuracy of benchmarking methodologies, such as the OECD tariff basket comparison methodologies, is limited by the following factors:

- the basket of services used to benchmark relative performance of each OECD country may not be representative of the typical average user demand within a country;
- they adjust imperfectly for the differing prices across countries of inputs to local services by using a suitable exchange rate, such as a purchasing power parity exchange rate;
- they do not readily take into account the effects of network density including scale and scope economies;
- they do not readily take into account productivity differences between countries that are outside of the control of telecommunications industry managers and regulators;
- some services may not be directly comparable (such as different speed broadband Internet access services);
- the methodologies do not provide uncertainty bounds for assessing the reliability of the resultant rankings.

70 In comparing prices between two countries, the two primary methods that are typically used are Purchasing Power Parity (PPP) and some form of longer term averaged Monetary Exchange Rates (to average out the influence of non-trade related factors). This report uses the OECD PPP rates as they focus on the relative purchasing power of non-traded telecommunications services and avoid problems involved with real exchange rates which can be driven by a range of factors unrelated to the price of goods and services.

## Service provider input

71 Subsequent to finalising this benchmarking report the Ministry sought comment, from key stakeholders, Telecom, TelstraClear, Vodafone and TUANZ.

72 Telecom expressed a number of concerns, its main concerns in summary were:

> *"The relative performance of residential and business PSTN services as reported in the draft excludes international calling from the PSTN baskets. The omission of international calling distorts the comparison of New Zealand's industry with other countries, as it does not consider the total basket of PSTN services that users purchase. In order to ensure that there is a fair and reasonable comparison of PSTN services, the Ministry should consider all PSTN services by not excluding international calling from the business and residential PSTN baskets."*

> *"The Ministry has chosen the OECD purchasing price parity (PPP) to convert prices in a local currency to United States dollars (USD). Telecom submits that the appropriate conversion rate is the long term average of the nominal exchange rate. However, in the absence of a long term average data set, it is proposed that the PPP and nominal exchange rates used in the Teligen T-Basket used to define a range for the comparison."*

> *"The OECD mobile service usage baskets differ significantly from the usage patterns of Telecom's mobile customers. In particular, the average Telecom mobile customer sends many times more text messages than is assumed in the OECD mobile services basket. This draws into question the validity of the OECD Basket in this case and thus the benchmark for drawing any robust conclusion."*

73 Vodafone expressed a number of concerns, its main concerns in summary were:

> *"The figures you report lack credibility. The Teligen figures are error-prone and subject to significant limitations as a measure of what is actually going on in the marketplace. We have argued that these figures are unreliable for the last two years. It seems highly questionable that only now, when the figures are improving, you decide to exclude some of the results. It is particularly questionable when you do not have any information on the plans for the other countries in the Teligen data."*

> *"You are not reporting the correct figures. You dismiss the use of any figures for Vodafone because you have decided that consumers do not benefit from three year terms. But the Base plans only make a significant difference to the ranking for low users. In fact our You Choose plans are responsible for the price falls for medium and high users, and your figures should reflect this."*

> *"The picture you present is misleading. There have been dramatic reductions in the prices of mobile services over the past year that are not covered in your report. Consumers continue to benefit from*

*increasingly intense mobile competition, and your report does not refer to any of these developments.”*

*“The table below shows August figures from Teligen over the last three years compared with the OECD as a whole. The price reductions for medium and high users are particularly large, with New Zealand prices falling more than half. Price reductions for low users are three times the OECD reduction over the same period.”*

*These falling prices are a critical part of the story and of our strategy. This is missing from your report at present.*

*Table 1: Teligen results over time (USD PPP)*

| | August 2004 | August 2005 | August 2006 | Change 2004 to 2006* |
|---|---|---|---|---|
| **Low user** | | | | |
| Rank | 28 | 23 | 21+ | |
| NZ | 233 | 204 | 197 | -15% |
| OECD | 172 | 160 | 164 | -5% |
| NZ/OECD | 135% | 128% | 120% | |
| **Medium user** | | | | |
| Rank | 30 | 30 | 24 | |
| NZ | 794 | 695 | 393 | -51% |
| OECD | 429 | 407 | 312 | -27% |
| NZ/OECD | 185% | 170% | 126% | |
| **High user** | | | | |
| Rank | 30 | 30 | 21 | |
| NZ | 1,412 | 1,235 | 582 | -59% |
| OECD | 737 | 690 | 527 | -28% |
| NZ/OECD | 192% | 179% | 110% | |

* This is the August 2006 result divided by the August 2004 result minus 1

+ I calculate New Zealand’s ranking at 21 for low users (rather than 20). There are also two other very small differences, in the % of OECD average for medium users and the annual cost for high users, which I assume are a result of rounding.

74 On 25 January 2007 Vodafone expressed concern that the lack of inclusion of capped call and text pricing in the OECD/Teligen pricing comparisons means that the figures do not accurately reflect the prices available to New Zealand consumers, and provided the following further comment in support of this point of view.

*“The Teligen data for August suggests that on Vodafone NZ prepaid plans across all three user baskets average revenue per minute was approximately 72 NZ cents.*

*In fact, in August 2006 Vodafone’s revenue per minute on prepaid plans was [ ] cents. In August 2006 we offered capped 10 minute calls to anyone at any time in any of 15 countries for no more than $2 dollars. In addition we were offering free texts during weekends.*

*For illustrative purposes a prepaid plan based on a flat rate of [ ] NZ cents per minute would rank us [ ] in the OECD in the low user basket, [ ] in the medium user basket and [ ] in the high user basket.”*

Note, the above [ ] Vodafone revenue data is commercially sensitive and was provided on a confidential basis.

75 TelstraClear said that its key comment relates to reliance on pricing data for mobile services that have a three year contractual commitment. It considered that these plans, where a customer accepts a three year contract in exchange for lower calling prices, are unlikely to reflect the commonly occurring retail mobile charges in the New Zealand market. Accordingly, there is a significant risk that the benchmarking report may under-represent the true cost of mobile services in New Zealand.

76 TelstraClear supported the proposal to seek clarification from the OECD Secretariat as to the appropriateness of including plans requiring a three year term in the benchmarking analysis. TelstraClear considers that such plans are unlikely to reflect the commonly occurring retail mobile charges in the New Zealand market.

77 Copies of Telecom's and Vodafone's comments on the benchmark report are attached in Annex 1.

**Ministry response to service provider input**

78 In reply to Telecom and Vodafone the Ministry notes that:

- the use of purchasing power exchange rates (PPP) is widely accepted as a reliable method of comparing the prices of non-tradable goods or services between countries. In general official OECD publications usually use this approach to compare telecommunications services prices between countries;
- the inclusion of international calls in the fixed telephone service basket is optional and on balance the Ministry considers that they should not be included. The main reasons that underlie this are: the comparison of international call prices between OECD countries by a basket methodology is problematic as countries international call communities of interest vary widely; and the international calls market is very competitive with a wide range of suppliers and levels of call quality (from PSTN grade to best efforts VOIP grade);
- the cellular benchmark results are based on the OECD cellular comparison basket methodology, a comparison methodology widely used by OECD countries;
- the new OECD cellular baskets definitions came into force early in 2006 following revision in mid 2005 by a process into which both Telecom and Vodafone New Zealand had the opportunity to input their views;
- Teligen[4] applies the rules when selecting tariffs for OECD basket comparison results, not the Ministry;
- the basket/call tariff rules in general preclude one off or short term specials;

[4] Teligen holds the copyright to T-Basket. The OECD Basket methodology is the copyright of the OECD.

- it is up to service providers to ensure that Teligen has up-to-date data on current service plans;

- Vodafone NZ has been regularly in contact with Teligen;

- the OECD/Teligen cellular basket methodology tends to underestimate the price of cellular plans with included minutes per month where the service provider rounds call duration up to the nearest minute, because the Teligen cellular basket methodology does not take this into account (i.e. Teligen prices on the call duration specified in the basket definition). This can be significant, for example including rounding up to the nearest minute increases the total basket minutes by ~13% for the high and medium user baskets and ~36% for the low user basket;

- the OECD basket methodology is not set up to track relative price over time and should not in general be used for this purpose;

- there were problems with the February and May 2006 Teligen cellular basket results which were caused by a faulty macro. The problem was fixed by Teligen in the August 2006 results release;

- the non-inclusion of capped call and text pricing in the cellular OECD/Teligen call pricing comparisons does not mean that the results do not accurately reflect the prices available to New Zealand consumers. The OECD tariff comparison baskets are periodically reset to reflect call usage in mainstream OECD countries. Where a capped price call plan option is the cheapest available plan the OECD/Teligen methodology will select that plan;

- many OECD countries also offer cellular capped price call options or an equivalent the benefits of which are not captured by the OECD/Teligen tariff comparison basket. For example, Optus in Australia offers turbo recharge options that provide either $120 of calling credit for $30 or $250 of calling credit for $50. The Cingular “Pay As You Go” plan allows users to make unlimited mobile to mobile calls to more than 55 million Cingular customers across the United States for $1 per day and 10 cents per minute for all other calls ($1.00 per day charged only on days phone is used). Such options typically require a certain minimum monthly payment in order to access the capped or reduced price calls.

## Ministry Conclusions and Comment

79 Although there are some limited services on which New Zealand compares favourably with other OECD countries, in general there is a significant gap between New Zealand pricing performance and that of countries in the top half of the OECD.

80 Following the updating of the OECD fixed telephone services benchmark baskets to include significantly larger amounts of fixed-to-mobile calls New Zealand’s relative performance deteriorated from ~18$^{th}$ (as at August 2005) to ~24$^{th}$.

81 New Zealand's relative cellular service pricing performance was based on Vodafone plans that require a three year commitment. The use of such plans in price benchmarking is questionable and the Ministry intends to take this issue up with the OECD Secretariat with responsibility for OECD telecommunication service price benchmark methodology.

82 Broadband service pricing developments and uptake continue to be mainly focused on services that have a maximum upstream speed of 128 kbps.

83 Advanced residential and small business user broadband telecommunications services with an extensive geographic coverage are becoming more widely available in a number of OECD countries.

84 At present advanced broadband service packages for residential and small business users are not generally available in New Zealand.

85 Point-to-point data transmission links are continuing to decline in importance with the development of cost effective IP based data services. The Ministry intends to develop a satisfactory replacement methodology for benchmarking the equivalent IP based point-to-multipoint data services and discontinue the use of the point-to-point leased line data service benchmark.

86 There is an ongoing need to benchmark New Zealand's performance relative to other OECD countries in delivering existing telecommunications services at cost based prices and promptly providing new and improved services. It is likely that the Commerce Commission will undertake some form of telecommunications services benchmarking under the sector monitoring provisions of the Telecommunications Amendment Act. The nature and extent of future benchmark reporting by the Ministry has yet to be decided.

## Recommended Action

We recommend that you:

87 **Note** that although there are some limited services on which New Zealand compares favourably with other OECD countries, in general there is a significant gap between New Zealand pricing performance and that of countries in the top half of the OECD.

88 **Note** that relative performance in residential broadband service, assessed by use of a non-standard benchmark comparison methodology, was ranked in the top quartile of OECD relative performance, but that broadband uptake remains low compared to other OECD countries.

89 **Note** that New Zealand broadband service pricing developments and uptake continue to be mainly focused on services that have a maximum upstream speed of 128 kbps.

90 **Note** that advanced residential and small business user broadband telecommunications services with an extensive geographic coverage are becoming more widely available in a number of OECD countries.

91 **Note** that advanced broadband service packages for residential and small business users, such as so-called multiplay service packages, are not generally available in New Zealand.

92 **Note** that a draft of this report was provided to Telecom, TelstraClear, Vodafone and TUANZ and a number of changes were made to reflect their comments.

93 **Agree** that this report be publicly released (excluding confidential information).

agree/disagree

Manager, Information Technology and Telecommunications Policy
Energy and Communications Branch

Hon David Cunliffe
**Minister of Communications**