Ministry of Economic Development
Manatū Ōhanga

New Zealand Telecommunications 1987–2001

New Zealand Telecommunications Information Publication No. 8

Resources and Networks Branch

August 2001

Contents

Summary

This information publication provides:

1. Overview of the New Zealand telecommunications market 1987-1997;

2. Annual update of key industry events from 1998 on; and

3. Key statistical information on the New Zealand telecommunications industry from 1987 on.

Carriers with Websites

Telecom New Zealand Ltd	http://www.telecom.co.nz
Telecom New Zealand Access Standards	http://www.telepermit.co.nz
Clear Communications Ltd	http://www.clear.co.nz
Vodafone Communications Ltd	http://www.vodafone.co.nz
Telstra Saturn Ltd	http://www.telstrasaturn.co.nz
Global One Communications Ltd	http://www.globalone.co.nz
WorldxChange Ltd	http://www.wxc.co.nz
Call Plus Ltd	http://www.callplus.co.nz
Compass Communications Ltd	http://www.compass.net.nz
Ihug	http://www.ihug.co.nz
Team Talk	http://www.teamtalk.co.nz
Walker Wireless Ltd	http://www.walkerwireless.co.nz
City Link	http://www.citylink.co.nz
United Networks	http://www.unitednetworks.co.nz
Tangent (Vector)	http://www.tangent.co.nz
Zip	http://www.zip.co.nz
DigiPlus	http://www.digiplus.co.nz

Notes

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- The information provided is prepared by the:
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1. Overview of the New Zealand Telecommunications Market 1987-1997

1. This section provides a summary of regulatory and market development up until the end of 1997. More recent events are included in section 2.

1.1 Summary

2. Up until 1988 the New Zealand Post Office had a statutory monopoly in the provision of public telecommunications services in New Zealand. The New Zealand Government comprehensively reformed the telecommunications regulatory environment over the period 1987-1989. The aim of the reform was to improve the industry's economic performance and increase consumer benefits by creating competitive, open entry telecommunications markets supported by general competition law.

3. On 1 April 1987 a new State-owned Enterprise (SOE), Telecom Corporation of New Zealand Ltd was formed, by the separation of the telecommunications element of the Post Office from its postal and banking arms. The regulatory and policy advice functions of the former Post Office were transferred to the Department of Trade & Industry (subsequently the Ministry of Commerce, and now the Ministry of Economic Development).

4. Between 1 October 1987 and 1 April 1989 the supply of customer premises equipment was progressively deregulated. On 1 April 1989, all legal restrictions on telecommunications services market entry were removed. Telecom was privatised in September 1990, and competition in telecommunications services developed from 1991 with the signing of the first interconnection agreement.

5. Key benefits of telecommunications deregulation have been:

- Substantial price reductions for telecommunications consumers;
- Improved service availability, in terms of access to new services, fault service response, and new service installation times;
- Ongoing investment in the New Zealand telecommunications market. Particularly from BCL, Clear, Global One, Saturn, TeamTalk, Telecom NZ, Telstra NZ, Vodafone (formerly BellSouth NZ) and WorldxChange;
- The development of competition in the provision of leased circuits and data services, cellular service, long distance calls and freephone service;
- The development of competition for business telephone services in metropolitan business centres.

1.2 Background to Deregulation

6. In the late 1970s and early 1980s New Zealand's economic performance declined significantly. A significant period of economic reform followed focusing on the removal of protection and the development of competitive markets. As part of this reform process in the 1980s, it was clear that export diversification and import substitution alone would not be enough to restore the New Zealand economy to its former strength. In particular, it was concluded that the so-called non-(internationally) traded goods sector, was not subject to

significant economic pressures to perform. A number of studies highlighted the need for improved efficiency in such areas to assist economic recovery.

7. In telecommunications as in many other sectors, such as airlines, railways and banking, the Government concluded that private ownership could provide a better ongoing basis for the efficient operation of these enterprises.

8. The New Zealand Post Office was a key public enterprise in the mid 1980s and included telecommunications, banking and postal operations. In 1984, it was New Zealand's largest single employer, with 41,000 staff. A review in 1985 (the Mason/Morris report) highlighted the inadequacies of the existing organisational structure, recommending that the Post Office be re-organised into specific business units. In the telecommunications area, opening up enhanced services and the customer premises equipment markets to competition were recommended.

1.3 Deregulation of the Telecommunications Service Industry

9. Telecom commenced business as a separate corporation on 1 April 1987 with 26,500 staff. Regulatory and policy advice functions and management of the radio frequency spectrum were transferred to the Department of Trade & Industry (subsequently the Ministry of Commerce and now the Ministry of Economic Development).

10. In 1987, the Touche Ross report, commissioned by the Government, identified a need for considerable improvement in Telecom's operations. For example, the report highlighted that the corporation was engineering rather than market-driven, did not achieve a level of efficiency comparable to the best practice of overseas telephone companies, and that its management systems were inadequate.

11. The report identified large cross-subsidies between long distance call charges and access (i.e. line rental) charges, meaning that price reductions for toll call services could increase local access charges substantially.

12. The report concluded that competition in network services was sustainable, provided satisfactory interconnection arrangements could be made. In July 1989, the Chairman of Telecom gave an undertaking that Telecom would ensure that interconnection would be provided to competitors on a fair and reasonable basis.

13. In September 1990, the Government sold Telecom to a consortium led by Ameritech of Chicago and Bell Atlantic of Philadelphia for $NZ4.25 billion. The proceeds were used to retire public debt. There was also a requirement that a portion of the company's shares be offered to the public.

1.4 Telecommunications Regulatory Environment

14. Since the telecommunications sector was liberalised, successive governments took the view that a market-driven, light-handed telecommunications regulatory framework is an effective means of achieving consumer benefits and efficient economic outcomes.

15. To maintain conditions of effective competition, these government's placed primary reliance on general competition law, the Commerce Act 1986, in particular those parts of the legislation which dealt with use of a dominant position in the market and prohibition of business acquisitions which create or strengthen market dominance.

16. Government policy statements on telecommunications competition spelt out the general policy, along with a reserved position that, if it proved to be necessary the Government would consider the introduction of other statutory measures or regulation.

17. Consumers' rights in the supply of telecommunications services have been covered by the Fair Trading Act 1986, which prohibits certain conduct and practices in trade and provides for the disclosure of consumer information relating to the supply of goods and services.

1.4.1 Kiwi Share Obligations (KSO)

18. Recognising that Telecom was in a dominant position in the telecommunications market, the Government placed particular provisions known as the Kiwi Share Obligation (KSO) in Telecom's Articles of Association (now its Constitution). Specifically, the KSO requires Telecom to:

- Maintain a local free-calling option for all residential telephone customers;
- Ensure that the rate of increase in the residential telephone line rental, which includes the cost of all local calls, does not result in the rental increasing in real terms above its 1 November 1989 rate of $NZ27.80 per month (excluding GST), unless Telecom's profits are unreasonably impaired. The rental itself was reduced in August 1997, to offset the charge introduced by Telecom for directory assistance for residential customers;
- Ensure that the line rental for residential users in rural areas is no higher that the standard residential line rental;
- Continue to make ordinary residential telephone services as widely available as at the date of adoption of the KSO.

19. The Minister of Finance is the Kiwi Shareholder. The Ministry of Economic Development monitors and reports to Ministers on Telecom's compliance with the KSO.

1.4.2 Information Disclosure

20. Telecom as the dominant player in the New Zealand market was required to disclose certain information to improve transparency and facilitate market entry. The Telecommunications (Disclosure) Regulations 1990 required Telecom to disclose:

- Price information about certain prescribed services, e.g. leased circuits and discounts on prescribed services in excess of 10%;
- The full text of interconnection agreements within a specified time after their conclusion; and
- The financial statements of Telecom New Zealand Ltd.

1.4.3 Numbering

21. The New Zealand Telecommunications Numbering Advisory Group (NZTNAG) was established in December 1992 to assist in the co-ordination of numbering issues such as number administration and the portability of numbers between competing carriers. The NZTNAG was chaired by the Ministry of Commerce (now Ministry of Economic Development) and included representatives of carriers and users. NZTNAG operated on a consensus basis.

1.4.4 Interconnection

22. In New Zealand the resolution of interconnection disputes has been provided for by general competition law, with access to the courts to resolve specific matters.

23. There have been a number of legal disputes over interconnection, particularly that of 1991-96 between Clear and Telecom concerning local access terms. Clear sought interconnection at incremental cost, with payments between the two companies on a reciprocal basis. Telecom subsequently offered pricing terms based on the "Efficient Component Pricing Rule" (ECPR), also known as the Baumol-Willig rule, which would have required Clear to pay Telecom the opportunity cost of providing interconnection together with a contribution to common costs and profits including any monopoly profit foregone by Telecom from business lost to Clear.

24. The case went to the Privy Council, which held that the Baumol-Willig rule did not breach section 36 of the Commerce Act. The Government subsequently stated that it was opposed to the use of this pricing principle because it had the potential to lessen competition. The terms finally agreed between the companies set access prices at levels below those implied by the Baumol-Willig rule. In June 1996, the Government reaffirmed its reliance on general competition law to achieve its objectives in telecommunications and stated its expectation that interconnection would be provided based on terms that would promote efficiency and deliver the benefits of competition to consumers.

1.4.5 Access to Radio Spectrum and Frequencies

25. Operators who require spectrum can either purchase the right to use some frequencies or purchase a use licence for specific frequencies from the Ministry of Economic Development. Radio spectrum transmissions are subject to the Radio-communications Act 1989, which provides for the creation and registering of:

- A tradeable management right over any defined frequency band for a specified period, to a maximum of 20 years;

- A tradeable spectrum licence by the owner of a management right for frequencies within the band covered by the management right;

- A non-tradeable radio licence by the Ministry of Economic Development where no management right exists.

26. A public register of spectrum rights and radio licences is maintained by the Ministry of Economic Development. Among other things, this enables adequate interference co-ordination to be maintained.

27. Government's general policy is to progressively convert spectrum used by commercial radio-communications services to the spectrum rights regime, usually by way of a public auction. Where new radio-communications, telecommunications or broadcasting technologies are developed which use unused or under-utilised spectrum, the Ministry of Economic Development consults with interested parties with a view to facilitating access to that spectrum.

1.4.6 Network Operator Status

28. In 1989, the Government introduced a special provision, Network Operator status, to provide a company with the right to apply for a court order to install telecommunications plant on public and private property. It is not a pre-requisite for conducting business as a carrier but companies can find it useful, especially when dealing with local authorities. Designation is automatic on application for those that qualify, and no fee is payable.

A list of companies which have network operator status is at Annex I.

1.4.7 International Services Regulations

29. The Telecommunications (International Services) Regulations 1994 require companies that wish to operate facilities-based international services to be registered. . Registration is not required for call-back type services. Registration is, effectively, automatic on application. Originally, the payment of an annual fee was also required.

Companies currently registered as international operators are listed in Annex II.

1.4.8 Telecommunications Equipment

30. The Ministry of Economic Development is responsible for the administration of equipment standards for telecommunications equipment where electrical safety and electro-magnetic compatibility are concerned. The responsibility for setting the standards for equipment to be attached to telecommunications networks lies with the network operators themselves: it is not a regulatory function.

31. One operator, Telecom New Zealand, has established a formal process for setting standards for equipment which may be attached to its public switched telecommunications network. Specifically, Telecom operates a permit to connect approval system for equipment to be attached to its network. Such standards are developed in consultation with interested parties. Test results from overseas laboratories that meet New Zealand equipment standards are accepted. Both the range of equipment and the number of suppliers have increased substantially. Further information can be obtained from the Telecom New Zealand Access Standards website : http://www.telepermit.co.nz.

2. Annual Update: Key Industry Events from 1998

January 1998

- Discussion Paper on penalties, remedies and court processes under the Commerce Act 1986 is released by Ministry of Commerce. The paper proposes that increased penalties and remedies apply for anti-competitive behaviour.

- Telephone number portability is introduced into New Zealand, by Telecom New Zealand, Clear Communications and Telstra New Zealand's networks, using call forwarding.

February 1998

- Telecom announces an ADSL[1] trial (using its existing twisted copper network to deliver high speed data and video services) in Wellington. This was followed by an announcement in October of its intention to roll out commercial service of xDSL technologies in 1999.

April 1998

- Clear announces it will start trailing LMDS[2] as a mechanism for wireless local loop service (for voice and data) to business customers in main centres from September.

May 1998

- Saturn launches a residential local telephony service in the Hutt Valley, with a rate of NZ$29.95 per month compared to Telecom's NZ$35.66. This is the first residential local wireline competition in New Zealand. Saturn subsequently expanded to part of the Kapiti Coast and some of Wellington's western suburbs by the end of December. Saturn is continuing to expand its residential telephony service to all of Kapiti and Wellington city and suburbs. It intends to complete its investment of NZ$230 million in the Wellington area by the end of 1999.

June 1998

- Telecom announces the closure of its First Media cable TV service at the end of July. This followed the decision in November 1997 to stop the rollout of the hybrid fibre coax (HFC) network at 68,000 homes passed (in Auckland and Wellington). Telecom said First Media was closed due to the poor take-up rate of potential customers (approximately 3%) and the decision to concentrate on trialling xDSL technologies for delivery of high speed data to residential customers. Telecom is still evaluating ways to utilise its HFC network, possibly to deliver high speed data services to residential customers.

[1] Asymmetric Digital Subscriber Line. This technology digitises signals over conventional twisted copper wire line, enabling high-speed data service to be offered along the same lines as conventional switched telephony.

[2] Local Multipoint Distribution System. A super high frequency wireless technology which is cellular based, used to deliver local telephony service and high speed data.

- The Treasurer releases a Strategic Overview Paper on the telecommunications industry prepared by Treasury and the Ministry of Commerce. The paper highlighted key reviews underway of numbering administration and portability issues, penalties and remedies under the Commerce Act and the Telecommunication (Disclosure) Regulations.

July 1998

- The Commerce Commission releases findings on Telecom's competitive response to Saturn's entry (a $5 loyalty discount). The Commission considered that Telecom was pricing above marginal cost. Regional pricing per se, is not necessarily a breach.

- WorldxChange launches a partnership with retail chain Deka to sell its discounted national and international toll services to residential customers. As of September, WorldxChange claims 6000 customers.

- In response to other service providers price reductions, Telecom reduces international toll prices by an average of 20%, with reductions on some routes and times by over 50%.

August 1998

- NetTel launches service as a reseller for Telstra, offering national and international service using calling cards, targeting niche residential and business customers.

- British Telecom announces that it is increasing its stake in Clear to 50% taking over MCI's 25% shareholding.

- BellSouth (USA) and Singapore Technologies Ventures announce sale of BellSouth New Zealand to the Vodafone Group for NZ$750 million

- The Ministry of Commerce releases a discussion paper on options for telecommunications numbering policy. The Minister of Communications sets a tight deadline, 30 November, for the industry to reach agreement on satisfactory voluntary arrangements for numbering administration and resolving longer term number portability issues.

September 1998

- Superway announces it is commencing a roll out of a cable network in the North Shore of Auckland with the intention of targeting business users at first, supporting high-speed data, telephony and cable television.

November 1998

- The Ministry of Commerce releases a Telecommunications (Disclosure) Regulations Discussion Paper which proposes that Telecom be required to produce separate financial statements for its local loop and its other telecommunications businesses and to undertake a full economic costing of the Kiwi Share Obligations.

- Iridium launches first global mobile personal communications by satellite (GMPCS[3]) service worldwide using handsets, offering service to all parts of the globe.

December 1998

- Telecom, Vodafone, Telstra, Newcall and Teamtalk agree to arrangements to resolve telecommunications numbering issues. The Number Administration Deed (NAD) provides for: independent administration of each party's telecommunications numbering resources; a process for determining New Zealand's ongoing number portability requirements; and binding arbitration to efficiently resolve any disputes arising between parties with reference to agreed numbering principles to guide the arbitrator. Some parties refuse to sign up to the agreement in its present form.

- The Government issues statement of economic policy to Commerce Commission on telecommunications numbering. The Ministers of Communications and Enterprise and Commerce state that the Commerce Commission is the appropriate forum to determine whether the deed agreed between telecommunications companies raise any competition concerns.

- The Government announces that the Ministry of Commerce will auction 32 management rights and approximately 1600 licences in the 2 GHz band of radio spectrum, which spans the frequencies 1710-2300 MHz. The rights to be auctioned are expected to support a range of technologies associated with the next generation of digital cellular mobile services, known as PCS[4].

May 1999

- Xtra, the country's largest ISP (Internet services provider), starts offering flat-rate access to the Internet for $39.95 a month after Clear announced that it intended to do the same. Ihug has been offering flat-rate access for several years.

- Telecom introduces ongoing $5 capped weekend calls to Australia and $10 capped weekend calls to the United Kingdom, Ireland, the United States, and Canada.

- The Commerce Commission authorises the Number Administration Deed. The parties to the Deed had applied to the Commerce Commission for authorisation because it made access to numbering resources dependent on signing up to the Deed. The Commission concluded that the Deed did not have the effect of lessening competition, and that its public benefit meant that it should be allowed despite the exclusionary provision relating to access to numbers.

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[3] Global Mobile Personal Communications by Satellite. This term is generally used to describe the new generation of worldwide satellite based personal mobile telephony services. Globalstar and ICO are expected to launch similar services to Iridium in the next 2 years.

[4] Personal Communications Services. This refers primarily to localised mobile phone services, servicing small areas, such as factories or a residential area. It is also now used to refer to 3rd generation mobile services or IMT-2000 (International Mobile Telecommunications), which is designed to combine GMPCS, cellular mobile and PCS services into a seamless mobile telecommunications service.

June 1999

- Vodafone announces it will spend $200 million over the next two years to upgrade its cellphone network to cope with increased demand.

- Telecom launches its JetStream fast Internet service. JetStream uses RADSL (Rate Adaptive Asymmetric Digital Subscriber Line) technology to allow large amounts of data to be sent down a normal telephone line at high speed, while still allowing the line to be used for normal telephone conversations. The cheapest JetStream service allows 600 Mb of data a month to be downloaded (equivalent to about 220 hours online) for $89 (including GST and ISP charges). Installation and modem costs are extra.

- Clear announces that a $5.5 million bank of computers, referred to as a switch, went live in Christchurch. The computers are the central switching point for the toll, data, and local traffic to and from all of CLEAR's South Island customers. Previously, this traffic was switched through the company's Wellington facility.

- BT increases its shareholding in CLEAR Communications to 100 per cent.

August 1999

- Saturn launches a high-speed Internet service for its residential customers. The new service allows a personal computer user Internet access over Saturn's cable network through a cable-modem and an Ethernet card in the PC.

- Telecom announces plans to replace its mobile telephone network with new cdmaOne digital technology. The CDMA (Code Division Multiple Access) technology will provide a high quality digital cellular service with high capacity, high-speed mobile data transmission. The new network will not be launched until 2001.

- Ihug launches calling cards allowing casual use of its cheap toll call service that runs voice traffic over data circuits using voice-over-internet protocol.

- The Government announces its intended changes to the telecommunications information disclosure regime. A key change is a requirement for Telecom to calculate and disclose the net economic cost of complying with Kiwi Share obligations. Another major change is a requirement for Telecom to publish six monthly financial statements that split Telecom's operations into a local loop business and other telecommunications services. The changes are to take effect from 1 January 2000, with the first financial statements due on 30 September 2000.

September 1999

- The $2 billion Southern Cross cable, which is 50% owned by Telecom, lands on Takapuna beach in Auckland, completing its trans-Tasman stretch. Once it is entirely completed, the 29,000 km Southern Cross cable will be New Zealand's and Australia's highest capacity route to North America.

- The Government announces it is satisfied with Telecom's 0867 Internet initiative so long as 0867 is not charged for and service quality is maintained. From 1 November, Telecom plan to introduce a 2c a minute Internet Dial- up Charge (IDC) for Internet

access for residential line customers after 10 hours of free use each month.[5] The charge will not apply to Telecom customers who use 0867, 0873 IPNet, or 0800 toll free numbers to dial-up their ISP.

November 1999

- Elizabeth Longworth is appointed chair to the Number Administration Deed Management Committee.

January 2000

- Vodafone and Telecom released figures showing huge growth in the number of mobile phone connections in the last quarter of 1999. Vodafone's connections grew by 35 percent in the three months to 31 December 1999 to reach 397,000 while Telecom's mobile connections grew by 13 percent over the quarter to reach 858,000.

February 2000

- The new Government announces a Ministerial Inquiry into Telecommunications. The Inquiry is to be run by a three-person team chaired by Hugh Fletcher, the former Chief Executive of Fletcher Challenge. The Inquiry is to present a final report to Government by the end of September. The Inquiry is established to assess the regulatory regime for telecommunications, and recommend any changes.

- Vodafone and Clear announce an alliance that enables Clear to offer Vodafone mobile services to its customers.

- Austar United Communications and Telstra Corporation announce the merger of their New Zealand operations, Saturn Communications and Telstra New Zealand to form a 50:50 joint venture. The new company will be called Telstra Saturn. Telstra and Austar announce their commitment to invest more than NZ $1 billion over five years to build a broadband network.

- Compass Communications launches Freenet, New Zealand's first free Internet Services Provider.

March 2000

- The Ministry of Economic Development commissions Ovum Pty Ltd to assess the net benefits of introducing local loop unbundling in New Zealand. The Ovum Report finds there is no compelling economic case for local loop unbundling in New Zealand, as the potential benefits are estimated to be approximately equal to the likely costs.

April 2000

- i4free is launched. It resides on Clear's network and will provide free nation-wide Internet access, email, newsgroup, search facilities and basic services to home users.

[5] The introduction of the 2c a minute charge was delayed by at least a month for the customers of many ISPs. This was to allow all the ISPs to be connected to the new number range.

- Telecom applies call controls on i4free traffic because it argues that the rise in i4free Internet traffic is compromising the Airedale Exchange. The High Court grants an interim injunction allowing the continued operation of i4free service.

- Telstra Saturn purchases ISP, Paradise Net Limited. Paradise Net Ltd has 33,000 subscribers throughout New Zealand. Most subscribers are residential.

- Telstra Saturn signs a contract with Ericsson Communications to install a new broadband submarine cable between Auckland, Wellington and Christchurch. The cable is expected to be operating before the end of 2001.

- The Government announces that the Commerce Act 1986 will be strengthened. As part of the changes, the phrase “dominance” in s36 of the Act will be replaced with the lower threshold of “a substantial degree of power in a market” and the word “use” to be replaced with “take advantage of”.

May 2000

- Telecom and Clear reach an agreement on the 0867 Internet number range. Internet users utilising Clear’s ISP will not pay a two-cent per minute charge for non-0867 Internet calls. In return, Clear would encourage customers to utilise the 0867 service. The agreement allows Clear and Telecom breathing space in which to renegotiate their interconnection agreement, which expires at the end of 2000.

- Telecom and Vodafone announce that they have renegotiated and renewed their interconnection agreement. Included in the terms of the agreement is a 10% reduction (to 31.5c per minute) in the interconnection price of delivering calls to mobile phones on the two networks.

- Telecom announces $38million plans to establish a new submarine cable between North and South Island. Telecom appoints Siemens as principal contractor for the project. The cable will use DWDM (Dense Wavelength Division Multiplexing) technology.

June 2000

- Telstra Saturn and ERG Group sign a contract to build an integrated telecommunications network in Christchurch. The ERG deal is part of Telstra Saturn’s $200 million investment to provide voice, data, Internet and cable TV services to businesses and residential markets in the city.

July 2000

- Telstra Saturn and Telecom announce a series of agreements on interconnection, wholesale services, a 0867 Internet traffic agreement and a pole-sharing agreement. A key feature of this agreement is the introduction of a form of “bill and keep” arrangement for local interconnection.

August 2000

- Clear announces it will spend $14million to upgrade its North Island network by employing dense wavelength division multiplexing (DWDM) to increase capacity of the cable network.

- The Commerce Commission commences court action against Telecom alleging that Telecom contravened section 36 of the Commerce Act in introducing its 0867 package. The Commission is alleging that in introducing 0867 Telecom sought to prevent or deter competitive conduct by other telecommunications network operators and Internet service providers.

September 2000

- Clear launches Clear Wireless to provide high-speed Internet access for businesses. The service will provide speeds up to 2Mbps for sending and receiving information via the Internet.

- Clear, announces a new flat-rate access to Internet for $24.95 a month after Xtra announced that it intended to do the same. Ihug has been offering this new flat rate deal for several months.

- Telecom announces the annualised cost of the Kiwi Share Obligation was $167 million under the Government mandated methodology prescribed in the Telecommunications (Information Disclosure) Regulations 1999.

October 2000

- The Minister of Communications releases the final report from the Ministerial Inquiry into Telecommunications. The Inquiry recommends:

    - a single regulatory framework covering all electronic communication services with the establishment of the Electronic Communications Commissioner.

    - the designation (enabling pricing and access obligations to be set) of interconnection with Telecom's fixed wire network, including data tail access and wholesaling of retail services by Telecom.

    - the specification (enabling access obligations to be set) of interconnection between all networks, carrier pre-selection from all networks, wholesaling of 2½G mobile services, roaming between compatible 2½G mobile networks, co-location of mobile cell sites and Sky Television's conditional access system.

    - that access objectives should be applied to assess whether specification or designation of a service is desirable. The access objectives are to promote the long-term interests of existing and potential end users of electronic communications services by any or all of the following:

        - facilitating efficient competition in markets for electronic communications services;

        - promoting any-to-any connectivity to the extent that it is efficient; and

        - encouraging the efficient use of, and the efficient investment in, the infrastructure by which electronic communications services are provided.

- Telecom and Clear announce a Relationship Package. The Package incorporates agreements on interconnection and wholesale–related matters and commits both sides to a more open and commercial relationship.

- Vodafone announces that its customers send between 500,000 to one million text messages every day.

- Vodafone and Telstra Saturn announce an alliance allowing the two companies to work together to bridge the technology gaps and develop new, seamless services. The alliance will enable Telstra Saturn to deliver broadband to its customers over a wider range of access mediums by extending broadband services to reach Vodafone mobile users.

November 2000

- Telstra Saturn and Television New Zealand (TVNZ) sign a memorandum of understanding that will allow TVNZ to provide digital free to air television service and Telstra Saturn to provide a nation-wide subscription service as part of bundle of convergence services.

- First commercial traffic starts to flow across Telecom's Southern Cross cable. The cable will mean a 120 fold increase in bandwidth capacity for New Zealand.

- The Government announces changes to the Consumer Guarantees Act 1993 to confirm the coverage of utilities (including telecommunications).

December 2000

- The Government announces its response to the Ministerial Inquiry into Telecommunications. The objective of the new regime is to ensure delivery of cost efficient, timely, and innovative telecommunications services on an ongoing, fair and equitable basis to all existing and potential users. The key features of the new regime are:

    - the establishment of a Telecommunications Commissioner in the Commerce Commission with the powers to resolve disputes between industry players over key services;

    - the immediate designation (enabling pricing and access obligations to be set) of:

        - interconnection with Telecom's fixed telephone network;

        - wholesaling of Telecom's fixed network services; and

        - number portability, including 0800 number portability;

    - the deferred specification of fixed to mobile carrier pre-selection on Telecom's network;

    - the provision for the Telecommunications Commissioner to make recommendations to the Minister of Communications for regulation of other services in the future; and

- the upgrade of the Kiwi Share to provide data capability to virtually all New Zealanders (9.6kbps to 99% of residential lines and 14.4kbps to 95% of residential lines)

- plans to establish an Information Society Initiative to facilitate a partnership between Government, industry and local communities in relation to measures that will promote the information economy in New Zealand. This includes considering issues relating to access to bandwidth in New Zealand.

- Clear announces Zfree (the largest free Internet provider) has reached 250,000 registered users. Clear suspends new registration to ensure Zfree's quality is maintained with the network capacity currently available. Clear enters new interconnection agreement with Telecom which effectively stops / places a cap on interconnection payments where interconnection between the two networks is substantially out of balance.

- Ihug launches Ultra Lite, a new high-speed service costing $49.95 per month. Ultra Lite will deliver 256kbps to residential customers in selected regions.

January 2001

- The Government announces the conclusion of the 2GHz spectrum auction. Bidding for 2GHz spectrum closed at $133 million. The spectrum auction observed the entry of new players in the market. Second generation spectrum has been purchased by Telecom, Clear, Vodafone, Telstra Saturn and Northelia, and third generation spectrum by Telecom, Clear, Vodafone and Telstra Saturn.

- Ihug announces plans to enhance its high-speed service utilising two-way high-speed "always on" wireless service that will allow upstream transfers of up to 512kbps and downspeed connection of up to 2mbps. The "always on" service will deliver greater choice to consumers by allowing them to bypass their local loop telephone provider.

- Telecom announces a new monthly residential phone line rental for its Wellington and Christchurch customers of $29.95;or monthly residential line rental plus a choice of two value added service for $37.95; or monthly residential line rental plus three value added services for $39.95.

February 2001

- Telecom and Sky Television agree to launch nationally a range of packages that bundle telephone and digital television to Sky Television and Telecom customers. This is after a 1 year trial that offered to 6,500 residential customers, mostly in Wellington and Christchurch. Telecom and Sky Television announce that they are driving towards integration between telephone, the Internet and television.

March 2001

- Telstra Saturn switches on the first stage of its residential cable network in Christchurch, which passes around 8,000 homes. Christchurch is the company's next step into the residential market following Wellington.

May 2001

- The process of recruiting a Telecommunications Commissioner commences with advertisements for the position appearing in local and international publications.

- The Telecommunications Bill is introduced to Parliament. This Bill contains the legislation to implement the new telecommunications regulatory regime proposed by the Government in response to the recommendations of the Ministerial Inquiry into Telecommunications.

July 2001

- Telecom launches its nationwide CDMA mobile phone network. CDMA mobile technology offers 10 times the capacity of analogue and three to four times that of other digital platforms.

- Vodafone New Zealand reaches its millionth mobile phone customer, bringing New Zealand's total mobile phone users to around 2.25 million and mobile penetration to around 60 percent of the population.

August 2001

- Telecom reaches a commercial agreement with Clear Communications that will enable Clear to offer non-code access for land to mobile calls made from Telecom fixed lines.

3. Key Statistical Information on the New Zealand Telecommunications Industry

32. This section details statistical information on the New Zealand telecommunications services industry performance in tabular and graphical form. It is updated periodically when more up to date information is available. It is important to note that some data is not readily comparable with similar information from other countries and that some information is only available for one or a small number of carriers and may not be representative of the telecommunications services sector as a whole.

3.1 Service Demand

33. Summary data on total telephone line connections, cellular connections, national call minute volumes and international call minute volumes.

Public Switched Telephone Network Main Lines[6]

(in 000s)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	June 2000[7]	June 2001
Telecom	1,444	1,469	1,493	1,534	1,593	1,658	1,719	1,782	1,840	1,868	1,679	1,674
Clear								< 1*	~1*	~4*	~20*	~25*
Saturn										~7.5*		
Telstra (NZ)										< 1*		
Telstra Saturn											32*	40*

*estimated

Cellular Connections[8]

(in 000s)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	June 2000	June 2001
Telecom	29	54	72	100	144	229	340	423	476	609	980	1,298
BellSouth	-	-	-	-	2.5	12	38	68	106	-	-	-
Vodafone[9]										182	562	990
Penetration Rate (%)			2.1	2.9	4.1	6.4	9.3	13.6	16.5	21	40	59

[6] As at 31 March.

[7] Telecom changed measurement basis to exclude internal and test lines (about 65,000), payphones, centrex and ISDN lines.

[8] As at 31 March.

[9] BellSouth sold to Vodafone in November 1998.

National Call Minute Volumes[10]

(millions)	1997	1998	1999	June 2000	June 2001
Telecom	2,258	2,419	2,544	2,885	3,091

International Outward Call Minute Volumes[11]

(millions)	1992	1993	1994	1995	1996	1997	1998	1999	June 2000	June 2001
Telecom	151	145	165	203	242	265	304	439	571	651

3.2 Industry Operational Efficiency

34. Telecom has progressively improved its efficiency measured in terms of lines per operating company employee and a range of other indicators (see below), as follows:

Year to 31 March	1991	1992	1993	1994	1995	1996	1997	1998	1999	June 2000	June 2001
Operating Company Employees	12,774	12,183	10,788	7,872	6,785	6,868	6,882	6,551	6,289	4,463	5,242
Other Employees	2,151	1,379	1,550	1,385	1,523	1,685	} 1,828	1,585	1,510	1,254	
Pacific Star	-	-	-	-	260	578					
Lines per Operating Co employee	108	123	142	202	244	250	258	283	300		
Operating Expenses % Operating Revenues				64.6	63.6	62.9	60.4[12]	60.6	59.3	60.6	58.0

3.3 International Comparisons Statistics

35. The OECD has established a methodology for comparing residential telephone service charges, business service charges, data circuit charges, cellular charges and a number of other services tariffs. The methodology is based on costing out a representative basket of component services and quantities, such as installation, access and call usage, in specified amounts, in each country's currency, and then converting to a common base via the use of

[10] to 31 March, includes 0800, excludes fixed to cellular.

[11] millions in year to 31 March.

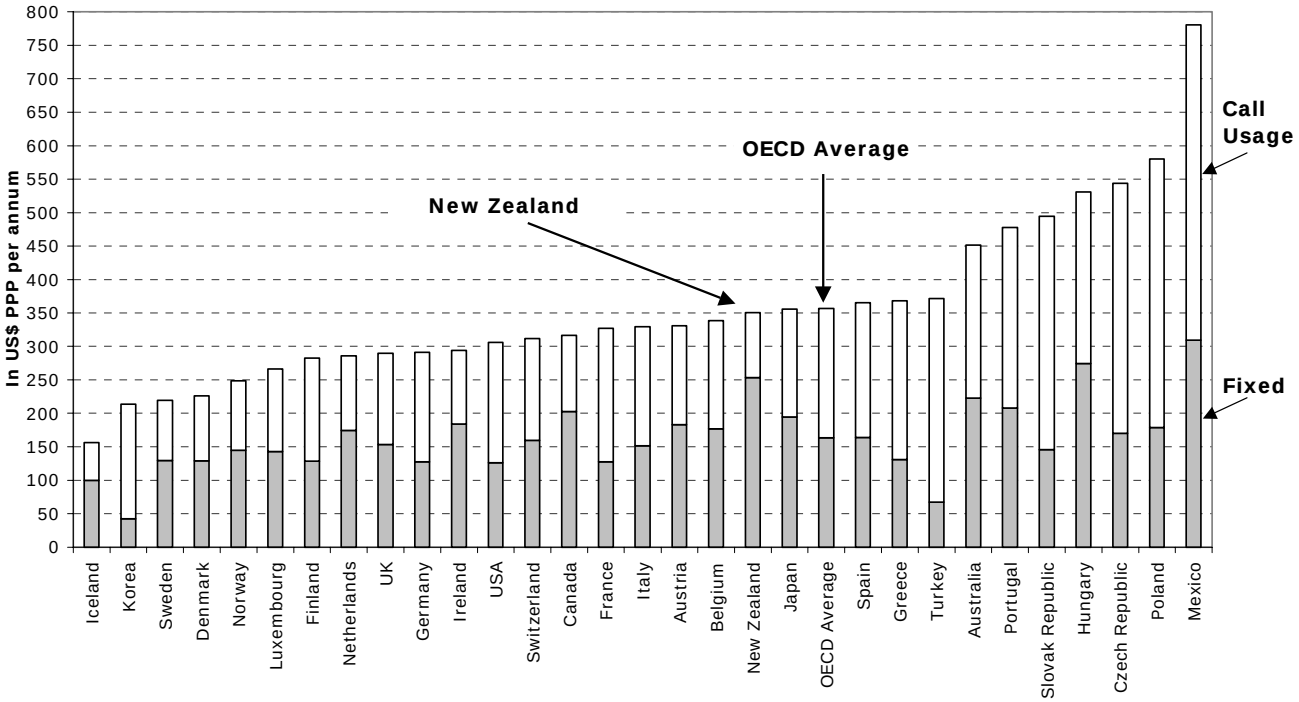
[12] Excludes 1997 abnormal items, includes Pacific Star which was classified by Telecom as a discontinued business operation.

"purchasing power parity exchange rates"[13] (PPP). While there is scope to argue that the methodology may not properly be representative of users' actual cost structures and that the use of PPP exchange rates is problematic, the method never-the-less allows direct comparisons of typical telecommunications services costs between countries.

3.3.1 OECD Basket Comparisons of Residential and Business Telephone Service Charges

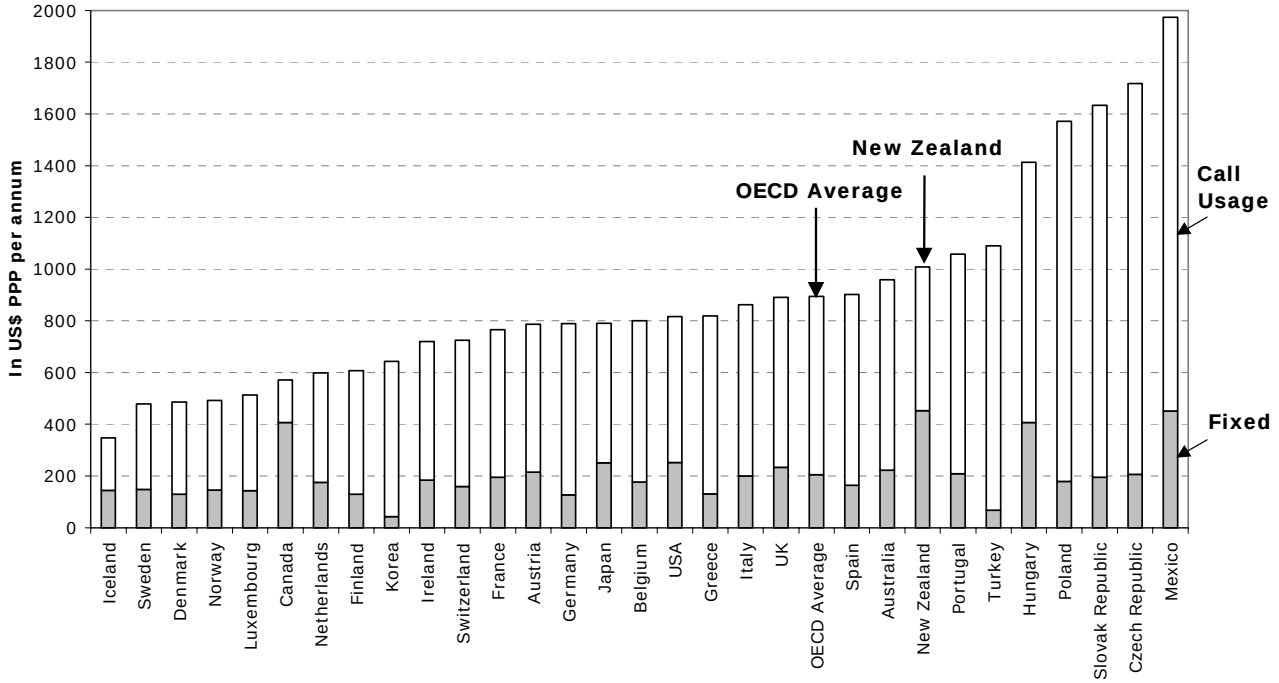
36. The following charts show the comparative ranking of residential and business telephone services tariffs for OECD countries, based on the standard OECD telephone service tariff basket models. According to the May 2001 results New Zealand is ranked 19th in residential and 23rd in business, out of 30 countries.

OECD Residential Telephone Service Basket Tariff Comparisons, PPP Exchange Rates, Excluding Taxes, May 2001, ~ 400 Minutes per Month



[13] PPP exchange rates are based on comparison across countries of the cost of a representative basket of consumer goods and services - hence the term purchasing power parity.

OECD Business Telephone Service Basket Tariff Comparisons - May 2001, PPP Exchange Rates, Excluding Tax



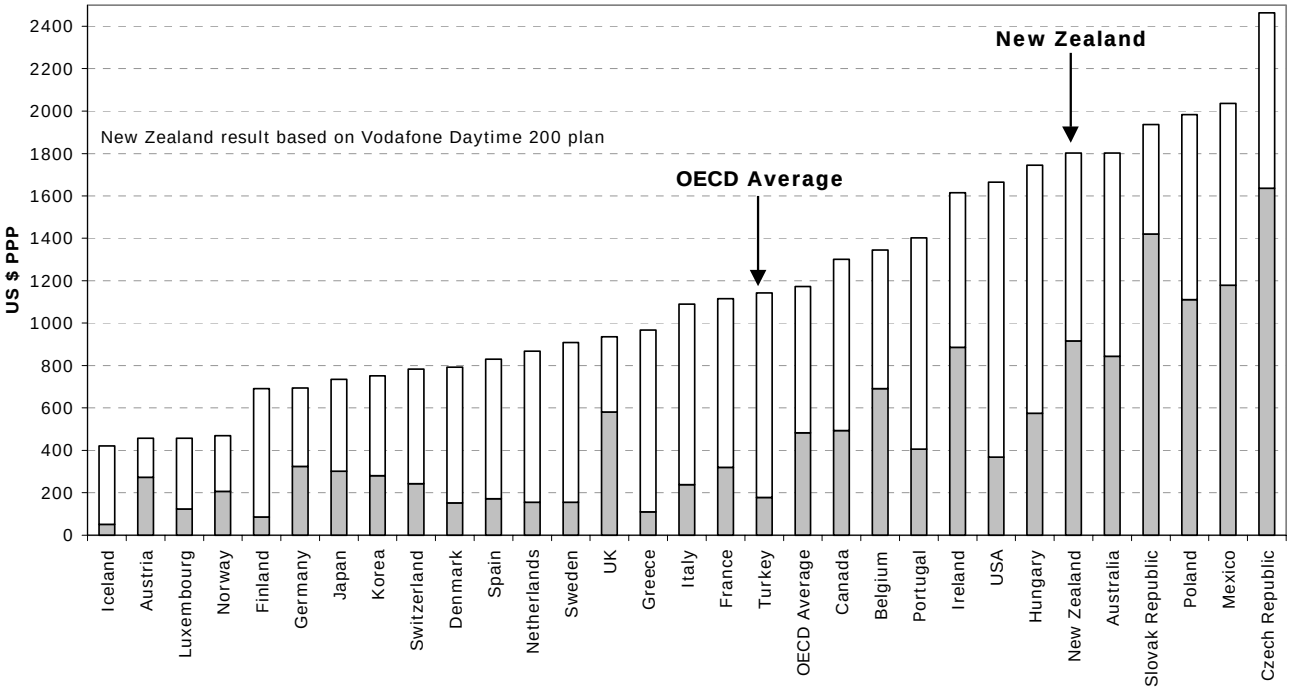
37. The standard OECD residential telephone service tariff basket model is representative of a user who makes about 400 call-minutes of local and national calls per month. However, New Zealand residential telephone service users' average per monthly total call use is understood to be around 700 call-minutes per month. In addition, Internet use is increasing rapidly. In August 2000 Telecom said that that about 12 billion minutes of line is tied up each year with Internet calls, which is in excess 500 minutes per access line. Clearly the standard OECD residential telephone service model (400 call-minutes) is not representative of average New Zealand residential telephone service user call demand.

38. A simple way of assessing New Zealand's relative performance at higher calling rates is to increase the use component of the standard OECD residential telephone service model. This has been done in the following graphical result where the use component has been doubled. This model result is representative of users with an average demand of about 800 call minutes per month. Using the May 2001 OECD results New Zealand's ranking using this approach was 12th out of the 30 OECD countries.

3.3.2 OECD Basket of Mobile Service Tariff Comparisons

39. The following chart shows the comparative ranking of mobile telephone tariffs for OECD countries based on the OECD/Taligen digital mobile tariff basket model. New Zealand is 25th out of 30 countries.

OECD/Taligen Mobile Basket Tariff Comparison - May 2001, PPP, Excluding Taxes (~250 Call-Minutes per Month)



3.4 New Zealand Telecommunications Consumer Price Indexes

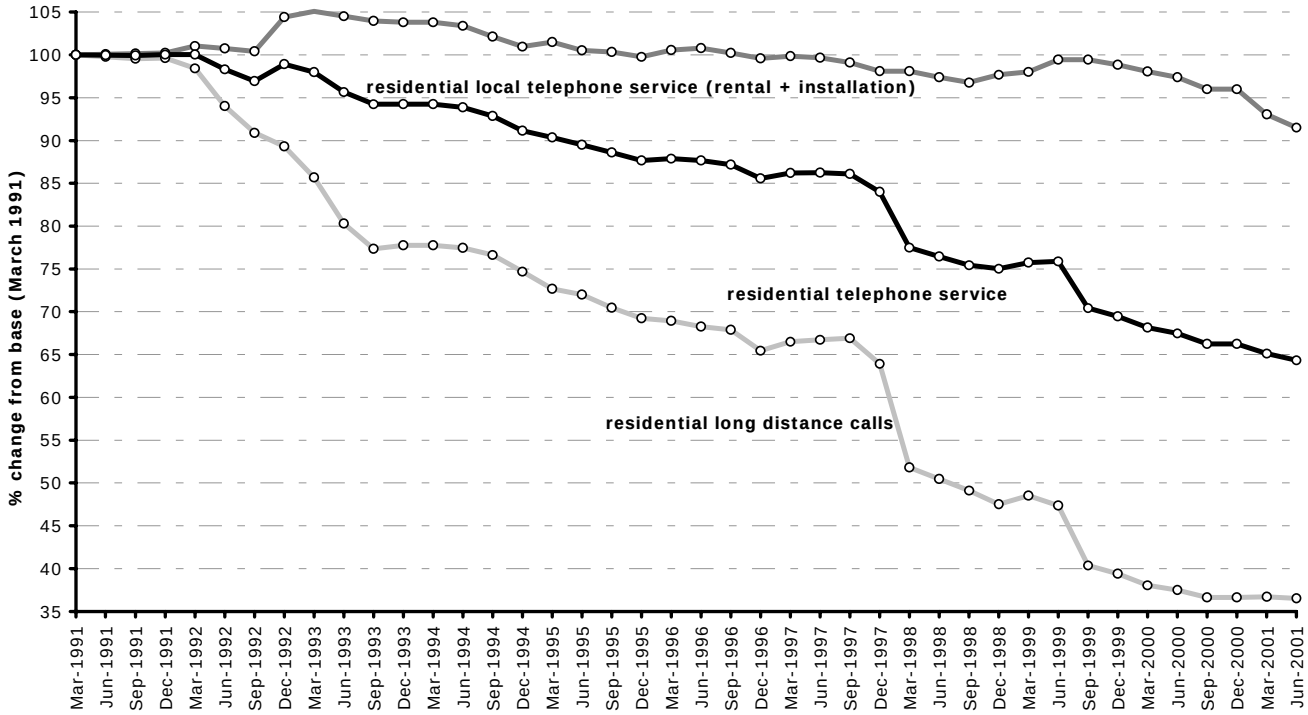
40. Statistics New Zealand residential telephone services consumer price index changes (in real terms) are shown in the graph below. This index comprises a basket of the following services: residential local telephone service including an installation component, national and international calls.

41. Notable features are:

- Long distance call prices have declined significantly. Statistics New Zealand's residential telephone services consumer price index indicates that since the establishment of long distance calls competition in March 1991, real long distance call prices have reduced on average by about 10% per annum (pa).;

- The price of residential local telephone service and long distance calls declined on average by about 4% pa since March 1991;

Statistics New Zealand Real Residential Telephone Service Price Index: Percent Change from March 1991 Index

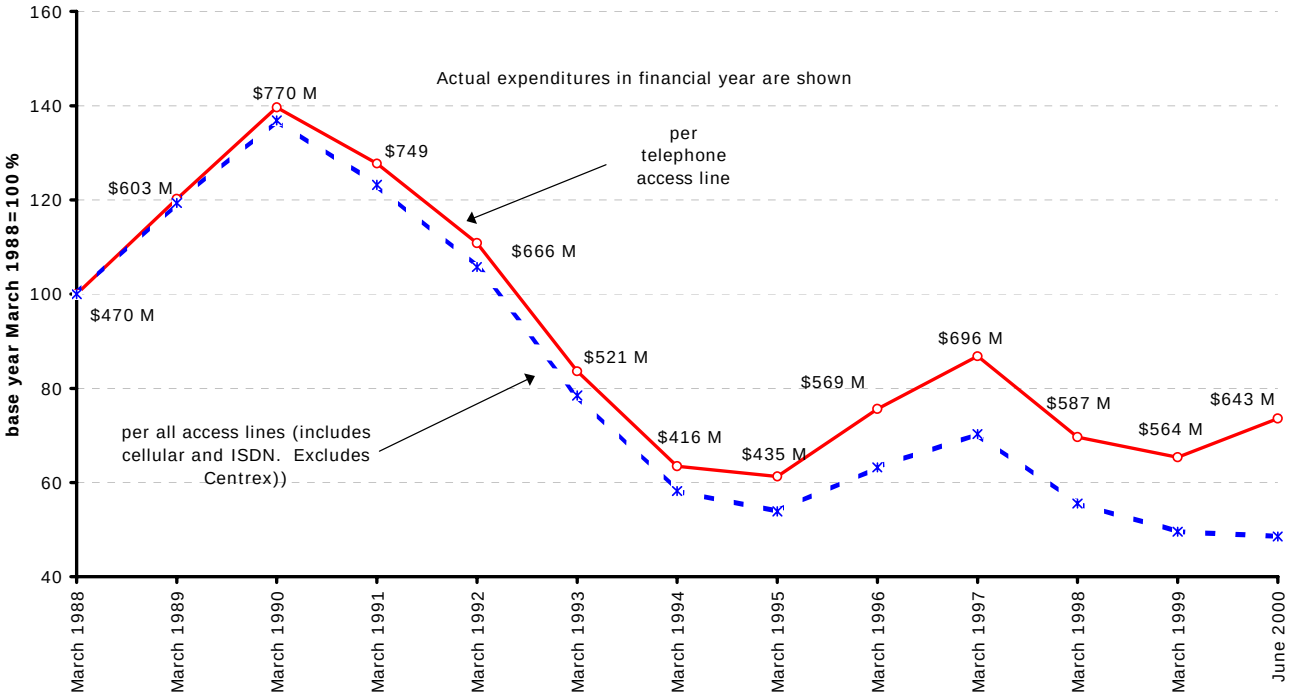


3.5 Telecommunications Capital Expenditure Statistics

42. The graph below shows Telecom's real average investment per telephone access line per annum on a relative basis. The base year for comparison is the financial year ended March 1988.

43. Telecom substantially updated many aspects of its core network infrastructure and associated services in the early 1990s. In recent times Telecom has invested substantially in expansion of its cellular network, information systems to support improved services and reduce operational costs, Internet service access and cable TV service (now discontinued).

Trend in Telecom's Real Investment per Access Line per Annum Relative to March 1988 (CPI Used as the Deflator)



3.6 Interconnection

3.6.1 Brief Summary of Main Interconnection Charges in New Zealand

(Note: All charges are GST exclusive)

Calls Passed Between Local Telephone Networks

44. Telecom now has limited “bill and keep” type agreements with its main competitors for calls passed between local telephone networks (e.g. Telecom – Telstra Saturn). Generally, this means that so long as the number of calls between each local network are roughly in balance neither party charges the other for taking or receiving calls.

45. The term “call sink” has been introduced to deal with the problem of the one-way traffic to particular numbers. Under the recent interconnection agreements there is no charge for calls passed to call sinks and these calls are not counted in the balance calculations for billing.

Calls Passed Between a Local Telephone Network and a Long Distance Call Provider (i.e. Toll Bypass)

46. Typical toll bypass (e.g. Telecom – Clear – Telecom) charges consist of a per-call charge of 0.5 cents and then an origination and termination charge based on the area where the call originates and terminates respectively. There are three different types of Local Interconnect Calling Areas (LICAs) and, as outlined below, which are roughly analogous to major cities, secondary cities and outlying towns.:

LICA where call originates or terminates	Per-minute charge payable
Primary Major LICA	2.75 cents
Secondary Major LICA	3.5 cents
Minor LICA associated with a Major	4.5 cents

Calls Passed Between Mobile Networks

47. There is a "bill and keep" type agreement between Telecom and Vodafone. This means that so long as the number of calls between each local network are roughly in balance neither party charges the other for taking or receiving calls.

Calls Passed Between a Mobile Network and a Fixed Network

48. This is fixed to mobile and mobile to fixed calls. These rates can vary but a typical rate (e.g. that negotiated with Telstra Saturn) is:

i. 29.5 cents per-minute for the first minute; and

ii. a per-second charge, for each second of the Call after the first minute, of 1/60 of that per-minute charge;

Set up Charge for Toll Bypass Preselection

49. This facility allows customers to use an alternative provider for long distance calls without having to dial a prefix number before every toll call. Telecom charges $7.50 to set up non-code access.

Local Number Portability Charges

50. The charges are $17.50 per local number to set up call forwarding and 0.5 cents per minute for each call forwarded.

3.6.2 List of Interconnect Agreements

51. The following table lists the more significant telecommunications network interconnect agreements agreed since January 2000.

Interconnect Agreement	Summary	Start Date	Expiry Date
Telecom – Clear Communications	Deals with a number of complex one-off issues via caps and transitional arrangements. Effectively allows a limited form of bill and keep in some circumstances. No termination charge for calls to a "call sink".	1 October 2000	1 October 2001
Telecom – Telstra Saturn	Allows for bill and keep when calls roughly in balance. No termination charge for calls to a "call sink".	1 August 2000	1 August 2002
Telecom – Vodafone	Allows for bill and keep for mobile to mobile calls when calls roughly in balance.	13 July 2001	30 June 2003

52. Most Telecom interconnect agreements have a comparability clause which in the event of a party to another Telecom interconnect agreement negotiating a lower rate for the same service with Telecom, would require Telecom to agree to include the new rate in other similar agreements containing the comparability clause.

53. Copies of Telecom's interconnection agreements are required to be made publicly available on Telecom's website under the Telecommunications (Information Disclosure) Regulations 1999. See:

http://www.telecom.co.nz/content/0,2502,200656-1553,00.html

54. Interconnection agreements between other operators are not required to be disclosed.

3.7 Pricing and Tariffs

55. This section provides examples of pricing for some key telecommunications services in New Zealand for illustrative purposes.

3.7.1 Local Telephone Service Pricing and Service Availability

Business Telephone Service

56. Telecom's standard rates are in the following table. Some business telecommunications services users can typically qualify for up to a 10% discount on business telephone line rentals and call usage charges under Telecom's premier plan.

Telecom New Zealand Business Telephone Service	**Per annum rental (exc GST)**
Standard Business Line (analogue line)	$701.04
Business City Access	$595.92
Business Metro Access	$576
Business City Access II	$504
Metro ISDN Basic Rate access (2x64k)	$1,188
City ISDN Basic Rate access (2x64k)	$1,344
Regional ISDN Basic Rate access (2x64k)	$1,800
Local call charges for business telephone service including ISDN calls	Peak 4.55 cents/minute Off-peak 0.99 cents/minute

57. Telstra Saturn offers business line rental for $599.40 per annum (exc GST).

Residential Telephone Service

58. Standard Telecom local residential telephone service is $36.34 per month (including GST). This includes unlimited local calls. Other options are available, including HomeLine Economy which has a monthly rental of $24.75 (including GST) plus a 20c charge for each local call. Calls longer than two hours are charged an additional 20c per two hours.

59. Telecom's Wellington and Christchurch residential customers have a lower monthly line rental of $29.95, with the option of adding two valued added services for a total monthly charge of $37.95 or three valued added services for $39.95.

60. Saturn Communications offers a local residential telephone service for $29.95 per month (includes unlimited local calls), available in Saturn's service areas in Wellington, the Kapiti Coast and some Christchurch suburbs. Saturn offers a $10 per month discount for subscriber who also take up their cable TV service (prices include GST at 12.5%).

3.7.2 National (Toll) Call Pricing

61. Many national call service providers offer various specials to customers on a regular basis. The rates below are only intended to give an indication of pricing for direct dial national calls for residential customers.

62. Under Telecom's Quick Call Plan, residential customers can pay a $5 a month flat fee (GST inclusive) to access the following per-minute rates.

Time period	Rate per minute
Peak (Weekdays 8am-6pm)	$0.29
Off Peak (Weeknights 6pm-8am, weekends)	$0.09

63. Alternatively, Telecom residential direct dial national call customers can opt for $5 capped national calls at any time with the $5 Anytime Plan or $3 capped off-peak national calls at off-peak times only with the $3 Weekends & Weeknights Plan. Telstra Saturn offers an equivalent capped $3 national call rate for its residential customers in the off-peak period (GST inclusive). Toll by-pass operators such as Clear also offer similar or better deals for national calls.

64. Telecom also offers two flat-fee options which provide residential customers with unlimited free calling into a neighbouring local calling area or unlimited off-peak free calling into a more remote local calling area. The first, Favourite Place - Neighbouring Area, costs $19.95 a month. The second, Favourite Place - New Zealand, costs $29 a month (GST inclusive).

3.7.3 Cellular Tariffs

65. Telecom has a wide range of cellular plans for customers. The following table briefly summarises some of the residential plans (GST inclusive charges).

Plan	Monthly Access Fee	Free Minutes	Peak Usage Charge per minute	Off-Peak Usage Charge per minute
Go Prepaid	None	-	$1.29	$0.49
Go Mobile - Anytime	$14.95	15 Anytime	$1.29	$0.49
Go Free 100	$24.95	100 Off-Peak	$0.99	$0.49

Note: See Telecom's website (http://www.telecom.co.nz) for more information.

66. Telecom charges 71c per minute (GST inclusive) for a residential telephone customer to call a Telecom cellular phone in New Zealand, or the off-peak call plan can be selected which gives an off peak rate of 99c/m and a peak rate of 49c/m. Most of the smaller carriers offer cheaper flat rates for making fixed to cellular calls.

67. Vodafone New Zealand also offers a range of cellular rental plans. The pre-pay Nights and Weekends option prices peak period calls at $1.39 a minute and off-peak calls at 49c/m while the pre-pay Anytime option is a flat 89c/m. A base post-pay option is priced at $20 per month, which includes 70 minutes of off-peak calls (7pm-7am weekdays, all weekends and public holidays) anywhere in New Zealand. Other calls cost 49c/m off-peak and $1.39 per minute peak. Various other plans are available -- refer to the Vodafone web site.

68. In New Zealand, cellular phone subscribers do not pay for calls received, only calls made.

3.7.4 International Tariffs

69. The international market is extremely competitive, with Telecom, Clear, Telstra Saturn, Global One, Worldxchange and Compass among the companies offering service. Tariffs should be requested from suppliers as prices change frequently and discounting and special deals are common, as companies react to the intense competition. Weekend international calls are currently (as at August 2001) capped at $4 to Australia and $8 to the US, UK, Canada and Ireland. Capped off-peak call rates to a range of other destination are available for $15 to $25.

3.8 Telecom's Kiwi Share Obligations

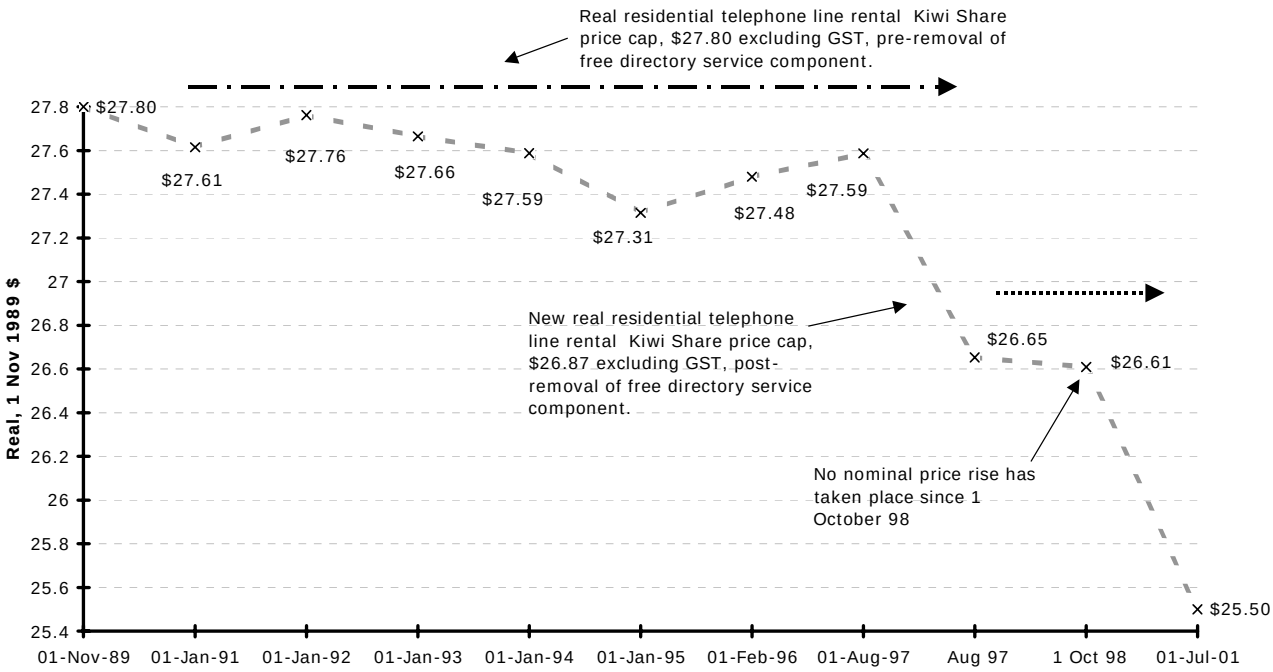
70. Since 1 November 1989, eight increases to residential rentals have been implemented. The telephone rentals (not including GST) are set out below.

Date of Change	**New level**
1 November 1989	$27.80
1 January 1991	$29.19
1 January 1992	$29.62
1 January 1993	$29.91
1 January 1994	$30.25
1 January 1995	$30.79
1 February 1996	$31.88
1 August 1997	$32.81
1 August 1997	$31.70[14] (free directory service removed)
1 October 1998	$32.30

71. The graph below shows that the real price of Telecom's standard residential telephone service rental (not including GST) has met the requirements of the Kiwi Share obligations, as the real price has not exceeded the level charged on 1 November 1989.

[14] Note: In August 1997, after obtaining the Government's agreement, Telecom reduced the standard residential telephone service option by $1.25 (GST inclusive) in exchange for the withdrawal of the free directory service component and the introduction of a $0.50 charge per residential user directory service inquiry.

Telecom's Residential Telephone Service Rental Tariff, November 1989 Real $



3.9 Residential Telephone Service Quality Indicators

72. When Telecom was privatised in 1990 and the price of residential telephone service was capped by the Kiwi Share requirements, there was some concern that residential telephone service standards might not be maintained. To address this concern Telecom agreed in May 1990 to a request from the Minister of Consumer Affairs, to voluntarily publish indicators of the quality of the residential telephone service, on a half yearly basis, via media releases and in company reports.

73. Ten telephone service indicators were initially agreed upon which included service connection times, fault incidence, operator response times, SPC exchange availability, payphone availability and billing disputes. The objective was to provide residential customers with a clear understanding of Telecom's telephone service performance, and provide a safeguard against declining service standards.

74. In 1995 the Ministry of Consumer Affairs, in conjunction with Telecom, reviewed the adequacy of the quality of service indicators and a set of new indicators was agreed. The new set of indicators and recent performance follow:

Quality of Service Indicators (Residential telephone service requests = SRs)	**Oct 95 - Mar 96**	**Apr 96 - Sep 96**	**Oct 96 - Mar 97**	**Apr 97 - Sep 97**	**Oct 97 - Mar 98**	**Apr 98 - Sep 98**	**Oct 98 - Mar 99**	**Apr 99 - Sep 99**	**Oct 99 - Mar 00**	**Apr 00 - Sep 00**	**Oct 00 - Mar 01**
Percentage of SRs that meet requested installation time	94	93.3	90.8	90.1	87.7	89.3	93.6	89.6	88.2	88.5	87.6
Percentage of "intact" SRs completed within 24 hours of request	96	95.8	95.5	96.8	96.9	96.4	97.2	97.8	98.3	98.8	99.2
Percentage of "intact" SRs not completed within 48 hours of request	0.7	0.7	0.8	0.7	0.8	0.7	0.4	0.5	0.5	0.3	0.2
Percentage of SRs outstanding 96 hours after requested time	0.7	1.0	1.5	1.7	1.5	0.9	0.5	0.7	0.6	0.3	0.2
Faults per 100 residential circuit ends	41	46	41.4	43.8	41.3	46	40	39.5	24.3	19.3	30.7
Percentage of repair commitments that meet the customer’s request	78	80	80	80	82	84	91.3	92.7	93.8	91.5	92.0
Percentage of faults cleared within 24 hours	60	54	60	59	67	70	79.2	79.5	85.8	82.2	85.7
Percentage of faults outstanding after 96 hours	3	7.1	3.3	4.9	2.9	2.7	1.3	2.0	1.2	2.1	1.8
Call minutes lost in electronic exchange outages (thousands)	52	27	12	211	54	656	400	398	424	87	160
Number of written residential escalated complaints	649	1130	951	982	1063	1168	771	907	201	127	153
The percentage of (correct residential telephone white page listings / total listings)	99.96	99.95	99.95	99.97	99.94	99.98	99.85	99.91	99.89	99.93	99.93
Number of party-lines	960	808	661	258	251	228	203	200	197	197	194
Average directory assistance answering time (seconds)	10.6	10.5	20	11.1	6.7	4.8	8	7.2	7.7	6.4	7.7
Average time taken to handle directory assistance calls (seconds);	33	33	32	31	29	28	32.5	34	29.5	29.2	28.8
Availability of electronic payphones (%)	98	97.7	97.9	98.4	98.2	98.6	98.7	98.8	99.4	99.4	99.4
Local calls lost as percentage of total calls									0.14	0.12	0.18
0876 calls lost as percentage of 0867 calls									0.14	0.12	0.18

4. Annex I: List of Registered Network Operators

(made pursuant to the Telecommunications Act 1987)[15]

	Effective
Telecom New Zealand Ltd	April 1989
Clear Communications Ltd	November 1990
Trans Power New Zealand Ltd	August 1992
New Zealand Rail Ltd	March 1993
CityLink Limited	July 1996
Globalstar New Zealand Ltd	April 1997
University of Canterbury	February 1998
The Internet Group Ltd	December 1998
Vodafone New Zealand Ltd	August 1999
Tangent Limited	October 2000
United Networks Limited	October 2000
Powerco Limited	July 2001

[15] Please note that this list does not include entities which have been granted network operator designation for the purposes of providing facilities for broadcasting.

5. Annex II: List of Registered International Operators

(made pursuant to the Telecommunications (International Services) Regulations 1994)

	Effective
Global One Communications Ltd	27 March 1995
Telecom New Zealand Ltd	1 May 1995
Optus Networks Pty Ltd	1 May 1995
Clear Communications Ltd	1 May 1995
Asia Pacific Telecom (NZ) Ltd	27 July 1995
Telstra Saturn Ltd	19 September 1995
WorldxChange Ltd	27 October 1995
Pacific Gateway Exchange New Zealand Ltd	3 May 1996
Voyager New Zealand Ltd	13 January 1997
Compass Communications Ltd	1 August 1997
NewCall Communications Ltd	12 September 1997
Facilicom International LLC Ltd	18 March 1998
The Internet Group Ltd	22 October 1998
City Telecom (New Zealand) Ltd	8 December 1998
Startec Global Communications UK Ltd	8 December 1998
Reach Pacific Ltd	1 January 1999
Teleglobe Australia Pty Limited	29 March 1999
Shinawatra Satellite Public Company Limited	13 October 1999
Net2Phone Global, BV	11 February 2000
Teleglobe Australia Pty Limited	29 March 1999
Shinawatra Satellite Public Company Limited	13 October 1999
Net2Phone Global, BV	11 February 2000
E Phone Ltd	10 July 2000
Concert Global Networks New Zealand Company	7 September 2000
Vodafone New Zealand Ltd	14 December 2000
Q-Tel (NZ) Limited	21 December 2000
Telstra Global Wholesale NZ Limited	15 January 2001
edge2net New Zealand Ltd	7 February 2001