

OECD REVIEWS OF REGULATORY REFORM

REGULATORY REFORM IN CANADA

FROM TRANSITION TO NEW REGULATION CHALLENGES

**REGULATORY REFORM IN THE
TELECOMMUNICATIONS INDUSTRY**



ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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FOREWORD

Regulatory reform has emerged as an important policy area in OECD and non-OECD countries. For regulatory reforms to be beneficial, the regulatory regimes need to be transparent, coherent, and comprehensive, spanning from establishing the appropriate institutional framework to liberalising network industries, advocating and enforcing competition policy and law and opening external and internal markets to trade and investment.

This report on *Regulatory Reform in the Telecommunications Industry* analyses the institutional set-up and use of policy instruments in Canada. It also includes the country-specific policy recommendations developed by the OECD during the review process.

The report was prepared for *The OECD Review of Regulatory Reform in Canada* published in September 2002. The Review is one of a series of country reports carried out under the OECD's Regulatory Reform Programme, in response to the 1997 mandate by OECD Ministers.

Since then, the OECD has assessed regulatory policies in 16 member countries as part of its Regulatory Reform programme. The Programme aims at assisting governments to improve regulatory quality — that is, to reform regulations to foster competition, innovation, economic growth and important social objectives. It assesses country's progresses relative to the principles endorsed by member countries in the 1997 *OECD Report on Regulatory Reform*.

The country reviews follow a multi-disciplinary approach and focus on the government's capacity to manage regulatory reform, on competition policy and enforcement, on market openness, specific sectors such as telecommunications, and on the domestic macro-economic context.

This report was prepared by Dimitri Ypsilanti of the Directorate on Science, Technology, and Industry of the OECD. It benefited from extensive comments provided by colleagues throughout the OECD Secretariat, as well as close consultations with a wide range of government officials, parliamentarians, business and trade union representatives, consumer groups, and academic experts in Canada. The report was peer-reviewed by the 30 member countries of the OECD. It is published under the authority of the OECD Secretary-General.

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REGULATORY REFORM IN TELECOMMUNICATIONS: CANADA

Executive Summary

The telecommunications sector in OECD countries has seen significant regulatory reform in recent years. Twenty-six OECD countries had, in 2001, unrestricted market access to all forms of telecommunications, including voice telephony, and infrastructure investment, compared to only a handful just a few years ago. The success of the liberalisation process depends on the presence of a transparent and effective regulatory regime that enables the development of full competition, while effectively protecting other public interests.

This report examines Canada's regulatory reform effort thus far and its impact on the performance of telecommunications markets. Canada is one of the leading OECD countries in terms of its performance in the telecommunication sector. Its best practice performance is largely due to its regulatory processes and frameworks and policy structures. The development of competition in the telecommunication service sector has shown good progress but, as is the case for other OECD countries, is still insufficient for local telephone service and local access and in the short distance leased line market. But many of the contentious regulatory problems that have marred performance in other OECD countries have been largely resolved in the Canadian telecommunication context. Low prices, good quality service and relatively rapid diffusion of new technologies characterise the Canadian telecommunication landscape. The regulatory framework is transparent and allows for full participation of all interested parties. Consensus building has been a key factor in the development and implementation of regulations.

There is, however, scope, for continuing reform of the Canadian telecommunication policy framework and regulatory structures and processes. The elimination of foreign ownership restrictions in the telecommunication sector is a key requirement in Canada, increased enforcement powers of the Canadian Radio-television and Telecommunications Commission (CRTC) in particular as regards fining is required, an acceleration in the CRTC decision making process is necessary and moving more quickly in implementing a convergence policy to integrate broadcasting telecommunications and Internet based services is also important. The government has played a very positive role by recognising the importance of electronic commerce and new communication technologies and services for the economy. However it should ensure that its enthusiasm to accelerate these new technologies and services does not distort market forces and it should not resort to subsidisation of infrastructures, except where strictly necessary.

1. The telecommunications sector in Canada

1.1. *The national context for telecommunication policies*

The telecommunication service industry plays an important role in the Canadian economy accounting for 2.7% of GDP and 4.6% of capital expenditure.¹ Canada's telecommunication market, as measured by revenue, is the 7th largest in the OECD. With 41 access lines per 100 population in 1980, Canada had attained 65.5 access channels² per 100 population by 1999 and on this criterion is ranked 7th in the OECD. The high penetration in telephony has resulted in Canada having 98.4% of households with telephone access. The availability of an ubiquitous public switched telecommunication network (PSTN), coupled with a well developed cable television network which

passes 90% of Canadian homes, means that Canada is well placed to develop high speed Internet access and create effective competition in the communications market in the longer term.

Canada's industrial structure, much of it based on branch plants from the US, and the ease in circumventing Canadian networks in the carriage of traffic, explains to a large part the early strategic objectives which formed the basis of the Telecommunications Act of 1993. This placed emphasis on Canadian ownership of public networks and use of Canadian networks for carriage of traffic (see below). Canada's geography and population distribution – the land mass is equivalent to 29% of that of all OECD countries and the population of 30 million has a distribution of three per square kilometre compared to an OECD average of 32 per km² – has been an important factor in the stress placed in Canadian telecommunications policy on universal service and service affordability.³ In this context much emphasis has been given by the regulator to ensure that high-cost telecommunication service areas, mainly the rural and remote areas, can also benefit from the improvements that competition brings in terms of quality of service, choice and access to new technologies.

In contrast to other OECD countries, Canada views telecommunications as playing an “essential role in the maintenance of Canada's identity and sovereignty....”⁴ It is in this context that two of the stated objective put forward in the Telecommunications Act are “to promote the ownership and control of Canadian carriers by Canadians”, and “to promote the use of Canadian transmission facilities for telecommunications within Canada and between Canada and points outside Canada”.

The Canadian government has consistently placed priority on Information society issues, electronic commerce and broadband. These issues have, from the mid-1990s received high priority from Industry Canada, the responsible government department. For example, an Information Highway Advisory council was established in 1994 and an information highway plan of action released in 1996.⁵ In 1997 the government put forward a goal of making Canada the most “connected” country in the world aimed at making sure that all Canadians have access to the “electronic highway and information economy by the year 2000”.⁶ The latest government initiatives in this area was the establishment of a National Broadband Task Force to provide the government with advice as to how to make high-speed broadband Internet services available to all Canadian communities by 2004.

The policy goal of stimulating the development and deployment of electronic commerce and having aspirations for “connectedness” are important, but the government needs to ensure that attempts to achieve these goals do not lead to distortions in the competitive process being developed for the telecommunication service sector or create difficulties for the regulator in achieving their main objectives. It also requires greater clarity over the costs and benefits of such policy, in particular who benefits and who pays.

1.2. General features of the regulatory regime, telecommunications market and market participants

1.2.1. Development of telecommunications in Canada

Regulatory reform in Canada to allow for the development of competition in the telecommunication service sector has been incremental and methodical, but somewhat cautious. It has finally achieved its end objective of eliminating nearly all monopolies that traditionally characterised the telecommunication service sector (see Table 1). This strategy has meant that only in 2000 the final steps were taken resulting in the liberalisation of all telecommunication markets. Nevertheless, it is an anomaly that some *de jure* monopolies still remain, although they are small companies, in several rural areas and small towns.⁷

At first sight the pace of change in the regulatory framework has appeared somewhat slow in Canada. For example, the framework for competition in local services was put forward four years after the 1993 Telecommunications Act, but this framework itself only provided the broad outline and not the details necessary to implement competition for local services. But, each of the key issues were tackled in a methodical way, such as eliminating to a large extent local loop subsidies before opening up local loop competition. Furthermore, the technical and operational details of the local competition framework were left to the CRTC Interconnection Steering Committee (CISC) to resolve. CISC includes representatives of industry, consumer groups and public interest groups and the CRTC. The slower and consensual process has probably been more successful than in many countries where rapid implementation of regulations meant that a number of necessary regulatory safeguards were incomplete resulting in much frustration by new entrants. Relative to a number of OECD countries, Canada has had a much smoother and less problematic implementation of its telecommunication regulatory safeguards. However, now that the basics are in place it can probably afford to accelerate change where it is needed.

The goals of the Telecommunications Act include affordability and universality (Sections a,b,h) on the one hand and reliance on market forces on the other hand.⁸ This creates a certain tension and requires that the regulator balance potentially conflicting objectives. Much emphasis has been placed in Canada on the notion of “affordability”, but as a concept this is imprecise and not very useful in developing an efficient telecommunications market. The notion has not, however, prevented the regulator from taking steps to rebalance prices in urban and in rural areas although it may have limited the extent that rebalancing was allowed to continue.

A key clause of the Act is the requirement for non-discrimination. Article 27 (2) of the Act requires that all telecommunication carriers shall ensure that they do not unjustly discriminate in providing services or give undue or unreasonable preference to any person including itself. The CRTC can decide whether this clause should or should not apply in particular cases. Since in competitive markets discriminatory pricing is an important tool for market participants, a judicious use of this tool by the CRTC is important to ensure effective competition. Non-discriminatory requirements are, in many instances, symmetric applying to all market participants.

Unlike the United States, Canada has avoided using structural solutions to create competition relying on a range of regulatory tools. Many of the key regulatory requirements were implemented early relative to most OECD European countries: equal access in 1994, line sharing in 1997, co-location and unbundling in 1998 and open access for DSL in 1998.

Table 1. Major events in Canadian telecommunications

Year	Policy change
1978	Initiation of a cost inquiry to establish reporting mechanisms for the CRTC to identify cross- subsidies. This concluded with Phase III I 1985.
1979	Telephone companies' monopoly on private (leased) lines connected to PSTN ended (CRTC 79-11).
1980	Liberalisation of telephone set and customer premises equipment markets.
1984	Regional duopolies in mobile cellular market set up.
1985	CRTC denies request to interconnect with incumbents by CNCP for the provision of long distance competitive services. Concluded that benefits would not be sufficient.
1989	Supreme Court confirms Federal jurisdiction over Provincial telephone companies.
1992	Market for public long distance voice services opened to competition (Telecom Decision CRTC 92-12). Pre-selection for long distance introduced and framework for subsidy (contribution) from long distance to support local residential service rates formalised (Decision 92-12).
1993	Telecommunications Act passed.
1994	Establishment of new regulatory framework: Review of Regulatory Framework (Decision CRTC 94-19).
1995	Competitive wireless Personal Communications Systems licensed.
1997	Canadian Radio-television and Telecommunications Commission (CRTC) announced regulatory framework for competition in local telephone services (Decision CRTC 97-8).
1998	CRTC liberalised public pay telephone service market (Decision CRTC 98-8). Price Caps implemented (Decision CRTC 98-2). The Government of Canada liberalised the facilities-based international telecommunications market. Regulatory framework for international services established (CRTC 98-17).
1999	The CRTC required cable carriers to provide discount Internet service to other ISPs (Decision CRTC 99-11). Resellers provided with access to central office switches through competitive co-location facilities (CRTC 99-1107).
2000	Telesat Canada's monopoly on satellite telecommunication carriage ended. Long distance competition introduced in the areas served by Northwestel (mainly Northwest Territories, Yukon, Nunavut and northern British Columbia) (Decision CRTC 2000-746).
2001	Changes to the Contribution Regime (universal service funding) come into effect (CRTC 2000-745).

Source: CRTC.

1.3. Telecommunications market and participants

Unlike most other OECD markets there is not a single incumbent in Canada (Table 2). During the period when there were monopoly markets, Canada's market structure was similar to that in the United States. Each Province in Canada had its own monopoly service provider, which was usually a private investor-owned company. Following market liberalisation a process of consolidation took place. The incumbents in Canada are: Aliant Communications (local and long distance in the Atlantic Provinces), Bell Canada (local and long distance in Quebec and Ontario), and Telus (local and long distance in Alberta, British Columbia and Quebec). Northwestel serves the northwest Territories, Nunavut, Yukon Territory, SaskTel serves Saskatchewan and MTS serves Manitoba. There are also 43 independent telephone companies that primarily provide local services to rural communities in different parts of Canada. There are still government owned (Provincial and Municipal) telecommunication operators in Canada (Table 3). There is little rationale why public ownership should be still maintained in these companies. The largest incumbent in Canada is Bell Canada with revenues in 2000 of CAD 13.2 billion⁹, or 38% of total telecommunication service revenues in Canada.

For regulatory purposes Canada distinguishes between the Incumbent Local Exchange Carriers (ILECs) and Competitive Local Exchange Carriers (CLECs).

Table 2. Structure of the Canadian telecommunication market

Services		Number of providers
Fixed PSTN – Incumbent Carriers:	Major companies	9
	Other	47
	CLECs	19
Analogue cellular		7
Digital cellular		8
Fixed wireless: Local Multipoint Communication Systems		25
ISPs – Registered DSL providers		10
Registered resellers of high speed Internet services		68

Source: Industry Canada.

Table 3. Major PSTN operators and their current ownership status

Operator	Ownership status (as of October 2001)
Bell Canada	Privately owned: 80% BCE Inc.; 20% SBC/Ameritech
Telus Communications Inc.	Holding 100% Telus Corporation: Ownership of Telus: GTE: 26.7%; 73.3 widely held
Aliant	Holding 100% Aliant Inc.: Ownership of Aliant Inc.: 14.05% BCE; 39.25% Bell Canada; 46.7% widely held
Manitoba Telecommunications System Inc.	21.69% Bell Canada; 78.31% widely held
Sask Tel	State owned: 100% Province of Saskatchewan

Source: CRTC.

1.3.1. Mobile

In 1985 one analogue national cellular licence was given to Rogers Cantel Inc. – now Rogers Wireless in the 800 Mhz band. At the same time a group made up of the local telephone companies at the Provincial and municipal level (33 across Canada) were licensed to provide cellular services. Subsequently the eleven major telephone operators formed the Mobility Canada alliance, and operated as a national network. In December 1995 Industry Canada provided further licences to 14 companies to provide PCS¹⁰ – two national 30 Mhz PCS licences to new entrants (Clearnet PCS Inc. and Microcell Connexions Inc.) and ten 10 Mhz PCS licences to the incumbents, Mobility Canada (made up of eleven regional telephone operators) and Rogers Wireless. In 1999 the Mobility Canada consortium dissolved with three members merging as TELUS (TELUS, BCTel Mobility and Quebec Telephone) and the remainder forming Bell Wireless Alliance. Further consolidation occurred in October 2000 when TELUS Mobility acquired Clearnet to form a nationwide wireless company. In 2001 Bell Mobility (and the Bell Wireless Alliance), TELUS Mobility, Rogers Wireless, Thunder Bay Telephone and W2N (a new entrant) acquired further spectrum in a PCS auction.

Presently there are four national cellular/PCS operators along with a number of locally based firms, most of which are associated with the local telephone companies.

Digital cellular coverage is relatively low with only about 88% of the Canadian population having coverage, however approximately 95% of the population has analogue coverage. To a large extent this reflects the fact that, given the density and distribution of population in Canada, mobile cellular investment will result in much less coverage than other countries. To ensure wide population and geographic coverage outside of the main census metropolitan areas the relevant licensing and policy authorities should consider appropriate measures. For example, a trade-off between reduced universal service contribution requirements in exchange for expansion of network coverage.

2. Regulatory structures and their reform

2.1. Regulatory institutions and processes

The *Telecommunications Act of 1993* provides the main framework for the regulations of the telecommunication service sector in Canada. The Act sets down the main objectives of Canadian telecommunications policy (see below), the powers of the government, the Minister and the regulator, the Canadian Radio-television and Telecommunications Commission (CRTC). As in many OECD countries the development of the telecommunications sector, universal service and the creation of a competitive telecommunication environment are among the key policy objectives. However, unlike most of the other OECD countries Canada has two objectives which fit uneasily in an open globally competitive telecommunication environment and with non-discriminatory treatment in regulation. Articles 7(d) and (e) of the Act are:

- d) To promote the ownership and control of Canadian carriers by Canadians.
- e) To promote the use of Canadian transmission facilities for telecommunications within Canada and between Canada and points outside Canada.

In view of the developments in national and international telecommunications competition it is timely to review these objectives. This would also allow the CRTC to concentrate on a regulator's main objectives which is to develop an open and competitive telecommunications market based on a

regulatory framework aimed at enhancing economic efficiency through the application of non-discriminatory regulations.

The Act set out the powers of the government, the Minister and the CRTC. It also sets down the conditions for the operation of a telecommunication common carrier, general provisions on telecommunication tariffs (rates), power of the CRTC with respect to obtaining information, provisions on interconnection, rights of way and numbering. The Act also delineates the broad powers of the CRTC and any limitations. The Act gives the Government the right to issue general directions to the CRTC on broad policy matters, to vary, rescind or refer back decisions to the CRTC, while giving the CRTC broad powers for regulation, enforcement of regulation and investigative powers.

2.2. Industry Canada

Industry Canada is the government department responsible for telecommunications policy and for spectrum policy and management. It also has responsibilities for the licensing of international submarine cables as well as licences issued under the Radiocommunication Act for the licensing of satellite and wireless communication services. The Minister of Industry Canada has the authority to establish technical standards and require the regulator to enforce these.

The powers of Industry Canada are a mixture of policy and regulation. It would be more efficient in the context of future streamlining of regulations to transfer the licensing of spectrum and international submarine cables to the CRTC, which has the responsibility for market entry in fixed telecommunication services and the responsibility for regulating market entrants in all the telecommunication markets. Such a transfer of powers would also more clearly separate the policy functions from regulatory functions. Industry Canada should, however, retain its responsibilities for spectrum planning which is a policy function. Industry Canada has a total of 282 employees dealing with telecommunication policy issues and radio spectrum issues. Such transfer of powers would also ensure that industry policy obligations are not included in licences (e.g. R&D contributions, roll-out obligations).

2.2.1. The CRTC

The Canadian Radio-television and Telecommunications Commission (CRTC) was established in 1968. It is responsible for the regulation of the telecommunication sector and the broadcasting sector in Canada. It is an independent public authority with quasi-judicial powers. The powers of the CRTC are outlined in the CRTC Act, the Broadcasting Act of 1991 and the Telecommunications Act of 1993.¹¹

The CRTC reports to Parliament through the Minister of Canadian Heritage (the Ministry responsible for broadcasting policy). This Department is not responsible for economic regulation but for cultural policy so that it is not evident that this is the best way for the CRTC to report to Parliament. The government may appoint up to 13 full-time and six part-time commissioners for renewable terms of up to 5 years. The government also appoints the chairperson and the vice-chairs of the Commission. Only full-time positions are involved in the decision making process for telecommunications.¹² Six of the full-time commissioners have regional responsibilities and the CRTC also maintains seven regional offices. The CRTC had 371 staff (as of May 2001) of which 186 were designated to telecommunications issues. Relative to other telecommunication regulatory bodies in the OECD the number of commissioners is exceptionally large for a regulatory body, even taking into account the fact that the Commission deals with broadcasting matters. Clearly the need to take into

account considerations of the Provinces plays a role in terms of the number of Commissioners. Nevertheless, there is scope for some rationalisation.

Prior to 1989 most Provinces had Public Utility Commissions with responsibilities for telecommunications. Federal government jurisdiction over telecommunication issues was confirmed by a Supreme Court decision in 1989. However, it was only in 2000 that there was a single integrated Canadian telecommunication market in terms of regulation, when SaskTel (a Provincial Crown corporation) came under the jurisdiction of the CRTC.

The CRTC makes a determination in the form of a *decision, order or letter*. The CRTC can issue orders exempting public telecommunication operators from the application of the Telecommunications Act. The CRTC may also forebear from exercising certain powers where it finds that a service or class of services is subject to sufficient competition to protect the interest of users. The CRTC has the authority to approve tariffs for services offered by public telecommunications operators¹³, as well as agreements entered into between carriers. The CRTC has wide ranging authority to settle disputes in the telecommunications sector, in particular, but not limited to, disputes between carriers, between carriers and municipalities or other public authorities on rights of way, and can make recommendations on expropriating property to ensure rights of way through private land.

Article 52 of the Act states that “The Commission may, in exercising its powers and performing its duties under this Act or any special Act, determine any question of law or of fact, and its determination on a question of fact is binding and conclusive.” Further the Commission has the powers of a superior court with respect to (Article 55):

- The attendance and examination of witnesses.
- The production and examination of any document, information or thing.
- The enforcement of its decisions.
- The entry on and inspection of property; and
- The doing of anything else necessary for the exercise of its powers and the performance of its duties.

There are three routes to appeal decisions of the CRTC. Decisions of the CRTC can be appealed back to the CRTC itself and according to the Act the CRTC can review and rescind any decision made by it. A decision can be appealed to the Federal Court of Appeals but only with regard to questions of law or jurisdiction as opposed to the substance of the decision. The court cannot alter findings or policy determinations except if they are found contrary to the law and/or are found to be outside the jurisdiction of the CRTC. The leave of the court is required for an appeal. Appeals may also be made to the government on the substance of decisions. Such appeals are rare and must be undertaken in a very transparent manner by informing the CRTC, and all parties involved in the decision. The public must be informed as well as all the provinces. The government, if it varies or rescinds CRTC decisions, is required to publish reasons for its decisions. Changing a regulatory decision could be interpreted as interfering in the independence of the regulator, however, changing policy is within the legitimate mandate of the government. The fact that this power has been used sparingly and judiciously means that it has not led to any controversies, although there is a potential that this might occur.

The CRTC does not have the ability to fine. It should have this power and the level of fines should be sufficiently high as to act as a deterrent to non-compliance. Good regulatory practice in OECD countries has shown that regulators need to be able to rapidly enforce decisions and the ability to fine ensures they can do so.¹⁴ Section 73 of the Act states that a person who contravenes the Act is guilty of an offence punishable on summary conviction of fines up to one million dollars. The court after a judgement applies the fine not the CRTC. The Act also allows for civil liability so that any person can sue to recover compensation for any loss or damage that resulted from acts or omissions contrary to the Act or to a Commission decision.

The budget of the CRTC is covered, at the discretion of the CRTC, by fees that it can prescribe, with the approval of Treasury Board.

Telecommunication regulators in OECD countries often use a mix of sector specific regulation, co-regulation and self-regulation. This mix has also been used by the CRTC. Of particular note has been the creation of the CRTC Interconnection Steering Committee (CISC). The aim of the CISC is to undertake tasks related to technological, administrative and operational issues on matters assigned by the CRTC. The CISC has been viewed on the whole as being successful in dealing with technical and administrative details related to the implementation of CRTC decisions. It has been less successful in reaching decisions on pricing which have been left to the CRTC. Some new entrants have expressed difficulty in dealing with the CISC since they do not have sufficient resources to participate in all CISC meetings, although in certain cases new entrants collaborate to share the burden of meetings. However, although the concept of co-regulation is useful it should be supplemented as much as possible with self-regulation which would serve in reducing regulatory burdens.

The CRTC has begun to issue a 3-year action plan summarising its main areas of work and issues which it will be examining. The CRTC has, however, not systematically monitored developments in the market effectively to determine the impact of its policies. This is changing as a result of a government direction to the CRTC to report on the status of competition in telecommunication markets and on the deployment and accessibility of advanced telecommunications infrastructure and services in urban and rural regions in Canada. The first report was issued in September 2001 (see below).

The CRTC has wide powers to obtain necessary information from telecommunication carriers and other market participants in order to carry out its mandate. It can also mandate public telecommunication operators to provide periodic reports as necessary and in the manner specified by the Commission. When information is provided in confidence to the CRTC it may decide during proceedings that this information is relevant to the determination of the proceeding and that its disclosure is in the public interest.

The time taken by the CRTC to issue decisions can be relatively long except for tariff filing when there is a legislated deadline to be met. As an example the process for price cap regulation was undertaken over 4 years:

- 16 September 1994 the Review of Regulatory Framework, Telecom Decision CRTC 94-19 stated that the CRTC would introduce price cap regulation in 1998.
- Public Notice issued 12 March 1996.
- Public hearing 21 October to 13 November 1996.
- Decision released 1 May 1997.
- Implementation 1 January 1998.

In most of its Decisions the CRTC tends to be thorough covering the arguments and giving consideration to the arguments of the market players. However, if it chooses, the CRTC can issue a Decision without justification.

In Canada, 1989 and 1994 Supreme Court Decisions confirmed that the CRTC has sole authority to regulate the telecommunication service industry.¹⁵ For Canada the process of consolidating jurisdiction between Provincial public utility commissions and the federal government was easier than it would be in the US. Canada did not have split jurisdiction – Provincial regulators regulated intra and inter-Provincial services.¹⁶ There are, however, important areas where the CRTC still has not had its authority confirmed. The first has to do with municipal rights of way (see section below) and the second with wiring in multi-tenant buildings.

2.2.2. The role of the Competition Bureau

The role of the Competition Bureau in the telecommunication sector has been relatively limited as compared to competition authorities in some other OECD countries.¹⁷ The Bureau provides submissions to CRTC proceedings as part of its advocacy role under the Competition Act. The CRTC and the Competition Bureau have tried to clarify their respective roles in the industry to avoid confusion and provide greater certainty to the industry. They have entered into an understanding – CRTC/Competition Bureau Interface.¹⁸ The understanding is that where the CRTC has forbore unconditionally, the Competition Bureau considers that the Competition Act would apply (however the CRTC has maintained the right to rescind its exemption or forbearance), and where the CRTC has forbore conditionally the Competition Act would also apply in as much as such conditional forbearance is maintained. In the case of merger review, both entities play a role, with the focus of the CRTC being primarily on foreign ownership requirements. In terms of marketing practices there is an understanding that the CRTC will deal with issues such as slamming whereas the Competition Bureau will deal with trade restraints, tied selling, price fixing, price maintenance and exclusive dealing. Issues of interconnection and access are the exclusive areas of the CRTC.

Despite the understanding between the Competition Bureau and the CRTC, many of the industry participants are still concerned that they are subject to two regulatory regimes. The fact that the CRTC tends not to forbear unconditionally from a market creates uncertainty. Even if it did forbear unconditionally the CRTC has made it clear that if problems did arise in a market where it had forbore that it would use its prerogative to re-regulate the market, in other words reversing its “forbearance” finding and pre-empting any application of the Competition Act to that market. Such a concept of forbearance is a Damocles sword for the market.

The government should seek a greater role of the Competition Bureau in the transition of the telecommunication service sector towards competition. A first step could be in evaluating the performance of the regulatory framework in terms of its objectives to create competition. However, the use of unconditional forbearance by the CRTC would also be dependent on the Competition Bureau taking a more active role in monitoring of competition in the telecommunications market as well as having adequate powers to take action and enforce competition in the sector.

2.3. Telecommunication regulation and related policy instruments

The current regulatory framework in Canada for the transition to competition dates from 1994 (CRTC Decision 94-19, Review of Regulatory Framework). This decision set down the framework, which allowed the CRTC to subsequently introduce local competition, begin rate

rebalancing, establish regulatory safeguards, change from rate of return regulation to price caps, and begin to streamline regulations. This decision led to a number of key decisions over the next five years (see Table 1). The process of implementing competition and introducing the necessary regulatory safeguards was transparent, thorough and complete, in that it provided ample opportunity for interested parties to comment. However, in contrast to a number of other OECD countries the incremental process has meant that the complete framework to allow for full competition to develop in all market segments took several years. For example, following Decision 94-19, Decision 97-8 on *Local Competition* set down the broad framework for local competition but the details took several years to be worked out over which would have benefited incumbents.

2.3.1. Regulation of entry and licensing

Canada has had open market entry in all sectors of telecommunication services since the end of 1998 when international service opened to competition. Facility-based providers of local and long distance telecommunication services only need to register and a licence is only required in the case of wireless operators and international service providers. All telecommunication operators that own or operate transmission facilities must, however, meet the Canadian ownership requirements. Resellers of telecommunication services, who do not own or operate transmission facilities, are not subject to ownership restrictions. There are no entry procedures, registration process or obligations for Internet Service Providers (ISPs) with respect to telecommunication regulations. However, for companies wishing to become digital subscriber line service providers they are required to inform the CRTC of their intention to do so and submit the name of the carrier supplying the unbundled local loop and co-location. As DSL service providers they cannot use these loops to provide voice services unless they undertake to become CLECs.

The process of liberalising market entry began in 1979 with the approval of limited entry into the private leased line market. This was followed in 1985 with the licensing of Cantel and members of Cellnet, which were licensed to operate cellular telephone networks, and in 1987 with the approval of resale of primary exchange voice services (except public long distance telephone service). However, facilities based entry began in 1992 with the opening of the national long distance market to competition. Entrants to the long distance market need to register with the CRTC.

The 1987 decision on resale had introduced a limited form of local competition. In 1997 the CRTC decided to open the local market to full infrastructure based competition (Telecom Decision CRTC 97-8). This Decision followed earlier Decisions from 1994 and 1995, which had determined that market entry for local telecommunication services was in the public interest. The 18 month delay (between 1995-97) in setting down the regulatory framework and entry obligations for new entrants was due to a number of factors, including the necessity to rebalance local subscriber charges, and to follow public consultation procedures that would permit the establishment of principles and other procedures for competitive entry. In particular, it was necessary to establish frameworks for co-location, number portability, unbundling and interconnection.

An important initiative in the context of market entry was the convergence Policy statement of 1996 aimed at stimulating interconnection and interoperability of networks and competition between cable and telephone companies. This policy prevented telephone companies from entering the cable services business until all the rules to ensure competition in local telephone services were in place. This was undertaken to ensure that cable companies could enter the telephone service market to offer services. Legislation was subsequently amended to allow Bell Canada to enter the broadcasting distribution market and to be eligible to hold a broadcasting licence (other telephone companies had not been prevented by law from obtaining a broadcasting licence, but by regulatory policy).

Box 1. The transition to full facilities-based competition: the speed of change

In a number of OECD countries, telecommunication markets were opened to competition and new entrants licensed before all the necessary regulatory safeguards to ensure that the new entrant had a fair chance in competing were in place. This has certain advantages. It places immediate pressure on the incumbent to improve service and efficiency and on the regulator to rapidly implement the necessary safeguards. On the other hand there are negative consequences. At the general level, if the incumbent resists and prevents entry, it gives an (unjustified) impression to the general public that competition does not work. In turn this could tend to reinforce a tendency of immobility by them in seeking out more innovative and cheaper telecommunication operators. Providing for market entry without the necessary safeguards in place also imposes costs on new entrants in that it is extremely difficult for them to attract clients, and therefore earn revenue. On the other hand having the framework in place before licences are attributed does not in itself imply that competition will increase rapidly in the market. Many of the difficulties that have been encountered with regulatory safeguards in the telecommunications sector have had to do with the details of implementation. Implementation does not only require a solid set of regulatory safeguards and principles, but a regulator willing to use all the necessary powers it has to enforce these safeguards and an incumbent, or incumbents, who are willing to compete on a fair and non-discriminatory basis without placing obstacles continuously in the path of new entrants.

In Canada, unlike many other OECD countries, there are relatively fewer complaints by new entrants about the regulatory framework and the regulatory safeguards. There are also fewer complaints by new entrants about the behaviour of the incumbent(s). In itself this is indicative of a relatively better regulatory process, greater co-operation among market players and a willingness by market players to focus on competing in the market rather than using the regulatory system to create advantages for themselves or disadvantages for their competitors.

Canada, while it had a one year head start in local competition compared to most European Union countries, has a telecommunication market structure where competition has built up much more rapidly –see section 3 below. Market shares by new entrants in long distance built up rapidly in the early years (but has since flattened or declined). The competition between technologies in the broadband market may also augur well for the future when voice over DSL and IP-based voice service start emerging.

2.3.2. Wireless licences

Entry by wireless telecommunication operators into the market requires prior approval in the form of a licence (also discussed in the section dealing with spectrum below). To obtain a wireless licence operators must agree to licence conditions including demonstrating that they are Canadian owned and controlled, technical conditions, regulatory conditions and public interest priorities and objectives. There are two eligibility principles. Under the first eligibility principle, a company that currently provides telecommunication services can be restricted from holding certain wireless licences if:

- That company has market power in the supply of one or more telecommunication services in the region to be licensed.

- A new entrant is likely to use the licence to provide services in competition with that company's existing services; and
- The anti-competitive effects of the acquisition of that licence are not outweighed by the potential economies of scope arising from the integration of the spectrum in question into that company's existing network.

Under the second eligibility principle, limits on the amount of spectrum that any single licensee is allowed to acquire may be required when multiple licenses for the use of spectrum in a given geographic area are to be granted and these can be used to provide closely substitutable services. Spectrum aggregation limits may be imposed if an entity that acquires a significant amount of spectrum would not face effective competition from providers of service that use infrastructure other than the spectrum being licensed. In addition, spectrum limitations may be imposed if the anti-competitive effects arising from the acquisition of a significant amount of spectrum by a single bidder would not be offset by lower costs or higher valued services resulting from holding this amount of spectrum.

2.3.3. Foreign ownership restrictions

Canada is one of six OECD countries that have restrictions on investment and ownership in public telecommunication operators.¹⁹ These restrictions can impact negatively on the development of competition in Canada in that they effectively limit investment in the sector, increase the cost of capital and can delay the diffusion of new technology. The CRTC itself has argued new entrants reduced capital expenditure in 2000 because of their reduced ability to access capital, in part due to the downturn of financial markets.²⁰ New entrants have to rely on debt rather than equity financing and they are limited in their ability to access foreign equity capital. Foreign ownership restrictions also reduce the demand for Canadian shares and impact on their price. Improved access to foreign equity capital would help in meeting Canadian objectives of enhancing competition and meeting the government's goal of 'connectedness'.

Economic evidence points to the beneficial effects of open markets and the liberalisation of foreign direct investment. Benefits which Canada has already seen in many other manufacturing and service sectors.²¹ An Industry Canada working paper found that foreign direct investment lowers production costs and increases productivity in most Canadian industries.²² Further, as argued by the OECD:

“trade and investment liberalisation, in fact, forms part of overall strategies to maintain and even strengthen a country's capacity to determine its own future (and thus its sovereignty, by improving its competitiveness and income, and making it less vulnerable to external shocks. Thus liberalisation and regulatory reform are undertaken by national governments (whether unilaterally or in the context of international negotiations between sovereign governments) to enhance national interests. Such decisions are made precisely in order to gain the added security, stability and enhanced prospects for national welfare, that internationally agreed rules provide.”²³

The foreign investment restrictions, which were put forward as policy in 1987 in the *Policy Framework for Telecommunications in Canada*, were formalised in the *Telecommunications Act* of 1993.²⁴ The relevant sections of the Act require that companies owning or operating telecommunications transmission facilities (defined as *Canadian carriers*) must have at least 80% of

their voting shares owned by Canadians and not less than 80% of the members of the board of directors must be Canadian. Subsequently the government issued the Canadian Telecommunications Common Carrier Ownership and Control Regulations that determined that investor companies in such Canadian carriers would be treated as Canadian if at least 66 2/3% of their voting shares were held by Canadians. The direct and indirect restrictions place a cap on foreign ownership in Canadian telecommunications firms of 46.7%.²⁵ The same ownership and control requirements are applicable for radiocommunication carrier licences.²⁶

The foreign ownership restrictions may also distort investment in facilities. A number of infrastructure backbone providers have begun in recent years to sell indefeasible rights of usage (IRUs) in those facilities. In the past IRUs were limited to transoceanic cables but have become increasingly popular for transcontinental cable in the United States, Canada and Europe. A holder of an IRU, and therefore a company that builds a network in Canada on the basis of IRUs is not considered a Canadian carrier and is therefore exempt from foreign ownership restrictions. However, functionally a network constructed on the basis of IRUs or a self-owned facility may be able to offer the same services. The government and CRTC have repeatedly placed emphasis on the fact that competition to be sustainable requires facility-based competition, but at the same time foreign ownership restrictions are limiting incentives to invest in infrastructure in Canada.

As a result of Canada's commitment to the WTO negotiations on telecommunications a number of restrictions on foreign ownership have been removed in recent years. These include foreign ownership restrictions in global mobile satellite services and in the ownership of submarine cable landings. In addition, foreign satellites are now able to provide telecommunication services to Canadians and the traffic routing rules, which favoured use of domestic networks, have been removed.

The Government-appointed National Broadband Task Force recently recommended that the government undertake an urgent review of foreign investment restrictions for telecommunication carriers and broadcasting distribution undertakings.²⁷

Several members of the Canadian Council for International Business have noted that foreign ownership restrictions impose significant market access barriers to Canadian firms seeking to enter foreign markets and recommended that the Government of Canada promote the benefits of open investment rules in the WTO as well as adopting such rules for Canada.²⁸ Canada should change the foreign ownership and control restrictions as soon as possible in order to rapidly increase productivity, investment, and jobs.

2.4. Creation of competition

In the past the CRTC has not monitored how competition has been developing, or in other words, it did not monitor the effectiveness of its regulations in creating effective conditions of competition. This is now being rectified as a result of a direction from the Government.²⁹ In addition to the reporting requirements specified by the government starting at the end of 2001 the CRTC will begin to :

- Monitor the telecommunications industry structure.
- Monitor effectiveness of telecommunications competition.
- Monitor the effectiveness of telecommunications competition on services provided to consumers.

- Monitor international competition (i.e., the monitoring of competition in international telecommunications services in Canada).
- Ensure compliance of telecommunications carriers with respect to foreign ownership and control requirements.
- Report on the deployment and accessibility of advanced telecommunication infrastructure and services in urban and rural areas in all regions of Canada.

Data from the first report are presented in Section 3 below. As noted earlier full implementation of competition has not yet been completed in certain areas e.g. those of *Québec-Téléphone et Télébec* and in some rural areas, where local monopolies still exist.

2.4.1. Long distance markets

National long distance markets were first opened to competition in Canada for resale in 1990 and on a facility basis in 1992.³⁰ Concurrently with this decision carrier pre-selection for long distance calls was implemented. However, new entrants were required to make contributions to the incumbent for universal service. These contributions (see section on Universal Service below) were based on a per minute charge. Although for the first five years new entrants benefited from discounts in the contribution they paid this regime still imposed a burden on companies that had to invest in facilities, build-up a customer base and face relatively rapidly declining prices.

The CRTC decided in 1997 (Decision 97-19) that national long distance and international long distance markets were sufficiently competitive and, as a result, the CRTC could forebear from the regulation of these services offered by the incumbents. However, while CRTC approval of tariffs was not required, the basic North American long distance rates of the incumbents were subject to a price cap so that the weighted average rate for each price schedule would not be allowed to increase. Forbearance is key to gradually eliminating sector specific regulation and using competition policy to regulate the sector. As such, when forbearance is used it should be fully implemented rather than partially implemented as in the case of long distance. There is sufficient evidence to indicate that competition in long distance markets is sustainable and is unlikely to need further regulatory intervention. If unfair price competition is being used, the Competition Bureau should have adequate powers to take appropriate action.

Long distance carriers (Interexchange Carriers/Alternative Providers of Long distance Services) also have streamlined entry procedures. They need to register with the CRTC, indicate the categories of services to be offered, and meet foreign ownership requirements (Canadian carrier eligibility). These carriers also have certain obligations, namely participate in numbering planning and provide points of interconnection.³¹

2.4.2. Local service markets

Telecom Decision 97-8, *Local Competition*, set the framework for the introduction of local competition in Canada from 1 January 1998. The Decision led to an expanded role for the CRTC Interconnection Steering Committee (CISC) which consists of CRTC representatives, industry players, public interest representatives, consumer groups and members of the public to deal with telecommunication issues, in particular the details of implementation of CRTC Decisions.³²

Decision 97-8 put forward a number of areas that subsequently needed to be implemented through detailed operational and administrative decisions taken by the CISC. The decision addressed a number of major regulatory areas: unbundling, interconnection, resale, universal service funding mechanism (contribution), consumer safeguards, co-location and local number portability.

Market entry procedures for new local market entrants (or Competitive Local Exchange Carriers – CLECs) were from the beginning very streamlined and required registration rather than individual licences. The CLECs had to meet a set of consumer safeguards, technical interoperability and interconnection requirements and provide a map of their proposed service area., CLECs are required to file tariffs for interconnection services for CRTC approval. – The CLECs are also required to provide local number portability.

The size of local service calling areas is an important consideration for regulators. The CRTC is examining the present structure of incumbents' local calling areas and should implement any revisions by the beginning of 2002.

2.4.3. International services

Traditionally, Canada's international telecommunications service market was divided into Canada-US traffic and intercontinental traffic. Traffic for overseas destinations was carried by Teleglobe which had a monopoly until 1 October 1998. From this date the distinction between international traffic ended and a common set of rules for all international telecommunication services was applied. Ownership restrictions on Teleglobe were also lifted resulting in Bell Canada Enterprises increasing its share in Teleglobe from 23.1% to 100%.

For the provision of international telecommunication services the CRTC established two forms of licensing (CRTC Decision 98-17): class A licences issued to firms that own and operate telecommunication facilities, and class B licence that provide services to and from Canada but do not operate their own facilities. Decision 98-7 also eliminated traffic routing restrictions which had been aimed at preventing Canadian traffic from being routed via the United States, in particular for Canada to Canada traffic.

Unlike other PSTN services, entry for basic international telecommunication services requires a licence. Licensees need to provide information on affiliate companies that offer basic telecommunication services and a list of all agreements with foreign telecommunication operators. The intention seems to be aimed at ensuring that whipsawing and other discriminatory treatment is not used against Canadian based international carriers. However, in view of the light entry procedures for national PSTN services, the licensing of entry for international services is unnecessary and should be on the basis of the same requirement for other PSTN services.³³ International carriers also have many of the same obligations as carriers for other services. The CRTC has revoked 33 international licences due to the licensees' non-compliance with conditions of their licences.³⁴

2.4.4. Mobile services

The CRTC decided in 1996 not to regulate the prices charged by cellular companies. However, the fees charged by the fixed operators to the cellular operators for using their network are regulated. The cellular industry is subject to pay contributions for universal service (see section on universal service) and the change in the contribution system effective in January 2001 will have a significant negative impact on revenues of the industry. The mobile operators are already required to pay fees, a

one time up-front fee for spectrum acquired through auctions, or a yearly licence fee. The impact of the contribution system on this sector of the industry should be carefully monitored.

As noted earlier, national geographic coverage of mobile networks, as well as the coverage of population are relatively low compared to European OECD countries. Encouragement to expand coverage should be given. Mobile cellular services can help economic expansion in remote areas and are important for emergency purposes.

Mobile operators are required, as part of their licence obligations, to invest 2% of adjusted gross revenues (total service revenues less inter-carrier payments, bad debt, third party commissions, and provincial and goods and services taxes collected) in research and development.³⁵ This is an unnecessary indirect tax on the industry, as well as discriminatory in that it is not applied to fixed carriers, and should be eliminated. The range of different fees imposed on the mobile cellular industry makes it difficult for operators to meet government objectives such as affordability, and at the same time such fees raise the issue of whether there is sufficient policy coherence.

Foreign ownership regulation, as outlined in the Radiocommunication Act, mirrors those in the Telecommunications Act. Currently foreign ownership, direct and indirect, is limited to 46.7% (see paragraph 49). As argued in other sections of this report such restrictions need to be removed.

2.4.5. Cable television

Canada has the fifth highest penetration rate of cable television in the OECD with 90% of households passed by cable and 69% of households subscribing to cable.³⁶ The top 4 cable companies (Rogers, Shaw, Videotron, Cogeco) account for 85% of cable subscribers.³⁷ Canada's density in cable broadcasting distribution networks provide it with a potentially strong position with respect to alternate networks to provide competition to telecommunication services provided over the PSTN. To provide local telephone service a cable company needs to register with the CRTC as a CLEC. Competition from cable to provide local telephone services has been slow to develop, although it has emerged (as discussed below) for broadband access. There are several CATV companies now offering telephone services often at quite competitive prices relative to incumbents.³⁸ These developments need to be encouraged.

The CRTC required in 1999 incumbent cable companies offering Internet cable modem services to resell these to Internet Service Providers at a discount of 25% from the lowest retail Internet prices i.e. these were based on retail prices. Later the CRTC issued an Order in August 2000 approving terms for end-user rates to charge to ISPs for access to cable company facilities used to provide cable modem Internet services. An important part of these decisions was the application of non-discrimination requirements (i.e. unjust discrimination as per Article 27 (2) of the Telecommunications Act). The decision was the outcome of a complaint by CAIP³⁹ to the CRTC made in early 1999. Although some interim decisions were taken the time for the final decision to emerge has serious implications on the revenue-base of ISPs.

2.4.6. Interconnection

The interconnection framework in Canada has evolved over time reflecting the phasing-in of competition. The first major interconnection decision was made with respect to long distance services in 1992.⁴⁰ This decision permitted new long distance entrants (interexchange carriers) to interconnect to the local and long distance switches of incumbents. The CRTC emphasised the need to ensure equal

access for new entrants. New entrants were made responsible for providing the circuits between their own facilities to the incumbent's switch and were also required to compensate the incumbent for any incremental costs associated with switching and aggregation of traffic to and from the incumbent's network. New entrants also were required to compensate incumbents by paying a per minute fee for the recovery of costs associated with any implementing equal access and modifying facilities to accommodate interconnection

Following implementation of local competition in 1997 further changes took place in the interconnection framework. Interconnection was mandated between all local exchange carriers and each local exchange carrier (both incumbent and new entrants) had to establish a point of interconnection within each local exchange area and the costs of establishing connections between points of interconnection were shared by local exchange carriers.

Local interconnection rates are on the basis of 'bill-and-keep' if local traffic exchanged between local exchange carriers is balanced within 20%. Termination rates are imposed if traffic imbalances exceed 20% and a different termination rate is imposed if the imbalance exceeds 40%. Rates are calculated on the basis of the incremental costs, on a capacity basis, of carrying the unbalanced traffic with a mark-up of 25% to provide a contribution to fixed and common costs.⁴¹

In the long distance market the initial interconnection charge when competition was first introduced (1992) was CAD 0.011 per minute (USD 0.008) to originate and terminate a long distance call. In 1997 that rate was split into a direct connect rate of CAD 0.007 per minute to originate or terminate a long distance call at a local switch and a tandem switch connection per minute rate of CAD 0.012223.⁴² In 2000 the direct connection rate was reduced to CAD 0.003 per minute, for most of the regional incumbents, and the tandem rate to CAD 0.008223 per minute.

The mobile cellular companies pay 100% of interconnection costs to the PSTN network for incoming and outgoing traffic. By obtaining status as a CLEC (competitive local exchange carrier) mobile companies can share interconnection charges on the basis outlined above as for other CLECs.

Essentially there are two methods used for arbitrating interconnection disputes. The first is informal involving CRTC staff to mediate disputes by offering an opinion, but leaving the parties to settle the dispute taking into account the opinion of the regulator.⁴³ A more formal dispute mechanism is to submit an application to the CRTC.⁴⁴ Procedures allow the other disputing party to submit comments (within 30 days) as well as third parties. The filing party has a further 10 days to submit a rebuttal to comments. The CRTC can issue a determination, may decide that a further public process is required or may undertake a full public process making a final binding determination. The dispute resolution process is transparent and thorough. However, a fast track approach would be desirable. Interconnection disputes can impose large costs on new entrants and although these disputes may raise wider regulatory issues it is important to take a rapid decision to ensure that a new entrant can enter rapidly into the market. Thus, the CRTC should have the ability to impose a decision rapidly following on the request for arbitration. As part of its framework for local competition the CRTC implemented a forum, the CRTC Interconnection Steering Committee (CISC). The forum is made up of working groups drawn from a broad range of the communications industry, including consumer interest groups. Each group focuses on particular issues within the competition framework and disputes can be given to a group for resolution.

2.4.7. Unbundling

The Canadian Telecommunications Act does not specifically provide for local loop unbundling. The Act, however, gives the Commission wide ranging powers and allows it sufficient scope to interpret general clauses as it views appropriate.

The regulator's decision on local competition (Decision 97-8) concluded that essential facilities⁴⁵ should be subject to mandatory unbundling and mandated pricing. Further, the decision defined local loops in certain bands as essential facilities i.e. those in small urban and rural areas. However, the CRTC also concluded that in lower cost local loop areas, e.g. large urban areas, while not defined as essential, loops should also be unbundled and priced the same as loops considered to be essential. This requirement for low cost local loop areas was put in place for a period of 5 years (starting 1 May 1997) after which the CRTC's decision stated that these facilities would not be subject to mandatory unbundling or essential facilities pricing. The logic behind this decision was that it would provide new entrants the ability, in the initial years, to build-up a customer base using unbundled local loops, and an incentive to rapidly construct facilities so that at the end of the 5 year period they would no longer need to rely on the incumbent's loops.

The requirement to unbundle was followed-up by the CRTC establishing the charges that new entrants had to pay for the incumbents' local loop and other components (CRTC Telecom Decision 98-22). Charges were based on incremental costs plus a 25% mark-up for the recovery of fixed and common costs (this is actual incremental cost as opposed to forward looking long run incremental cost).

In terms of success the policy for unbundling local loops needs to be looked at from two perspectives: how much new infrastructure was put in place in urban areas and how many unbundled loops were being used. By the end of 2000 (i.e. four years into the five year period) the competitive local exchange carriers had about 801 000 total lines in use, or 4% of total voice lines, and 144 360 (18%) were accounted for by unbundled local loops. A large percentage of these CLEC lines were for business use. Benchmarked against many countries this performance was good, but in terms of initial objectives it was disappointing and there was insufficient evidence to show that new entrants had maximised their use of unbundled local loops in view of the five-year closure period. In recognition of this, a decision was made in 2001, subjecting local loops in urban areas to unbundling requirements on an indefinite basis (although the CRTC did not designate these loops as essential facilities in taking this decision). The main reason why the initial policy did not meet with success has probably to do with the pricing of unbundled local loops in that prices did not provide new entrants with sufficient mark-up to enter the market. This was recognised by the CRTC in April 2001 when they revised the rates for unbundled local loop. Rates were reduced by about 25-30% (see Table 5). The CRTC are also examining whether the 25% mark-up is too high and whether a mark-up of 15% should be used. The CRTC has stated that in the absence of evidence to justify a 25% mark-up the 15% mark-up will be used.⁴⁶

Although unbundling was implemented the CRTC had determined that the incumbents would not have to discount their local services for resale. The objective of promoting facility-based competition has often led the CRTC to take a somewhat negative attitude to require the pricing of key facilities at cost and making these available to new entrants. As a result new entrants did not obtain wholesale rates which essentially meant that the opportunities for new entrants to compete effectively with incumbents was limited.

Cable facilities also have to be made available for lease, resale and sharing by service providers on a non-discriminatory basis (other than for the carriage of broadcasting services).

Table 4. Bell Canada's prices for unbundled local loops
(CAD)

Band	Previous rate May 1997	Approved rate April 2001
A	CAD 12.22	CAD 9.04
B	CAD 18.38	CAD 12.82
C	CAD 20.28	CAD 15.10
D	CAD 33.12	CAD 17.35
E	n.a	CAD 28.07
F	n.a	CAD 28.68
Remote	n.a	CAD 48.04

Source: CRTC.

2.4.8. Co-location

As part of the decision to open the local market to competition, the CRTC required incumbent local public telecommunication operators to provide co-location to new entrants at terms and conditions, including rates approved by the CRTC. The rates for co-location were set at incremental cost plus a 25% mark-up for the recovery of fixed and common costs. Co-location requirements would not include switching and processing equipment. Sub-licensing of co-location space is also allowed.

A modification in the coverage of co-location was implemented in 2000 when the CRTC agreed to extend co-location and other rights to so-called digital subscriber line (DSL) service providers⁴⁷ that are not public telecommunication operators. The decision allowed these DSL service providers to lease unbundled local loops on the same basis as new entrant local telecommunication service providers.

Co-location disputes can follow the same procedure as for interconnection (see above) or use the CRTC Interconnection Steering Committee (CISC) process. New entrants have formed a Coalition for Better Co-location to co-ordinate their participation in the specific sub-group in CISC. In 2000 new entrants requested the CRTC to provide them with more flexibility with respect to equipment that can be used for co-location and improved access to space and to facilities.⁴⁸ Many of the new entrants complaints were dealt with in the CISC industry group whereas a recent decision by the CRTC ensured that employees of new entrants had unescorted access to all incumbents' premises. New entrants have also been given the choice as to whether they request full physical co-location with segregated floor space ("caged co-location") or with unsegregated floor space (Type 2 co-location). This is an important co-location decision to reduce costs for both new entrants and incumbents and enhancing the flexibility new entrants have in co-location.

In general the industry seems relatively satisfied with the co-location process in contrast to many other OECD countries where this issue has not yet been resolved to the satisfaction of all parties. In particular, the industry sub-group has managed to resolve a number of issues through negotiations without constant recourse to the regulator.

The regulator has also set down terms and conditions for other infrastructure support structure (poles, conduits, etc.) allowing new entrants to rent space. The CRTC also determined that it had the authority to require electric power utilities to rent their poles to cable companies and to set the rates for the rental of space on poles.⁴⁹

In addition, the regulator has recognised the important role that co-location plays in developing a competitive and efficient telecommunication market and have been willing to facilitate such co-location for new entrants.

2.5. Regulation of pricing

The CRTC has placed priority on price rebalancing, viewing it as a necessary condition to obtain economic entry and sustainable competition. In this context it provided for a phase-in period between 1995 and 1998 for local subscriber charges to increase, with offsetting decreases in long distance contribution charges.

The local services of the incumbent operators (BC TEL, Bell Canada, The Island Telephone Company Limited, Maritime Tel & Tel Limited, MTS NetCom Inc., The New Brunswick Telephone Company Limited, NewTel Communications Inc. and TELUS Communications Inc.) have been subject to price control through a price cap system since 1 January 1998.⁵⁰ For the largest incumbent (Bell Canada) the price cap covers approximately 30% of its revenues. The price cap regime replaced a rate of return regulatory framework. The price cap was introduced for a 4 year period and is currently under review in view of its expiry at the end of 2001. Before introducing the price cap system, a period of adjustment to bring prices closer to costs was allowed. During this period local rates increased for residential customers and decreased for business customers. At the start of the price cap regime, i.e. 1 January 1998, companies were allowed a further increase on the monthly subscriber charge of between CAD 2-3 per month.

The basket of capped services is subject to a price index based on the annual rate of inflation minus a productivity adjustment of 4.5%.⁵¹ The overall basket consists of three sub-baskets which include basic residential local services, basic business local services and other local services. They are subject to additional pricing constraints: price increases for the basket of basic residential rates cannot exceed the rate of inflation over the four year period, and no element in this basket will increase by more than 10% in any one year (except in areas where local loops are considered non-essential i.e. metropolitan areas). The 2nd basket comprising single and multi-line business baskets was not subject to any restraint. The 3rd sub-basket consisting of other regulated services not covered by the 1st two baskets and is subject to a price constraint equal to the rate of inflation.

It should be noted that prior to the implementation of price caps, the CRTC had agreed that monthly local rates should increase by CAD 2 per year in 1996 and 1997 as part of the process of price rebalancing.

There is an indirect relationship between sub-baskets in that if there is a price increase in the residential basket then this needs to be compensated by a decrease in the business basket in order to meet the target of the overall basket. In effect this implies that there was continuous downward pressure on the basic monthly business subscriber rate, installation charge and other services (touch-tone services). It is not evident that such a linkage was necessary. Since new entrants in the local service market target mainly the business market, the price declines in this market could inhibit new entry and investment in competing infrastructures. This would be particularly the case in local service areas outside the major urban areas (Bands C and D areas in Canadian terminology).

There is no evidence that competition has developed sufficiently for local services to justify complete removal of the price cap regime. However, there seems to be scope to lift price caps from business services in (Bands A and B) subject to incumbent operators providing some guarantees for small businesses.

It is important for universal service considerations that payphones remain in service especially in the rural areas. Prices for local calls using payphones have not changed in most incumbents' territories (with the exception of calls in Telus's area) since 1981. At the same time cellular services and other alternative services have taken much of the potential growth. Prices for payphone services will be subject to a separate consultation by the CRTC separated from the price cap framework.

Historically Canada had public telecommunication operators with essentially Provincial service areas. This led to different levels for the price of basic services (monthly subscriber charges) between different Provinces, although within a Province there tended to be geographic averaging.⁵² However, the fairly wide differences in prices, call into question the use of concepts such as affordability which, mistakenly, can give the impression that consumers in different geographic areas can support different levels of charges and that those in rural areas in particular can support higher charges. Emphasis on concepts of creating efficient provision of services based on cost and encouraging market entry are less likely to cause confusion among consumers.

The CRTC is required to forebear from regulation where it finds as a question of fact that a telecommunication service or class of service provided by a public telecommunication operator is subject to competition sufficient to protect the interest of users. The CRTC can, under the Act, forebear in the context of price regulation, from requiring the filing of tariffs for approval, filing of intercarrier agreements for approval, and the requirement for just and reasonable rates and no unjust discrimination or unreasonable preference with respect to the provision of services.

2.5.1. Access to and use of leased circuits

Access to leased circuits is an essential requirement for new entrants to develop their network and their business. These circuits provide the main building block for new entrants to provide service to new customers and to build-up rapidly their infrastructure to provide wholesale and retail services. This is, in particular, important for local ends, that is short distance leased circuits, in that new entrants need to provide end-to-end leased circuits for their customers to connect premises. With the availability of unbundled local loops these can be substituted for low speed access. ADSL technologies now provide a possibility for higher speed access. However, for high-speed lines it may still be necessary to use dedicated leased circuits. These local leased circuits need to be priced at a wholesale rate for new entrants rather than at a retail rate. In other words the price charged by the incumbent for these circuits to a new entrant should be non-discriminatory i.e. should be equivalent to the transfer price paid by the incumbent to itself, and should differ from the price the incumbent charges to one of its commercial customers. For example, in the European Union the provision of leased line local ends are regarded as wholesale interconnect offer.⁵³ The principle of pricing of leased circuits should not in fact differ to unbundling. The decision on how to price these circuits reflects to some extent the philosophy of the regulator, which has been to discourage resale on the basis that this discourages investment in facilities. However, both are essential and often complementary. In this context it is important for the regulator to promote competition as much as possible not only to permit it.

As a rule of thumb new entrants should not pay retail rates to access the facilities of incumbents. The non-discrimination clause of the Telecommunications Act needs to come into play to ensure that new entrants pay cost-based prices similar to what would be charged by the incumbent if it were structurally separated into a wholesale and retail branch.

2.5.2. Accounting separation

Accounting separation in Canada has been closely linked with price regulation, price rebalancing and universal service contributions. Starting in 1995 the CRTC required that the activities of incumbents and their revenue streams be divided into competitive and non-competitive (or utility) segments. The main service categories classified as utility segments include access and local service. These categories were defined through lengthy costing approaches that the CRTC had undertaken even before the onset of competition. The last costing approach (Phase III) allocated embedded costs and its results were used to define utility and competitive segments in Telecom Decision 95-21.

The underlying rationale in accounting separation was to measure cross-subsidies which would help to eventually eliminate them. In addition, splitting the revenue streams of the incumbents allowed the CRTC to implement a Carrier Access Tariff that aimed to recover charges for universal service (contribution), bottleneck services and start-up costs for the utility segment from the competitive segment. Progress has been made in eliminating cross-subsidies but they still remain for local access between urban and higher cost areas and between optional features (call display and call waiting) and basic residence service.

As noted above, it was further decided that as of 1 January 1998 earnings from the non-competitive (utility) segment would be subject to price cap regulation instead of the existing rate of return regulation. In addition to separating the revenue base the CRTC implemented price rebalancing to bring prices in the non-competitive segments closer to costs.

2.5.3. Numbering

Management of numbering resources in Canada has traditionally been undertaken by the private sector. Canada is one of 19 countries participating in the North American Numbering Plan. For North America the plan is administered by a neutral third party. Within Canada a neutral third party assigns numbers working under the oversight of the Canadian Numbering Administration Consortium (a consortium of service providers) with the oversight of the CRTC. The CRTC were given general powers over numbering in 1998 including powers to issue orders with respect to numbering resources.

Local number portability has been implemented in Canada but is still relatively slow in being implemented in that it is only available in most major centres. As of March 2000 the CRTC reported that 37% of numbers were in exchanges that had been enabled to support local number portability. All local exchange carriers must participate in local number portability. However, availability of local number portability is based on market demand, that is a new entrant needs to request an incumbent for number portability office which must be provided by the latter.

Mobile service providers do not have to provide number portability (unless they operate as a CLEC).⁵⁴ Nor are there any plans to introduce geographic number portability. This may cause some inconvenience to new local entrants since number portability is determined by the exchange area of the incumbent local carriers, whereas new entrant local carriers are allowed, and in some cases have, different boundaries for their local exchanges. However, this is not viewed at present as posing any significant problems.

2.6. Carrier selection and pre-selection

The opening of long distance competition in 1992 led to the introduction of carrier pre-selection with the mandating of equal access for all incumbent switches. Most of the incumbent switches had implemented carrier pre-selection by the end of 1997. Some of the smaller independent companies have also been required to convert their switches.

2.7. Spectrum allocation and the licensing of mobile operators (including UMTS)

Spectrum planning, its regulation and licensing is the responsibility of Industry Canada, the Ministry responsible for telecommunication policy. Canada has had a policy of allocating spectrum on a “first-come first-served” basis in those markets where there is sufficient spectrum resources. Where insufficient resources exist then a competitive spectrum allocation process is used. Thus for the announcement of cellular licences in 1983 and subsequently in 1995 a comparative tender (beauty contest) was used (Table 6). Applicants at that time had to provide information demonstrating that they had the technical capability to provide service, the financial capability and provide other technical and economic data. In 1990, an added requirement applicable to all cellular carriers, was to commit to research and development. As part of the licence conditions, successful applicants were required to provide an annual report for each of the first five years, including data on the percentage of adjusted gross revenues allocated to R&D. Such industrial policy goals should not be attached to licensees. Governments have at their disposal a range of fiscal and budgetary tools to stimulate R&D. To place such obligations on cellular licensees may distort the market and prices and is contradictory with other goals such as affordability.

Since 1999 spectrum has been allocated through auctions. The second time auctions were used was in January 2001 for PCS spectrum. In this auction 52 of the available 62 licences were sold to five successful bidders for a total of approximately CAD 1.5 billion. Information requirements from applicants have also been streamlined. Although Industry Canada has favoured the use of auctions, there is no obligation to use the auction mechanism. The choice of licence allocation mechanism is left to the Minister of Industry and can be changed if the Minister decides this would be in the public interest. This can lead to uncertainty in the market and could lead to market distortions. Such distortions could occur since in Canada spectrum can be used for whatever technology the user chooses so that using different allocation mechanisms for spectrum that may be substitutable could impose different costs on market players.

Foreign ownership restrictions apply to spectrum licences. The procedure used to ensure that licenses meet these restrictions imposes an important cost on the industry. This is because the process to ensure that bidders meet foreign ownership limitations takes place after the licences have been allocated. In turn this means that bidders have to wait until they become an official licence holder even though they have had to pay immediately for their licence. This imposes a financial cost on bidders in terms of foregone interest as well as in delaying their investment and eventual commercial launch. The procedure can also create an anomaly if a successful bidder does not meet the foreign ownership limitations. This would then require that the spectrum be offered again to potential bidders and could lead to collusion by potential market entrants.

An argument can also be made that licence allocation, that is the regulation of market entry, should be the task of the regulator, the CRTC, whereas spectrum planning, a policy function, should remain with Industry Canada. There is no evidence that the present structure has caused any conflict. Nevertheless in that wireless communications is increasing in importance a differentiation between policy and regulation, as is the case for the rest of the industry, would be preferable. In any event

licensees, after obtaining their licence from Industry Canada, need to register with the CRTC for certain purposes including the payment of contribution. Otherwise, the CRTC has forborne from regulating the wireless industry as it considers the industry to be sufficiently competitive.

Spectrum allocations in Canada are also based on consultations with *the Comité International des Télécommunicationnes* (CITEL) under the Organisation of American States which is mandated to promote co-operation and harmonisation of the spectrum on a regional basis in the Americas. For this reason the delays in the United States on the appropriate choice of bandwidth for 3G spectrum, which could delay licensing to after 2004, could have a negative impact on Canada in terms of delaying their licensing procedures.⁵⁵ Canada's choice of 3G spectrum is for the 1710-1850 Mhz band.

Licence fees and contribution (universal service) expenses are usually passed on directly to consumers in Canada as a "system access fee".⁵⁶ This charge is now in the region of CAD 6.95 up from about CAD 4.50.⁵⁷

A public consultation took place on a new fee model in 1996 and a further public consultation is expected to begin in the 1st half of 2002. The new fee model being proposed in for licence fees to be based on the amount of spectrum consumed and the relative scarcity of the spectrum in an area. A model is being developed which will allow for the calculation of spectrum consumption and relative scarcity by geographic area.⁵⁸

2.7.1. Rights of way

Unlike most regulators in OECD countries the CRTC has strong powers to arbitrate rights of way disputes. The Telecommunications Act gives public telecommunication operators the right to "enter on and break up any highway or other public place for the purpose of constructing, maintaining or operating its transmission lines".⁵⁹ Although telecommunication operators need to obtain the consent of municipalities to obtain rights of way, the CRTC can intervene in disputes between municipalities and carriers. Where a carrier cannot reach agreement with a municipality the Commission can grant the permission subject to any conditions that the Commission determines.

Table 5. Mobile licensing procedures

Type	Number of applicants	Process	Obligations	Restrictions on utilisation
Cellular 1983 800 MHz	5 applicants 2 successful	Comparative set aside for telecommunication companies	R&D and roll-out	Mobile telephony
PCS 1995 1.9 GHZ.	13 applicants 4 successful	Comparative	R&D Lawful intercept Roaming Roll-out	None
PCS 2000 1.9 GHZ.	7 applicants 5 successful	Auction	R&D Lawful intercept Roll-out	None

Source: Industry Canada.

In a recent decision the CRTC ruled that a municipality could recover causal costs resulting from construction, but was not entitled to fees or other compensation for the use of space in rights of way. Further, the CRTC decided that it is inappropriate for municipalities to require carriers to construct spare capacity and require other carriers to use this capacity (see Box 2).

This decision of the CRTC with respect to rights of way raised questions in Canada with respect to the extent of jurisdiction of the CRTC. The Federal Court of Appeal granted the Federation of Canadian Municipalities and several cities leave to appeal the CRTC Decision. The court decision will be important for the future of local competition in Canada. Should the court not support the jurisdiction of the CRTC in this area it is likely that local competition will be slowed down considerably and the bottleneck control of incumbents enhanced.

Box 2. Municipal rights of way

Obtaining rights of way is essential for new entrants in the telecommunication market. Such rights of way are not only crucial for facilities-based local telecommunication service providers, but also for a range of other public telecommunication operators. There has been a growing tendency by municipalities across a number of OECD countries to view access to rights of way as a means to leverage revenue for the municipality, in effect imposing a tax on facility-based operators. There are a number of examples, as well, where municipalities have decided to construct their own networks requiring new entrants to use these networks by forbidding construction of new facilities. Such policies can create new local monopolies (or duopolies since incumbents usually have their own facilities already in place), can prevent consumer choice, reduce technological innovation and place upward pressure on prices. Such municipal policies ignore the role of communication networks in economic growth and in providing new services, and the importance of competition in lowering prices and in accelerating the diffusion of new technologies.

The recent decision by the CRTC in Canada (CRTC Decision 2001-23, Leducor/Vancouver – Construction, operation and maintenance of transmission lines in Vancouver, 25 January 2001) should be viewed as a landmark decision by other OECD regulators. The City of Vancouver wanted to impose a number of conditions on a company wishing to install a fibre optic network. These included distance-based access (licence) fees, additional licence fees based on a share of the company's revenue in the City, granting the City exclusive use of some fibre capacity, and a list of the companies customers so that the City could impose additional revenue-sharing licence fees on public telecommunication operators that had purchased capacity on this network.

The CRTC in its decision granted Leducor permission to construct, maintain and operate transmission lines in Vancouver and established terms and conditions to that permission. The demands of the City were rejected as inappropriate. Leducor was directed to pay to Vancouver the sum of CAD 7.613. The CRTC also rightly stressed the necessity of carriers to participate with municipalities in joint planning and co-ordination committees.

A carrier can request the Minister of Industry Canada to expropriate private lands if viewed as necessary for the construction of a carrier's network and if negotiations with the owner fail.⁶⁰ The CRTC approves the procedure.

2.8. Universal service

Universal service is defined in Canada to include basic telephone service including some touch-tone services. The CRTC has explicitly included the ability to access the Internet without long distance charges in the basic service objectives as in many other OECD countries.

The funding mechanism for universal service in Canada has changed significantly since the beginning of 2001. Following the implementation of long distance competition the long distance carriers were the only carriers that had to make universal service contributions. Between 1992 and 1997 long distance service providers were required to contribute to the universal service access deficit through a per minute contribution charge. This "contribution rate" was calculated on the incumbents' revenue shortfall from providing local and access services. This shortfall was calculated on the basis of embedded costs (embedded cost methodologies are commonly criticised for not properly calculating joint costs which would be important in the case of monopoly local service providers). This methodology would tend to exaggerate the access deficit and therefore the payments made by the long distance carriers to support universal service without compensating steps.⁶¹ Arguably it also had the effect of reducing the incentive of incumbents providing access to increase efficiency and would

have given incumbent local service providers, who also provide long distance services, a competitive advantage over new long distance service providers. In addition, as competition developed and the retail price per minute declined and the volume of traffic increased the amount paid as a subsidy increased. In 1993 the total contribution collected amounted to CAD 3 billion. For 2002 the contribution, on an interim basis, has been calculated at CAD 279 million.

The rationale for the contribution was that long distance services were subsidising the cost of providing local access. However, by imposing part of the burden of supporting this access deficit on new entrant long distance companies the initial policy of the regulator restricted the ability of these companies to compete (the discount in contribution charges of 25% helped reduce the burden).⁶² In particular, in that new entrants were restricted from providing integrated telecommunication services (i.e. local access) they were at a competitive disadvantage relative to incumbent companies that offered local access and long distance. Only two years after long distance competition was implemented was a decision made to begin rate rebalancing of local rates and this was to take place over a four year period. As a result new entrants in the long distance market had to bear a burden over a six year period to support universal service without concomitant benefits which incumbent carriers obtain from being the providers of universal service.⁶³

Only in 2001 were changes made to the funding mechanism for universal service shifting the burden away from long distance carriers and spreading it more evenly across the whole industry. Changing the costing methodology will also reduce the burden. For example, Sprint Canada estimates that the changes to the contribution regime will save it CAD 80 million.⁶⁴ Effective on 1 January 2001 a revenue-based mechanism was introduced requiring all telecommunication service providers⁶⁵ in Canada (fixed and mobile) to pay a percentage of their gross telecommunications revenues into a national fund to subsidise residential telephone service in high cost areas (Decision 2000-745). The percentage for 2001 was fixed at 4.5% of eligible revenues and will be adjusted annually.⁶⁶

As a follow-up to its Decision on universal service the CRTC defined more precisely the high-cost areas using a uniform national methodology. In this context Canada was divided into low-cost and high-cost local subscriber areas, or bands.⁶⁷ This Decision lowered estimates of incremental costs for the provision of local subscriber service thus reducing the total subsidy needed to ensure the provision of universal service. The final decision on calculating the subsidy will be taken in conjunction with the review of price caps taking place in 2001. The level of contributions was CAD 3 billion in 1993, about CAD 1 billion in 2001 and was set at CAD 279 million in 2002 (1.4% of eligible telecommunication revenues, down from 4.5% in 2001).

It is estimated at present that by using incremental costing, starting in 2002, to calculate the universal service subsidy that the level of total contributions will drop significantly. The subsidy would be paid to incumbent and competitive local telephone companies in areas eligible for subsidy based on forward looking incremental costs plus a 15% mark-up.

When local competition was introduced in Canada the CRTC implemented a portable subsidy mechanism to assist new local entrants in offering service in rural and remote areas where the incumbent was providing service at prices below cost. Contributions must be paid to a central fund administered by a third party. The fund is redistributed to local service providers according to a CRTC approved formula.

The CRTC's Decision on *Telephone Service to High Cost Serving Areas* (99-16) defined a basic level of service (defining universal service). This Decision stated that all Canadians should have the ability to obtain single touch-tone access, the capability to access the Internet at low speed without paying long distance charges, access to emergency services, etc. Telephone companies were required

to file service improvement plans to meet the basic service objectives for approval by the CRTC. This Decision was aimed at extending service to unserved areas, upgrading services in underserved areas and ensuring that service levels did not decline as a result of competition. This will eventually lead to the elimination of existing party lines and lines using rotary dialling.⁶⁸

There is a need to ensure that there is no potential conflict and inconsistency in policies for universal service linked with the emergence of new services. Recent CRTC initiatives have been aimed at creating local competition including the necessary rebalancing of prices to cost undertaken at a rate which would minimise the impact on consumers for reasons of universal service and removing market distortions resulting from the era of monopoly provision of services. These policies have aimed at identifying more precisely the high cost areas thus targeting subsidies more precisely and have also approved price increases in these areas to bring prices more in line with costs. Inmate, On the other hand there has been pressure on government to provide assistance for the development of advanced telecommunication infrastructures (broadband) which, if carried out could lead to market distortions.⁶⁹ The CRTC has decided not to include broadband as an explicit part of universal service following its traditional scope of universal service, which was to allow new advanced services to develop sufficiently in the market and to reach a sufficient level of ubiquitous national penetration so that lack of service could lead to social and economic disadvantage.

2.9. Quality of service

Quality of service indicators have been part of the regulatory framework since 1982. In 1994 the CRTC decided⁷⁰ that it would monitor the quality of service of all telephone companies under its jurisdiction for services where there was monopoly control. A new model was implemented in July 1997 whereby the main incumbents reported on service quality using uniform national standards. The CRTC approved a set of national quality of service standards that came into effect at the beginning of 1999 introducing some new indicators and withdrawing other indicators which were considered no longer relevant in view of technological and market conditions.

Most regulators use quality of service indicators to measure services provided by operators to end customers. The changes that took place in April 2001 were innovative in that the CRTC introduced new service indicators that measure the supply and repair of services provided to Competitive Local Exchange Carriers by Incumbent Local Exchange Carriers.

The CRTC also created five “competitive-related interval” indicators for reporting compliance with intervals and standards negotiated in the CRTC Interconnection Steering Committee and approved by the Commission. These included indicators on new unbundled loop orders met, and local number portability orders met.

2.10. Consumer issues

Consumers have recourse to the CRTC to handle complaints if they are not dealt with satisfactorily by the companies. These complaints are forwarded to the company concerned which must respond within 20 days. If necessary the Commission may undertake more formal proceedings including a public hearing. In addition to the CRTC, a number of the competitive long distance providers created *The Ombudsman for Telecommunications Services* to deal with complaints about long distance service.

It is claimed by the Public Interest Advocacy Centre ⁷¹ that there are 130 000 households who cannot afford telephony in Canada. Attempts to introduce lifeline type services which would involve cheap fixed charges but with time-based calling charges, have been rejected by potential users and a number of Advocacy groups, because of a conception that this would be discriminatory by providing differentiated services to those on lower incomes.

The CRTC's consultative processes supports small users. e CRTC procedures allow for providing financial support to small users and other consumer groups for whom the cost of making interventions in proceedings would be difficult.

2.11. Streamlining regulation

Section 34 of the Telecommunications Act deals with forbearance by the CRTC. Specifically this section states that:

“The Commission may make a determination to refrain, in whole or in part and conditionally or unconditionally, from the exercise of any power or the performance of any duty..... in relation to a telecommunications service or class of services provided by a Canadian carrier, where the Commission finds as a question of fact that to refrain would be consistent with the Canadian telecommunications policy objectives.”

The CRTC has taken a number of decisions to streamline regulation by forbearing from regulation. Major decisions include forbearance in the context of sale of terminal equipment by public telecommunication operators, long distance services, mobile cellular services, Internet services, international telecommunication services, and interexchange private line and some data services. Decisions to forebear take into account a number of factors including market shares, demand conditions, market entry and barriers to entry. These factors are based on similar concepts as used by the Competition Bureau to measure the scope and extent of competition.

As stated in the Act the CRTC can forebear unconditionally or conditionally. For example, in the case of national long distance services the CRTC forbore conditionally.⁷² Although there is merit to such a procedure, it also has the disadvantage that it allows for “implicit regulation” in that the regulator retains the threat to reintroduce sector specific regulation in areas which are no longer subject to active regulation. Effective streamlining of regulation means that a decision is taken that sector specific regulations are no longer required and competition rules hold full sway over that segment of the market.

Market entrants, both the incumbent and new entrants, have the right to request forbearance. The CRTC would then undertake an open hearing before taking a decision.

2.12. Internet and broadband policies

In Canada a number of regulatory decisions have been made to facilitate the development of Internet. The CRTC in 1998 determined that CATV operators had to provide open access to their facilities to enable third party ISPs to provide high speed cable modem services (CRTC 98-9). This decision was followed up in 1999 with a requirement that incumbent cable companies offering cable modem services were required to resell these services to ISPs at a CRTC mandated discount of 25% (CRTC 99-11). The latter decision was implemented as an interim decision pending the availability of the provision of adequate interconnection to CATV networks for ISPs.

The CRTC ruled in September 2000 that telephone companies would be required to provide resellers wishing to offer high speed DSL services with co-location and unbundled local loop access at the same rates and conditions as offered to competitive local exchange carriers. However, DSL resellers cannot use these facilities to provide switched voice services. Line sharing is an important part of local loop unbundling and in some countries is part of the definition of unbundling. The incumbent carriers have provided voluntarily access to line sharing for wholesale DSL competitors.

Internet Service Providers are not subject to telecommunication regulation nor are they required to register. The CRTC does not regulate the retail Internet services provided by telecommunication carriers. The tariffs charged by ISPs to end customers are not subject to regulation. However, the prices charged by the incumbent telephone and cable companies to ISPs to access their infrastructure are subject to CRTC approval. Canada opened up the cable networks to third party access at an early stage. This allowed ISPs to access the cable infrastructure to provide retail services. However, the process to determine the appropriate framework, including wholesale prices, took several years to reach conclusion. Only in August 2000 did the CRTC approve the terms that cable companies can charge ISPs for access to cable facilities.

The regulatory treatment of Internet Protocol (IP) telephone services essentially depends on whether the service is “phone-to-phone”, and whether a call initiated in packet switched mode in Canada is terminated in circuit switched mode in Canada.⁷³ The revenues from such calls would be deemed to come under the contribution regime for universal service. However, since such services are not being offered to a significant extent it is unlikely that any attempts would be taken to impose regulations.

An interesting case in Canada which may have sparked demand for broadband access was the request by JumpTV Canada. JumpTV applied to the Copyright Board of Canada for a tariff to be applied to the retransmission of over-the-air broadcasts over the Internet.⁷⁴ Some interest groups have argued that the retransmission regime should not apply to Internet retransmitters. The Board was asked to examine this issue. However JumpTV withdrew its application for the tariff certification before the Copyright Board could pronounce itself on the issue of a mandatory licensing regime to the Internet.⁷⁵ The government has since introduced legislation to amend the Copyright Act which it has stated will be in a manner that will maintain the technological neutral basis of the retransmission regime while enabling the introduction of regulations appropriate to Internet based retransmission.

Box 3. Inside wiring

The development of telecommunication and Internet competition has created a demand for access by infrastructure providers to buildings and multi-residence buildings. In several OECD countries, concern has been expressed about the risks of access bottlenecks being created in multi-residence buildings. For example, in Sweden the regulator that examined the risks of monopolisation of broadband services to apartment blocks and expressed concern about building owners and operators entering into long-term exclusive deals which limited the scope of residents to choose their service provider. The CRTC is currently undertaking consultation on access to multi-dwelling units to examine how to ensure non-discriminatory access and customer choice. These proceedings raise important issues such as whether access to buildings are a question best left to owners and not in the purview of a regulator or whether the regulator has a responsibility to ensure affordability and access and therefore needs to defend the interest of consumers.

2.13. Application of competition principles

The role of the Competition Bureau in the development of competition in the Canadian telecommunications market has been limited. There are a number of reasons for this. The powers of the CRTC, which include investigative powers, are much greater than those of many telecommunication regulators in the OECD. The emphasis of the Competition Bureau on advocacy rather than active engagement in the sector is a rather weak response compared to the more active role other competition authorities have exercised in the sector. The Competition Act also applies to conduct that is not regulated or when the regulator of the sector has forborne from exercising its regulatory authority.

The Competition Bureau entered into an Interface Agreement with the CRTC in 1999.⁷⁶ Under the agreement the CRTC retained responsibility for technical issues related to interconnection and network access and for promoting social goals in the context of universal service and broadcasting policy. The CRTC/Competition Bureau Interface covers four areas: where the CRTC has forborne or exempted from regulation; where the CRTC and the Competition Bureau both have authority; where the CRTC is exercising exclusive authority; and where the Competition Bureau is exercising exclusive authority. A number of guidelines have been provided to clarify relative jurisdiction and responsibilities. These include a commitment that the CRTC, to the maximum extent possible, identify in its orders and decisions the powers and duties which it will no longer exercise. It was also noted that where the CRTC has forborne only in part or forborne conditionally, the Competition Bureau would consider that the Competition Act would apply to the activities exempted or conditionally forborne from regulation. For mergers both bodies would have concurrent jurisdiction as laid down in the different Acts. Issues of interconnection and access fall within the jurisdiction of the CRTC, but the Competition Bureau would deal with price fixing, bid rigging and price maintenance.

The Interface Agreement is important in trying to clarify the respective roles of the CRTC and the Competition Bureau. However, further clarification of the respective roles of the two bodies is desirable. An important step in this regard would be for the CRTC to forebear unconditionally which would then have the merit of ensuring that certain areas come within the full scope of the Competition Bureau's jurisdiction. There are two potential barriers which may prevent this taking place. The first is that the CRTC cannot forbear from foreign ownership and control limitations and other regulatory issues which may arise as a result of a merger. The second is that given the importance in telecommunication regulation of ensuring non-discrimination especially with respect to access to incumbents' facilities and pricing, the CRTC has not in general forborne with respect to its powers to ensure non-discrimination (Section 27(2) of the Telecommunications Act). The first barrier would disappear if foreign ownership restrictions are removed. The second may require enhancing the powers of the Competition Bureau.

Despite the Interface Agreement there is still some 'forum shopping' taking place by telecommunication market participants.

2.14. Canada and the WTO agreement

In the context of the General Agreement on Trade in Services and the basic telecommunications agreement (Fourth Protocol) Canada made a number of concessions:

- End Teleglobe Canada's monopoly on transcontinental (overseas) traffic on 1 October 1998.

- End Teleglobe's special ownership restrictions which prohibit investment by foreign telecommunication carriers and limit the investment by Stentor (the incumbent carriers).
- Allow a level of 100% foreign ownership and control of international submarine cable landings in Canada as of 1 October 1998.
- Allow 100% foreign ownership and control of mobile satellite systems used by a Canadian service provider to provide services in Canada.
- End Telesat's monopoly on the fixed-satellite system on 1 March 2000.
- Allow the use of any foreign satellite to provide services to Canadians from 1 March 2000 (broadcasting services, i.e. DTH/DBS were excluded).

The only limitation on market access to the Canadian telecommunication service market is in regard to restrictions on foreign investment in facilities-based telecommunication service suppliers. Foreign investment is permitted up to a cumulative total of 46.7% of voting shares, based on 20% direct investment and 33% indirect investment. In addition there is a limitation on national treatment in that at least 80% of the Board Members of facilities-based telecommunication services suppliers must be Canadian.⁷⁷ There are no foreign investment restrictions on resellers.

Canada, as already noted, also maintains restrictions on competition in the provision of local services in the service areas of some small town and rural companies.⁷⁸

The Article in the 1993 Telecommunications Act regarding promotion of "the use of Canadian transmission facilities for telecommunications within Canada and between Canada and points outside Canada"(Article 7e) is now defunct and there is no longer any attempt at enforcement of this policy. All mobile satellite services became unrestricted in terms of routing from 1 October 1998, all international services became unrestricted on 31 December 1999 and satellite services became unrestricted in terms of routing on 1 March 2000.

Canada's foreign investment restrictions also act as a barrier to Canadian companies in their plans to invest in foreign markets. The Government of Canada took a leading role in the WTO agreement on basic telecommunications and should act to promote the principle of open markets, including open investment rules, by abolishing the existing restrictions on foreign ownership of telecommunication operators.

Canada had signed in 1988 a Canada-USA Free Trade Agreement which opened valued added services markets to competition but did not cover basic telecommunication facilities or services. Bilateral international value added service agreements were also agreed to with the UK and Japan at that time.

2.15. The impact of convergence on regulation

Following the launch of a public consultation process in 1994⁷⁹, the government issued a Convergence Policy Statement in 1996. The statement covers: interconnection and interoperability of network facilities; continued support for Canadian content; competition in all communication products and services. The statement led to amendment of the Bell Canada Act to remove the prohibition on Bell Canada from holding a broadcasting licence. There is a requirement that on broadcasting distribution undertakings and telecommunication carriers that if they wish to provide a broadcasting programme service, the programming licence must be held by a structurally separate entity.

The convergence Statement was important in that it established a framework to allow for cable companies to enter the telephony market and for telecommunication carriers to enter into the broadcasting distribution market. The CRTC would only allow telecommunication carriers to enter into broadcasting distribution when the framework for competition in local telephone service had been put into place (effectively allowing the cable companies to enter into the local service market). On 1 January 1998 the CRTC allowed telephone carriers to apply for broadcasting distribution licences.

In the context of developing multimedia and broadband services the government also provided licences through a comparative review to three companies providing Local Multipoint Communication Services⁸⁰ in 1996. However, the licensed companies have not met initial expectations in furthering competition and providing wider choice to consumers. After merging in 1999 the last licensee went into receivership at the end of 2000.⁸¹ Further licensing took place in March 2000 of Multipoint Communication Systems providing two licences in the 2500 Mhz band. Inukshuk Internet Inc. was awarded 12 of the 13 available service areas and SaskTel, Saskatchewan's telephone company, was awarded the licence for that province.

The CRTC has traditionally regulated cable service prices. It began a process of deregulating cable rates following the adoption of the *Broadcasting Distribution Regulations* at the end of 1997. As a result new entrants are not rate regulated and incumbents can apply for rate deregulation if a licensed competitor is accessible to 30% of households in the incumbent's service area, and if the cable incumbent can show that it lost 5% or more of its basic subscribers since competition entered its service area.

3. Performance of the telecommunications industry

3.1. Introduction

The rationale for regulatory reform is the increase in the efficiency in the provision of services and the beneficial effects it is expected to deliver to users and consumers. This section assesses the performance of the Canadian telecommunications industry in the delivery of those benefits to users and consumers, using indicators related to network penetration, investment, price, quality, and productivity.

Canada is having success in creating a competitive telecommunications market. In the move from a monopoly telecommunication market structure to an open competitive market, the development of market share can be an important indicator of the effectiveness of the policy framework. On the basis of changes in market shares, and given the relative length of time markets have been open to competition, Canada has performed relatively better on average than most OECD countries. In its first report on the *Status of Competition in Canadian Telecommunications Markets*⁸² the CRTC reported that in 2000:

- New entrants had a share of 49% of business long distance minutes.
- The share of international telecommunication minutes was shared 50/50 between incumbent telephone companies and competitors.
- Competitors had 39% of data revenues.
- Non-incumbent carriers had a 41% market share of dial-up Internet subscribers.

There are other facets of competition from which Canada has benefited some of which are discussed below. These include lower prices, more choice, improved quality of services, and a rapid

development of high speed Internet access. In terms of prices, Statistics Canada's telephone service price index⁸³ shows that between January 1990 and July 2001 the index increased by 18.6% compared to an increase of 28.3% for the consumer Price Index during the same period.⁸⁴

The total telecommunication service market in Canada generated CAD 31.1 billion in 2000. Of this total 78% was from wireline services and 18% from wireless services. The major incumbents accounted for 69.6% of revenue with the largest incumbent, Bell Canada accounting for 37.9% of revenue. New entrants in the fixed market accounted for 8.7% of revenue. For Bell Canada local services and access accounted for 38% of its revenue and long distance 18%. In terms of growth Internet services were the most dynamic (Table 7) but still account for a small percentage of total revenues. Because of the low take-up of mobile services in Canada the revenues from this market are growing slowly relatively to some other OECD countries and the weight of these revenues in the total market are small.

Table 6. Distribution of telecommunication service revenues
(bn CAD)

	1999	2000	Growth
Long distance voice	8.5	7.8	-8%
Local and access	9.0	9.6	7%
Data (excluding Internet)	3.6	4.6	28%
Internet	0.8	1.3	63%
Mobile (excluding satellite)	4.6	5.4	17%
Total	26.5	28.7	8%

Source: CRTC.

3.2. Network growth

As measured in constant Canadian dollars, telecommunication investment has grown at a compound rate of 3% from 1981 to 1999 compared to the growth of investment for all industries of 1.8%.⁸⁵ Compared to the mid-1990s when telecommunication capital expenditure was in the range of CAD 4 billion, by the end of that decade investment had reached around CAD 6 billion per year. Relative to other OECD countries investment in Canada, measured as a percentage of revenue (Table 8) has performed relatively well.

Table 7. Public telecommunication investment as a percentage of revenue

	1986-88	1989-91	1992-94	1995	1996	1997	1998	1999
Canada	27.1	30.3	26.4	21.7	22.5	23.5	24.4	28.2
France	31.6	27.2	25.8	22.9	19.5	22.4	22.4	17.0
Germany	42.0	45.4	41.0	24.5	33.7	27.4	22.1	21.6
Italy	40.0	55.6	38.0	22.9	22.4	23.3	27.4	22.9
UK	20.8	18.8	13.3	14.4	23.8	27.9	20.0	25.3
US	16.9	16.3	16.0	19.4	20.1	21.1	24.1	29.3
OECD average	25.8	27.5	25.0	24.0	25.4	24.4	25.1	26.6

Source: OECD, Communications Outlook 2001.

3.3. Cellular mobile services

The cellular mobile network in Canada covers 94% of the Canadian population (low by European standards), and has a much lower geographic coverage than most countries. The growth in mobile penetration has been quite low. In mid-2001 Canada had slightly over 30% penetration compared with over 70% for a number of European countries. Whereas in many OECD countries mobile penetration rates now exceed fixed line penetration rates, in Canada significant growth would need to take place before this occurred. Several hypotheses have been put forward for this: the widespread diffusion of fixed telephones and the fact that users do not pay timed charges for local calls; widespread availability of public telephones; the fact that there is a called party pays pricing framework which in turn was not initially conducive to pre-paid cards. Table 9 shows the growth in cellular mobile subscriber penetration rates in Canada and market shares.

Table 8. Cellular Mobile Market Share and Total Subscribers (%)

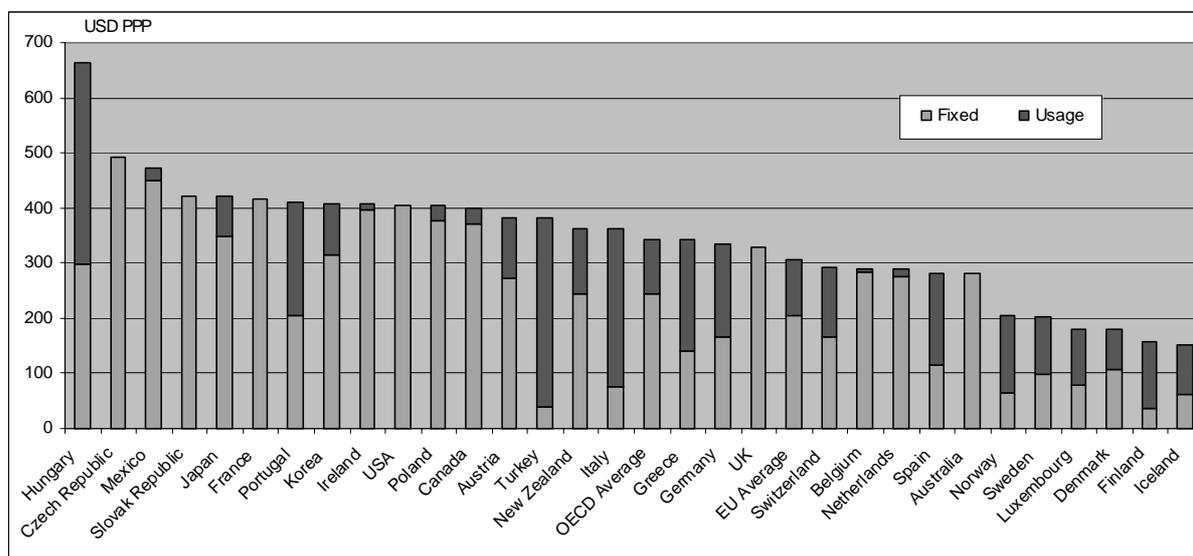
	1990	1997	1998	1999	2000	2001 June
Mobility Canada ¹	49.5%	59.3%	56.2%	52.1%		
Bell Wireless					35.8%	36.2%
Microcell		1.6	5.3	8.5	10.6	10.9
Telus Mobility Clearnet ²		2.3	5.8	8.1	24.8	24.5
Rogers Wireless ³	50.5	36.9	32.7	31.3	28.8	28.4
TOTAL	525 662	4 207 019	5 317 247	6 883 195	8 709 180	9 513 391
Market penetration	1.9	14.0	17.6	22.6	28.3	30.9

Source: Canadian Wireless Telecommunications Association.

1. Mobility Canada consolidated data. Became Bell Wireless Alliance and Telus Mobility after 1999.
2. Merged into Telus after 1999.
3. Rogers AT&T Wireless up to 1999.

An important reason, as well, for slower cellular mobile growth is price performance. Prices for a residential basket of cellular services in Canada are high and above the OECD average (see Figure 1). Prices are not regulated in the mobile sector, nor would this seem to be necessary. However, the imposition of direct licence fees and indirect taxes (through R&D requirements) and the requirement to contribute to universal service have an impact on prices. Important changes have been taking place in pricing structures – for example prices are becoming less distance sensitive (Canada's mobile prices have differentiated between local area calls and national long distance calls compared to Europe where mobile prices do not differentiate between calls). Now that the main players have a national presence, at least as regards major centres of population, competition should improve and as a result price performance.

Figure 1. OECD Basket of consumer mobile telephone charges, August 2001
(VAT included) in USD PPP



3.4. Development of competition

As in all OECD countries competition has developed most rapidly in the long distance market in Canada and in particular in long distance business markets. According to the CRTC new entrants took 49% of long distance minutes in 2000 compared to 45% in 1998. However the share of new entrants in long distance business revenues declined from 51% to 46%. In residential markets, the new entrants' share of long distance minutes in 2000 declined to about 18% from 26% in 1998. During the same period, their share of residential long distance revenues declined from 31% to 27%. The overall share of new entrants in the long distance market was 34% and approximately 45% of their minutes were carried on their own facilities, the remainder through resale. Average price per minute for long distance has declined significantly (see Figure 2) and demand has been very elastic with traffic expanding rapidly.

The development of long distance competition has not been uniform across Canada: Bell Canada's market share (minutes) has declined to 61%, Telus's market share is 71%, and other incumbents' market shares are 80% or more.

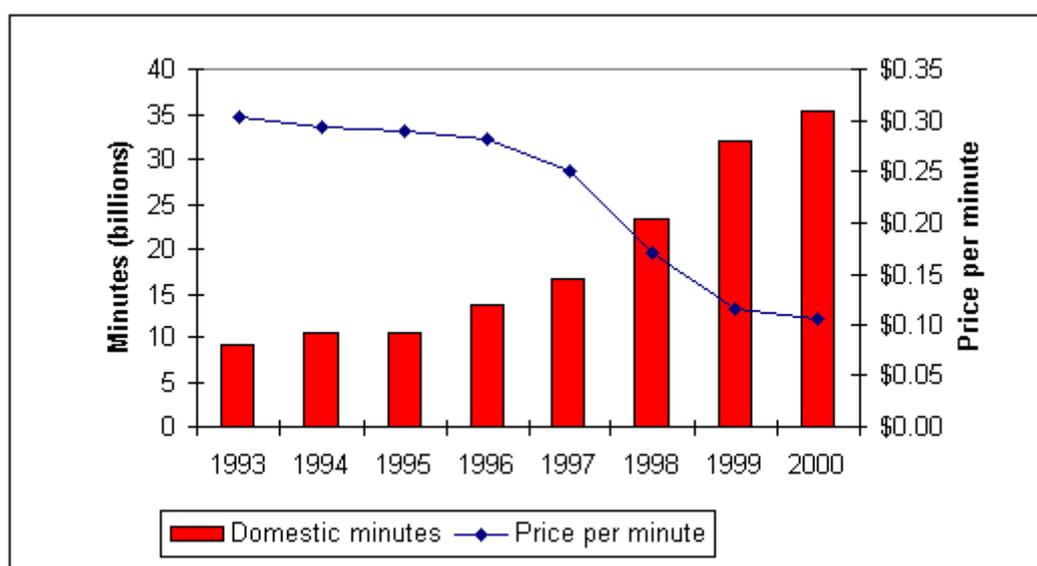
Local competition only began in 1998, later than long distance competition, and is also traditionally slow to develop because of cost and other factors. In some parts of Canada local competition will only be permitted in 2002 (in the service territories of Télébec and TELUS Québec) and in other parts local competition has yet to be introduced (in the Yukon, Northwest Territories and Nunavut and in the serving territories of the smaller ILECs, mostly in Ontario and Québec).

Table 10 shows the development of local competition. By the end of 2000, competitors had 4% of total voice lines. AT&T Canada, for example, added 145 549 access lines during 2000 and covered 27 cities in Canada with their local network.⁸⁶ The share of new entrants in the business line market, approximately 10%, was significantly higher than the 0.2% they achieved in the residential market. The CLEC's share of business lines was mainly in central business districts and urban areas (Bands A and B). Their higher business market share is due to two factors: the relatively higher density of the

business market, but also due to higher business line charges allowing new entrants to compete more successfully given that they are able to earn a profit margin. Leasing ILEC unbundled local loops by CLECs accounted for about 18% of competitor lines in 2000 and own-facilities accounted for only about 33% of competitor lines in 2000. The remainder was through resale of Centrex facilities.

The entry of cable companies in the voice market has been disappointing in Canada in contrast to the competition they provide in the broadband market. An exception has been in Halifax where the local cable company has captured about 12% of the local telephone market.⁸⁷

Figure 2. Long distance minutes of traffic and average price per minute



Source: CRTC.

Table 9. Development of local competition

	Total voice lines ('000)			Local competitor share (%)		
	ILEC	CLEC	Total	Residential	Business	Total
1997	17 880	97	17 977	0.0%	1.6%	0.5%
1998	18 368	292	18 660	0.0	4.5	1.6
1999	18 858	492	19 350	0.2	6.6	2.5
2000	19 185	802	19 987	0.2	10.3	4.0

Source: CRTC, Status of Competition in Canadian Telecommunications Markets, 2001.

3.5. Price performance and rebalancing

In the previous section the emphasis by the CRTC on price rebalancing was noted. Tables 10 and 11 below show prices changes since 1990 for residential local service and business local service. The national average residential local monthly rate is CAD 22.75, however since there is no national geographic averaging of subscriber charges (such averaging tends to be by Province) the local monthly rate can vary quite significantly. The different service rates charged according to the different local loop bands i.e. from low cost, Band A, to the higher cost, Band D, are shown in Table 12 below. The local service areas in Canada tend to be large in terms of geographic area and population.

Table 10. Residence local service (individual line)

Location/ Year	Toronto, Ontario	Vancouver, British Columbia
1990	CAD 17.30	CAD 15.50
1991	CAD 17.30	CAD 15.50
1992	CAD 17.30	CAD 15.50
1993	CAD 17.30	CAD 15.50
1994	CAD 17.30	CAD 17.00
1995	CAD 17.30	CAD 17.00
1996	CAD 19.30	CAD 19.00
1997	CAD 21.30	CAD 21.25
1998	CAD 21.60	CAD 24.70
1999	CAD 21.60	CAD 24.70
2000	CAD 21.95	CAD 24.95
2001	CAD 22.60	CAD 25.60

Source: CRTC.

Table 11. Business local service (individual line)

Location/ Year	Toronto, Ontario	Vancouver, British Columbia
1990	CAD 55.10	CAD 54.45
1991	CAD 55.10	CAD 54.45
1992	CAD 55.10	CAD 54.45
1993	CAD 55.10	CAD 54.45
1994	CAD 51.80	CAD 57.00
1995	CAD 51.80	CAD 57.00
1996	CAD 51.80	CAD 48.00
1997	CAD 45.45	CAD 48.00
1998	CAD 39.95	CAD 49.45
1999	CAD 39.95	CAD 40.50
2000	CAD 39.95	CAD 40.50
2001	CAD 39.95	CAD 37.50

Source: CRTC.

**Table 12. Bell Canada: Residence primary exchange service rates
(CAD/line/month)**

Service	1 January 1998	1 January 1999	1 January 2000	1 January 2001	31 May 2001
Individual Line					
B1/C1	17.30	17.30	17.30	17.65	19.00
A/B2/C2a	19.05	19.05	19.05	19.40	19.80
C2b	22.60	22.60	22.60	22.95	23.25
D1	17.30	17.30	17.30	19.00	19.00
D2a	19.05	19.05	19.05	19.40	19.80
D2b	22.60	22.60	22.60	24.85	24.85
D2c	23.00	23.00	23.00	25.30	25.30
D3a	15.90	15.90	15.90	17.45	17.45

Source: Bell Canada.

In comparison to other OECD countries Canada has usually been below the OECD average in the OECD residential basket (Figure 3). It has also been among the lower priced countries for the business basket (Figure 4).

Figure 3. OECD residential basket, August 2001

VAT included, USD PPP

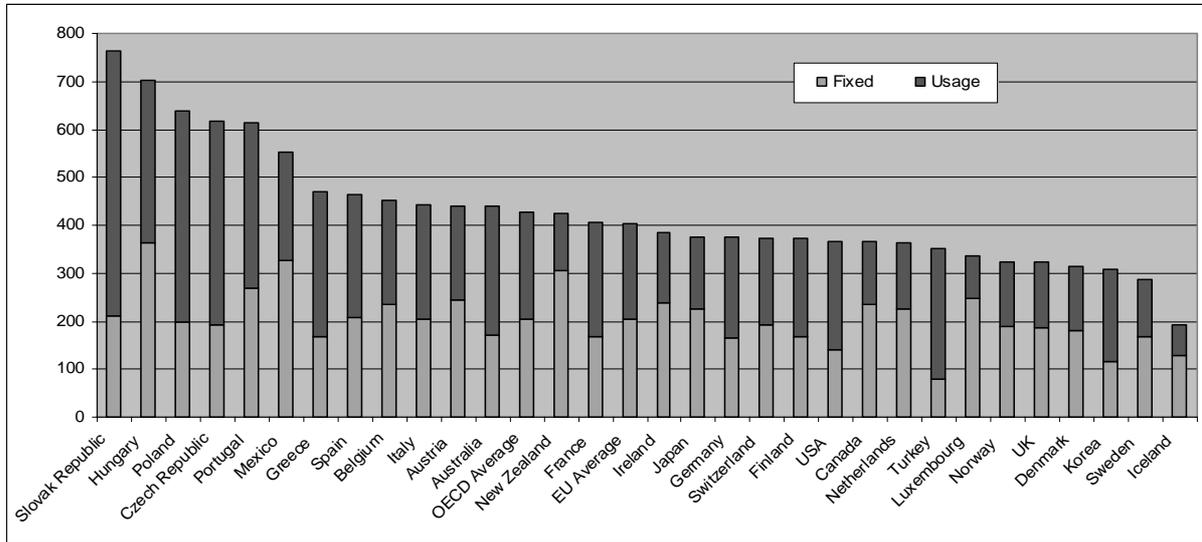
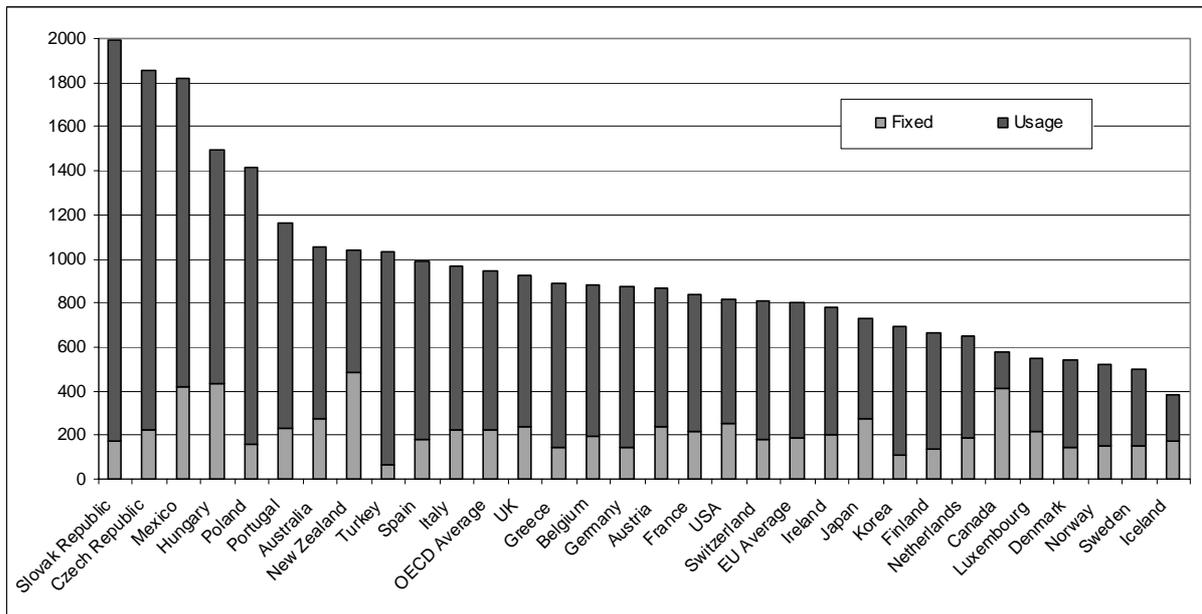


Figure 4. OECD composite business basket, August 2001

VAT excluded, USD PPP



The CRTC estimates that as a result of the change in business telephone rates between 1995 and 2000 the annual savings for a typical small business customer in an urban area ranged from CAD 423 to CAD 801 according to Province and CAD 161 to CAD 606 in rural areas.⁸⁸ Because of the increase in fixed charges, especially in rural areas, most of the savings came from the decline in long distance rates. Residential customers, on the condition that they consumed 125 minutes of domestic long distance calls per month, would also have gained. Nevertheless, because of the necessary rebalancing

of fixed subscriber charges both urban and rural residential local rates increased over 1995 to 2000, in particular for rural areas.

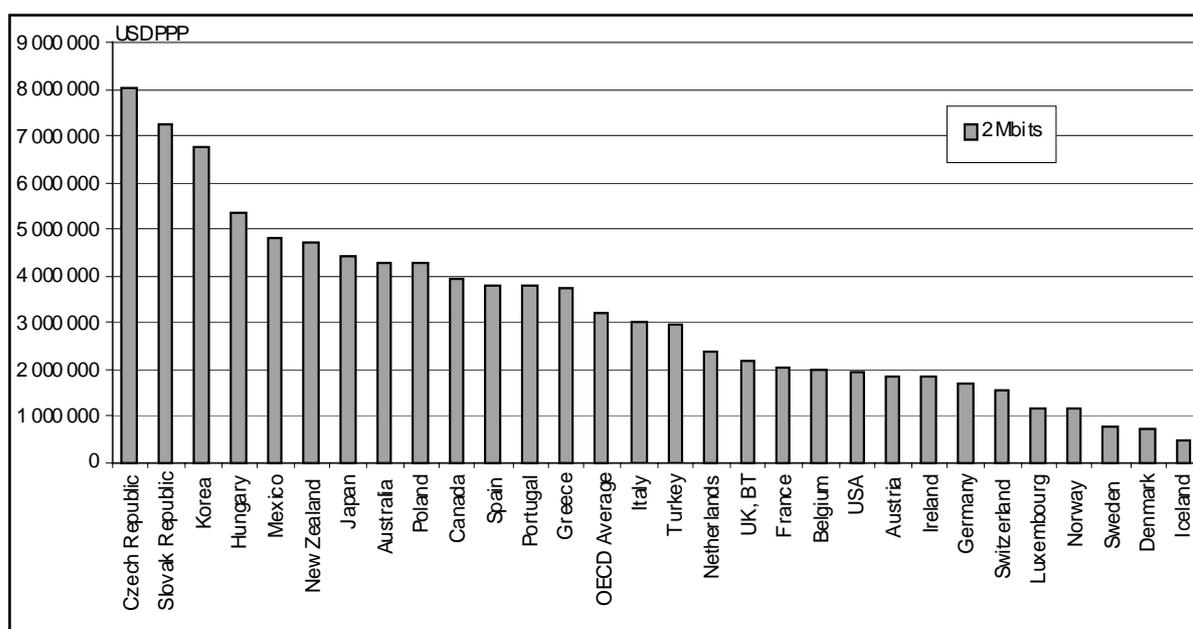
Most Canadian operators offering long distance services now provide flat rate packages for long distance which are distance insensitive. Call prices to the United States are also competitive and charged usually on a flat rate basis and can be bundled with other long distance plans.

Leased line prices are relatively high in Canada and well above the OECD average (figure 5). Leased lines can be an important component of business costs and are a key element in building up an information infrastructure and broadband access for many SMEs and businesses as well as facilitating new entrants in developing their networks.

International collection charges in Canada declined rapidly once Teleglobe lost its international service monopoly. In 2000 the average rate from Canada to all other OECD countries was USD 0.34 (down from USD 0.84 in 1999) compared to USD 0.52 for the average in the OECD.

Figure 5. OECD leased line basket, 2 Mbits

VAT excluded, Aug. 2001



3.6. Quality of service

The CRTC requires incumbent carriers and new entrants⁸⁹ to submit quality of service reports on a quarterly basis. The service level of each indicator is measured against a prescribed standard that must be met and carriers are required to report to the CRTC on why a standard was not met and provide remedies. It would be useful to users if the CRTC put these data in a single and comparative format in order to judge better relative performance by carriers.

3.7. Employment and productivity

Employment in the telecommunication service industry has decreased from 133 326 in 1991 to 116 186 by 2000. In terms of simple productivity measures, lines per employees, Canada has performed well compared to the average for the OECD (Table 14).

Table 13. Employment and labour productivity

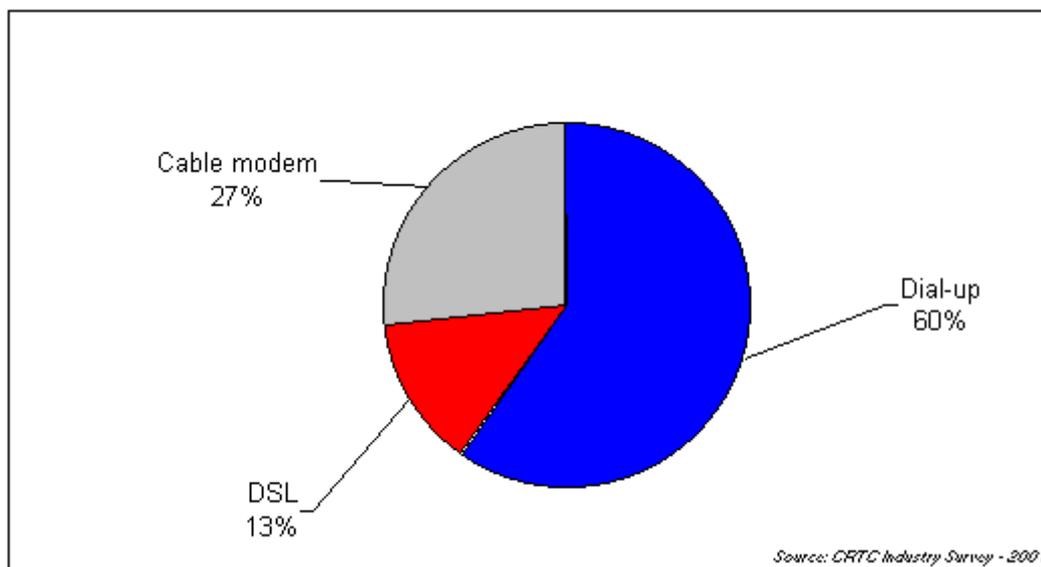
Year	1994	1995	1996	1997	1998	1999
Employees ('000)	117	120	104	112	114	114
Canada: Lines per employee	182.44	187.87	199.74	182.74	193.66	215.53
OECD: Lines per employee	178.52	185.43	189.64	190.98	192.85	182.81

Source: OECD.

3.8. Internet developments and performance

In 2000, 40% of households had Internet access, translating into over 12 million users. Non-incumbent carriers had 41% of market share compared to 32% by the incumbent telecommunication companies, and 19% by cable companies. In 2000 60% of Internet subscribers were dial-up customers. The distribution of Internet subscribers by mode of access is shown in figure 6.

Figure 6. Internet subscribers by mode of access

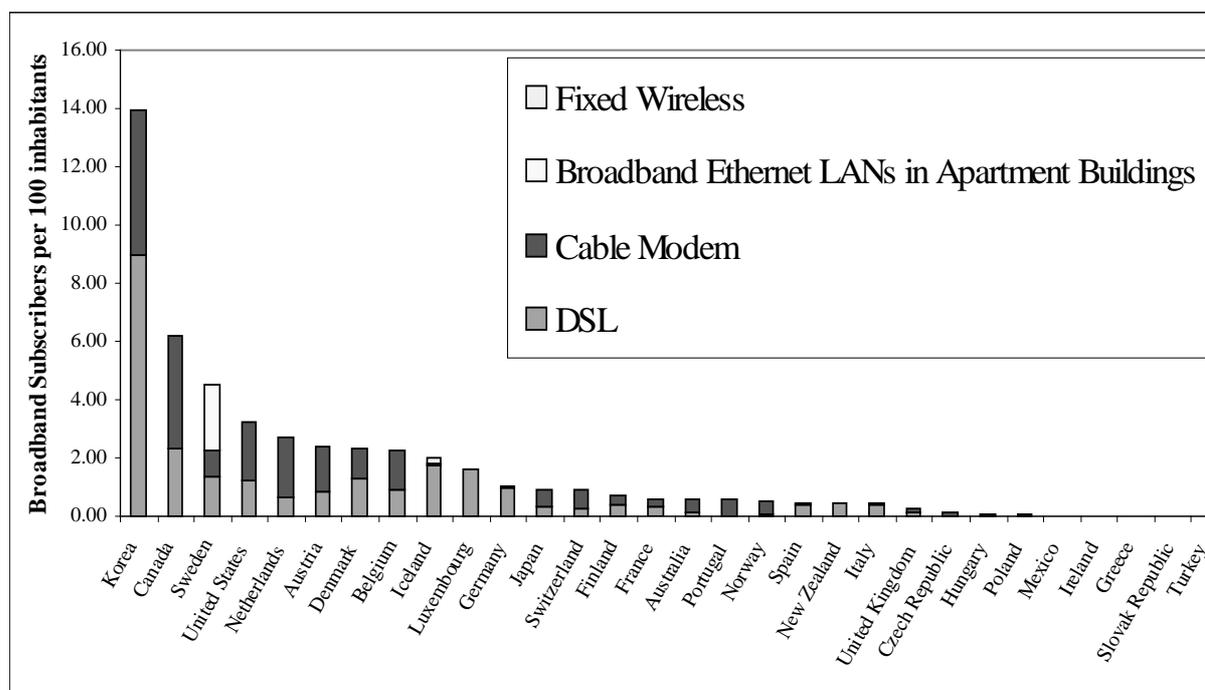


Source: CRTC.

Canada is ranked 2nd in the OECD in terms of overall broadband penetration (Figure 7).⁹⁰ By June 2001, Canada had 1.9 million subscribers to cable modem and DSL services. A key ingredient in Canada's rapid development of broadband services is competition between different networks owned by independent actors. In addition, Canada was also one of the first OECD countries to introduce unbundling for telecommunication networks and open access for cable networks.

Canadian cable networks were some of the first to introduce commercial cable modem services with the launch of commercial services in some regions as early as November 1996. A survey conducted by the Canadian television association (CCTA) found that cable television networks can potentially provide high speed access to 6 million homes. The early launch of cable modem services in Canada spurred the telecommunication carriers to act. In fact, in November 1996, SaskTel became the first telecommunication carrier in the OECD to offer commercial high speed Internet service using DSL technology. Canada is well placed to accelerate the use of broadband Internet access. In the first half of 2001, the number of DSL subscribers increased 51% and the number of cable modem subscribers by 30%.

Figure 7. Broadband subscribers in the OECD, June 2001



4. Conclusions and recommendations

4.1. General assessment of current strengths and weaknesses

The regulatory regime in Canada displays many strengths (see below). These strengths should ensure that Canada rapidly develops one of the most competitive markets in the OECD area. These strengths are based on a regulatory body which has taken a methodical and integrated approach to the development of competition, regulatory practice which has managed to bring industry together to find solutions to complex regulatory and technical problems in a consensus seeking framework, and a

government which has recognised the importance of the telecommunication service industry in the fabric of the new economy.

A key factor in Canada's success has been the powers vested in the regulator and its independence which has permitted it to pursue its main objectives of first preparing the market for the introduction of competition, and then putting in place the general framework to open the market and the regulatory safeguards necessary to support such competition. Users have already benefited substantially from competition in terms of lower prices, an improved basket of prices, wider choice, rapid offer of a number of new technologies, especially broadband services, and higher quality of services. Certainly more can be done to improve price competition.

The regulator is concentrating on the key market, the local market, where the furthering of competition is necessary. To do this the CRTC's regulatory powers for rights of way and inside wiring need to be confirmed. Similarly, leased lines need to be available at wholesale prices. It is also important that Canada licence 3G operators as rapidly as possible.

Box 4. Strengths

- Effective regulatory framework and independent regulator.
- Universal availability of good quality infrastructure with high penetration rates.
- Government supportive of development of modern, high speed communication infrastructure and services.
- CISC process as benchmark for other regulators in obtaining consensus among market players;
- Local loop unbundling in place supported by effective co-location policies.
- Ease of market entry.
- Effective measures to protect consumers.

Canada has high penetration rates for fixed telephony and cable infrastructure. These competing infrastructures are already providing strong competition in broadband Internet markets. Competition has developed rapidly in the national and international long distance markets and is making relatively good progress at the local level. Although cellular mobile competition appears to be strong the market has been slow to develop. The regulator has been willing to forbear from regulation where it has considered that effective competition has developed. But this forbearance needs to be unconditional as a rule.

There are also a number of important weaknesses that characterise the Canadian telecommunication scene.

Box 5. Weaknesses

- Foreign ownership restrictions on facilities-based public telecommunication operators and mobile operators.
- Licensing of international public telecommunication operators.
- Procedure of getting access to spectrum after auctions (foreign ownership review).
- Relatively slow decision making procedures by regulator, and;
- Contingent, uncertain application of forbearance.

The foreign ownership restrictions that characterise the Canadian telecommunications market contrast starkly with the general openness of the telecommunication market and the non-discriminatory application of most other provisions. These restrictions only serve to slow down the development of the market, in particular the local market, which is the most capital intensive. They need to be removed rapidly. For services dependent on spectrum they only serve to increase costs of operators and delay implementation of new services.

Canada is in the forefront of OECD countries where market entry procedures for facility-based operators have been streamlined. These procedures should also apply for entry to provide international telecommunication services.

The regulator tends to be thorough in following consultation procedures, but these procedures are often too slow in a market area that, because it is characterised by rapid market and technological change, requires speed in decision making. One reason for this may be insufficient resources in the CRTC on the telecommunication side. These should be increased. Even though forbearance has meant that some markets may not be subject to regulation they are still monitored and new issues have absorbed resources. There is a scope for the government to further review developments in convergence between telecommunication and broadcasting, in particular as regards merging legal frameworks to ensure that carriage regulation come within the scope of a single regulatory framework.

4.2. Potential benefits and costs of further regulatory reform

Section 3 pointed that market liberalisation and competition have already brought significant benefits through:

- Lowering of national and international long distance prices.
- Competition stimulating rapid development of broadband investment.
- Improved quality of service.

The most immediate task is to ensure that local PSTN competition develops. This will help in meeting government objective of “connectedness” and bringing broadband access to all households.

4.3. Policy recommendations

The following recommendations are based on the above analysis, taking into account the “Policy Recommendations for Regulatory Reform” set out in the *OECD Report on Regulatory Reform* (OECD, June 1997);

1. ***Ensure that regulations and regulatory processes are transparent, non-discriminatory, and applied effectively.***
 - *Eliminate foreign ownership restrictions.*

As argued in this chapter these restrictions have no place in an open competitive market framework based on the principle of non-discrimination. They are likely to harm the process of developing local facility-based competition and will harm the aim of the government to obtain ubiquitous broadband access through the country.

- *Access to wholesale prices for leased circuits.*

New entrants should be able to obtain access to leased circuits, especially intra-urban circuits, at cost-based prices (wholesale prices). These circuits are an essential facility for new entrants to develop their customer base and build their facilities. This would ensure effective access to local markets and facilitate the development of local competition. It would also ensure the application of non-discriminatory treatment of new entrants by incumbents.

2. *Reform regulations to stimulate competition and eliminate them except where clear evidence demonstrates that they are the best way to serve the broad public interest.*

- *Streamline market entry for facility-based international carriers.*

Market entry for international facility-based service providers should follow procedures for other PSTN market players. There is no reason to differentiate between the different markets with respect to entry procedures. If there is concern in practices followed by countries that are not signatories to the WTO's Fourth Protocol then other general procedures may be considered rather than imposing these through a licensing procedure.

3. *Review, and strengthen where necessary, the scope, effectiveness and enforcement of competition policy.*

- *Forbearance should be unconditional as a rule.*

Unlike a number of regulators in the OECD area the CRTC has consistently tried to streamline regulatory processes and forbear from regulation. However, it often forbears on a conditional basis creating uncertainty in the market as to whether competition policy will come into play if market competition issues arise, or if sector specific regulation will be reintroduced. The CRTC should try and forbear unconditionally allowing the specified market to come fully within the ambit of the Competition Bureau.

NOTES

- 1 Industry Canada, Percentage of GDP Value Added in 1992 constant dollars.
- 2 The term “channels” for 1999 data as opposed to “lines” used for 1980, takes into account the development of ISDN lines which were not available in 1980.
- 3 In addition nearly 90% of the population is concentrated within 160 kilometres of the Canada/US border.
- 4 Section 7 of the Telecommunications Act.
- 5 Industry Canada, Building the Information Society: Moving Canada into the 21st Century, Ottawa, 1996.
- 6 Speech by the Minister of Industry to the House of Commons on 4 November 1997 on Bill C-17.
- 7 Some independent local companies in southern Canada serving small towns and rural areas have monopolies.
- 8 Cross-subsidisation per se is not a goal although it is to some extent implicit in the notion of affordability.
- 9 Bell Canada is part of Bell Canada Enterprises (BCE).
- 10 Personal Communication systems. PCS at 1.9 GHz is equivalent to the European 1.8 GHz version of GSM.
- 11 Amendments to the Telecommunications Act in 1998 gave the CRTC authority to introduce a licensing regime for international services and gave it responsibility for numbering administration.
- 12 All commissioners participate in broadcasting decisions.
- 13 These carriers are those that offer service to the public and are referred to in the Act as Canadian carriers.
- 14 In some countries incumbents have ignored decisions to reduce interconnection charges since the economic gains from ignoring decisions outweighed any subsequent fines imposed by Courts. The ability to impose significant fines by regulators provides an appropriate means to ensure that decisions can be enforced.
- 15 The Supreme Court decision (Guèvremont Telephones) in 1994 was concerned with federal jurisdiction to regulate a small independent telecommunication company located in the Province of Quebec.
- 16 For further background see, Grieve, W., Constitutional Structure and Regulation of Telecommunications in Canada, mimeo, 2000 at www.dcl.edu/lawrev/2000-1/Grieve.htm.
- 17 See, OECD, Telecommunications Regulations: Institutional Structures and Responsibilities, DSTI/ICCP/TISP(99)15/Final, 25 May 2000, Paris.
- 18 See: CRTC/Competition Bureau Interface at <http://strategis.ic.gc.ca/SSG/ct01544e.html>.
- 19 A number of countries have restrictions on foreign ownership of their incumbent telecommunication operator but these restrictions do not apply to new entrants.

20 See Report to the Governor in Council: Status of Competition in Canadian Telecommunications
Markets, CRTC, Ottawa September 2001.

21 The OECD has found that “the case for opening markets to investment is as compelling as it is for
trade. More open economies enjoy higher rates of private investment, which is a major determinant of
economic growth. FDI is actively courted by countries, not least because it generates spillovers such
as improved management and better technology.” See OECD, *Open Markets Matter: The Benefits of
Trade and Investment Liberalisation*, Paris 1999, page 11.

22 See, Industry Canada, Working Papers, No. 30 – Foreign Direct Investment and Productivity Growth:
The Canadian Host-Country Experience, by Surendra Gera, Wulong Gu and Frank C. Lee, Industry
Canada, April 1999, available at <http://strategis.ic.gc.ca/SSG/ra01716e.html>.

23 *Ibid.*, page 18.

24 Before the introduction of competition there was no need, given that there were monopolies, for
formal restrictions on foreign investment. Historically, two large Canadian carriers, BC Tel and
Quebec Tel (both now part of Telus) had long been majority owned by GTE of the US.

25 The ownership rules for broadcasting undertakings are substantially harmonised with those of
telecommunication carriers, although there are some additional requirements with respect to the
nationality of certain officers of broadcasting corporations and their holding companies.

26 These are outlined in the Radiocommunication regulations made pursuant to the Radiocommunication
Act.

27 Report of the National Broadband Task Force, Ottawa 2001.

28 CCIB Policy Paper: *Future Negotiations on Telecommunications Services in the WTO*, June 18, 1999.
Other CCIB members believe that, on balance, the Canadian market is at least as open to foreign
operators as most of its major trading partners and that Canada should seek improved access for
telecommunications services from other countries in the WTO before considering the removal of
foreign investment barriers.

29 Direction of the Governor-in-Council of 26 June 2001.

30 Telecom Decision CRTC 92-12.

31 Obligations include participating in the Canadian Numbering Administration consortium, in the
Central Fund Administration Consortium (for purposes of universal service), provide a point of
interconnection for each local exchange carrier, provide a point of interconnection in each numbering
plan area and comply with terms of forbearance as outlined in Telecom Decision CRTC 95-19.

32 The CISC was created in the proceeding leading to Decision 96-28.

33 The CRTC eased the requirements for international service providers to provide quarterly traffic
reports.

34 Non-compliance has generally been with respect to periodic filing requirements.

35 Although section 7 of the telecommunications Act has as a policy objective “to stimulate research and
development in Canada in the field of telecommunications ...” this objective can be met by more
general policy initiatives.

36 The number of homes passed by cable as a percentage of all TV homes is 92%.

37 There are approximately 900 cable companies in Canada operating 2 061 local cable systems.

38 Most of these CATV companies are in Eastern Canada. An example of price differences is in Nova
Scotia where the cable company is offering a subscriber line at a price 20% lower than the incumbent.

39 CAIP is the Canadian Internet.

40 Telecom Decision CRTC 92-12.

41 The CLECs have concentrated on ISPs as customers which means that the traffic imbalance tends to
favour the CLECs.

42 This rate was for the territory of Bell Canada.

43 The informal fast track approach allows CRTC staff to mediate and assist in dispute resolution
without the need for a formal process. This informal process has proved effective in dealing with
issues at an early stage.

44 Part VII application under the Rules and Procedures of the CRTC.

45 An essential facility was defined as one that meets all three of the following criteria: (1) it is
monopoly controlled; (2) a new entrant requires it as an input to provide services; and (3) a new
entrant cannot duplicate it economically or technically.

46 Such a change would be a significant turnaround by the CRTC that has tended to avoid allowing new
entrants to get access to facilities at wholesale rates.

47 DSL service providers are essentially Internet Service Providers. They are prohibited from providing
local voice services using the unbundled local loop that they lease.

48 Several Orders in 2001 helped reduce further co-location costs to competitors. The CRTC also
allowed co-locators to acquire additional co-location space in increments of 1 square metre limit per
central office per carrier when their 20 square meter limit was reached.

49 A public utility company has taken this Decision to the Federal Court of Canada arguing that the
CRTC has no statutory or constitutional jurisdiction to mandate terms and conditions of access to
electric utilities' power poles. The Federal Court of Appeal found that the section of the Act does not
apply to utility poles owned by power utilities. Permission has been sought to appeal this decision to
the Supreme court of Canada.

50 SaskTel came under regulation of the CRTC in the summer of 2000. SaskTel has committed not to
increase utility service rates above the established tariff level of 30 June 2000 and during a transition
period ending 31 December 2001.

51 The Gross Domestic Product Price Index is used as the inflation measure. The increase in the index
has been -0.62% in 1998, 1.72% in 1999 and 3.91% in 2000. The Consumer Price Index (CPI) tends
to be more volatile but better reflects changes in prices impacting on consumers, but does not include
investing as in the GDP index. The latter index was chosen since it is more broad based.

52 In Ontario and Quebec (in areas served by Bell Canada) deaveraging is common.

53 This would imply that there is a reasonable margin between wholesale and retail offers of leased line
local ends which would allow new entrants to compete effectively with the incumbent for commercial
customers.

54 The CRTC has ruled that wireless service providers not operating as CLECs cannot offer number
portability even on a voluntary basis.

55 The US delay results from the fact that the military is a heavy user of spectrum in the bandwidth that
is viewed as most appropriate for 3G.

56 Telus Mobility, for example, refers to this as a "monthly system licensing charge".

57 For example, for Telus Mobility's Talk 50 plan these charges amount to 14% of the monthly
subscriber charge.

58 The proposed model only includes non-broadcast spectrum. Broadcasters do not pay radio licence
fees. The Government should review this and consider extending licence fees to broadcasters in view
of government policy for technological neutrality. Such pricing could also provide an incentive for
broadcasters to sue spectrum more efficiently.

59 Section 43 of the Act.

60 These expropriation powers have never been used since the Telecommunications Act came into force.

61 The shortfall between utility segment embedded costs less utility segment revenues was significantly reduced through the inclusion of internal implicit subsidies from business local services, urban residential local services and optional services. Competitors also received discounts on the amount of contribution required for the first five years following the introduction of long distance competition.

62 An imputation test on incumbents restrained their downward price flexibility.

63 OFTEL in the United Kingdom in calculating the cost of providing universal service has also argued that there are benefits to the provider of universal service, which need to be deducted from costs. These benefits include life cycle effects (e.g. an uneconomic customer becomes economic over a period of time), ubiquity (i.e. the competitive advantage gained by being present in all geographic areas), brand enhancement and corporate reputation.

64 Sprint Canada Annual Report 2000. Sprint estimates that the contribution was its biggest cost item and that the change in the contribution framework reduced this item by 80%.

65 Telecommunication service providers with revenues of CAD 10 million or less were exempt from paying contributions. In addition revenues from retail Internet services and retail paging were exempt from the calculation of revenue.

66 Eligible revenue are defined as total telecommunication service revenue from Canadian customers less contributions received and revenues from retail Internet services, retail paging and sale and rental of equipment.

67 The low cost bands are considered as the centre core of major metropolitan areas, the rest of major metropolitan areas and larger cities, medium sized cities and smaller towns and cities (Bands A,B,C, and D respectively). The high cost bands are communities with less than 1 500 lines, communities with between 1 500 and 8 000 lines and average local loop length of more than 4 km., and communities without year round road access (respectively Bands E, F, and Remote).

68 Bell Canada applied to terminate lower rated lines equipped for rotary dialling, but withdrew this application following negative consumer reaction.

69 In the Budget Plan 2001 the Canadian government decided not to fund an accelerated broadband rollout.

70 Review of Regulatory Framework, Decision CRTC 94-19.

71 Interview with PIAC.

72 The Commission retains the power to reintroduce sector specific regulation even if it forbears unconditionally.

73 See McTaggart, Craig, IP Telephony and the Internet: Canada Case Study, ITU January 2001. Since calls on circuit switched networks are considered as being covered by the universal service contribution scheme, any IP calls terminating on switched networks would also come within the ambit of the universal service contribution scheme.

74 In Canada, retransmission requires payment of a compulsory royalty tariff, but does not require consent from broadcasters.

75 Following JumpTV's request the government (Industry Canada and Heritage Canada) issued a consultation paper on "The Application of the Copyright Act's Compulsory Retransmission Licence to the Internet".

76 CRTC/Competition Bureau, News Release and Backgrounder, Competition Bureau and CRTC (Interface), November 22, 1999.

77 World Trade organization, Trade in Services, Canada, Schedule of Specific Commitments, supplement 3, GATS/SC/16/Suppl.3, 11 April 1997.

78 These are the service areas of Northwestel Inc., Ontario Northland Transportation Commission and
Prince Rupert City Telephones.

79 This was launched through the issuance of an Order in Council in October 1994.

80 LMCS is known as Local Multipoint Distribution Services in most other countries. LMDS is a fixed
wireless system designed to deliver data through the air at high speeds.

81 In 1999, MaxLink Communications, one of the three licences, bought out the other two companies.
This expanded its markets from 33 to 207 covering nearly all major cities in Canada.

82 CRTC, Report to the Governor in Council: Status of Competition in Canadian Telecommunications
Markets, September 2001.

83 The telephone services price index is a composite of prices for basic local telephone charges, other
local charges, installation and repair charges, telephone equipment charges, and long distance toll
charges. Basic local charges and long distance toll charges make up most of the index. The basket of
telephone services is held constant over time. In particular, the amount and composition of long
distance minutes are assumed to be constant over time.

84 See Statistics Canada, CANSIM, P100000 for the CPI and CANSIM P100097 for the
telecommunications price index.

85 Industry Canada, Telecommunications Service in Canada, 1999-2000, Table A-3.

86 AT&T Canada Annual Report 2000.

87 National Post Online 27 June 2001.

88 Op. Cit. Table 5.4, page 32.

89 This applies only to new entrants with network access service over 25 000.

90 OECD, The Development of Broadband Access in OECD Countries, Paris, 2001.

