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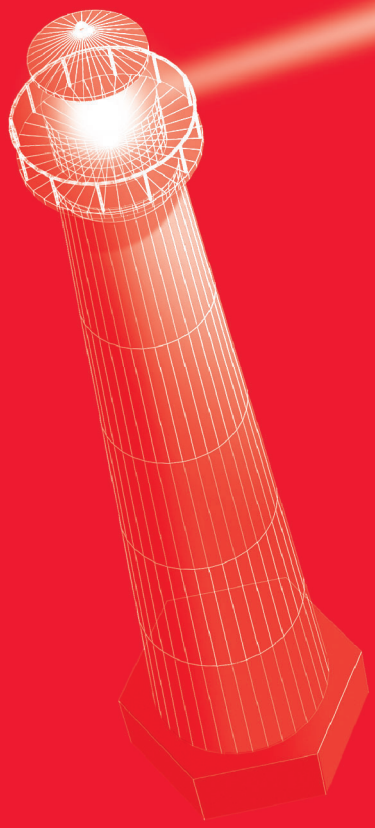

LICENSING IN AN ERA OF LIBERALIZATION AND CONVERGENCE

CASE STUDY CANADA 2004

International Telecommunication Union

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Licensing in an era of liberalization and convergence

Case study: Canada

2004

Licensing for information and communication services and underlying facilities in the era of convergence

by Caroline J. Simard

International Telecommunication Union

This case study was conducted by Caroline J. Simard, ITU Global Regulators' Exchange (G-REX) Advisor.

This study is intended to be useful not only to the regulatory authorities and the corresponding arms of government but also to everyone concerned with the telecommunication market.

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The views expressed in this paper are those of the author, and do not necessarily reflect the views of ITU, its members or the Canadian government.

This is one of a series of case studies on licensing in the era of liberalization and convergence undertaken by ITU. Further information can be found on the website at <http://www.itu.int/ITU-D/treg>

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Abbreviations

APLDS	alternate provider of long-distance service
BITI	basic international telecommunication incumbent
CLEC	competitive local exchange carrier
CRTC	Canadian Radio-television and Telecommunications Commission
CTSR	Canadian Telecommunications Services Revenues
CWTA	Canadian Wireless Telecommunications Association
DBS	direct broadcast service
DSL	digital subscriber line
FWA	fixed wireless access
GMPCS	global mobile personal communications system
GPRS	general packet radio service
HCA	high-cost area
ICS	information and communication services

ICT	information and communication technologies
ILEC	incumbent local exchange carrier
IP	Internet protocol
ISDN	Integrated Services Digital Network
ISP	Internet service provider
ITU	International Telecommunication Union
IXC	inter-exchange carrier
LEC	local exchange carrier
MDS	multipoint distribution system
NAS	network access service
OECD	Organisation for Economic Co-operation and Development
PCS	personal communication services
PSTN	public switched telephone network
SMS	short message service
VoIP	voice over Internet protocol
WCS	wireless communication service
WSP	wireless service provider
WTO	World Trade Organization
WWW	world wide web

ABSTRACT

The pro-competitive regulatory environment of the Canadian telecommunication industry is such that in many cases it is possible to provide information and communication services, and operate the underlying facilities, without any requirement to obtain a licence. In Canada, mandatory licensing applies to three categories of telecommunication services: (1) international telecommunications services, with licences issued by Canada's independent regulator, the Canadian Radio-television and Telecommunications Commission (CRTC); (2) radiocommunication services, the licences for which are issued by the Ministry of Industry, Industry Canada; and (3) international submarine cable operation, likewise licensed by Industry Canada. The CRTC is also responsible for ensuring that service providers comply with regulations, including registration and approval of rates (unless the CRTC has exercised regulatory forbearance); the contribution regime for the universal access fund; and Canadian ownership and control rules. Separately, a more restrictive licensing regime is in place for the broadcasting services.

The present report describes Canada's licensing framework, which governs information and communication services and the underlying facilities at a time of convergence, and attempts to highlight Canadian best practice in this domain.

A) Introductory remarks

In this section, we intend to briefly describe how the Canadian telecommunication industry took shape and how the regulatory framework evolved, in order to provide a better understanding of the context in which Canada's licensing regime for the provision of information and communication services and the operation of the underlying facilities is operating. The focus of the study is primarily on telecommunication services.

1 How the Canadian telecommunication industry took shape

The privatization of telecommunication companies in Canada dates back to the early days of privately-owned telegraph lines[1], and has continued to our day.[2] Operating in a mixed monopoly, rather than a public monopoly, as in most countries, public and private-sector organizations were subject to shared federal-provincial jurisdiction until 1989. In that year the Supreme Court ruled that federal jurisdiction applied to the telephone companies that made up the Stentor alliance[3]; in 1994, federal jurisdiction was extended to local and intraprovincial services, with interconnection to interprovincial services, something that previously had been governed by the legislation and regulations of the individual provinces.[4] In the absence of a Canada-wide monopoly, the nine major regional telephone companies had formed the Stentor alliance, which lasted until 1998; its goals were interconnection between their networks, sharing of telephone traffic and revenues, and domestic and international call routing. Small independent telephone companies were also formed to provide telephone service in small communities.

Today, the telecommunication industry is made up of a variety of telecommunication service providers, which may be grouped in the following categories:

a) incumbent carriers,

b) major incumbent carriers,

c) incumbent out-of-territory service providers,

d) small incumbent carriers,

e) competitive service providers,

f) facilities-based competitive service providers,

g) resellers,

h) resale-based Internet service providers,

i) payphone service providers,

j) cable providers, and

k) utility telcos.

---

1 B.A. Testard de Montigny, *Histoire du droit canadien*, Montreal, 1869, page 281.

2 In Canada, with the exception of SaskTel, the incumbent telecommunication operators are all privately-owned. See *The Saskatchewan Telecommunications Act*, R.S.S. 1978, c. 34. Publicly-owned enterprises also existed previously in Alberta and Manitoba.

3 Officially founded at the start of the 1990s, the origins of Stentor go back to the 1930s and the TransCanada Telephone System (TCTS) which became Telecom Canada in the 1980s.

4 See Alberta government telephones c. Canada (Canadian Radio-television and Telecommunications Commission) [1989] 2 R.C.S. 225. See also Téléphone Guèvremont c. Québec (Régie des télécommunications) [1994] 1 R.C.S. 878.

The different types of telecommunication service providers are described in the table below, adapted from a 2003 report to Canada's Governor in Council entitled "Status of Competition in Canadian Telecommunications Markets: Deployment/Accessibility of Advanced Telecommunications Infrastructure and Services"[5].

Table 1 – Major market participants

a) Incumbent carriers

The incumbents now provide not only retail services, but also a range of wholesale services to competitors under terms and conditions mandated by the CRTC. These wholesale services include long distance switching and aggregation services, local transit and transport services, co-location and unbundled local loops. Incumbent carriers also provide a range of other services to retail customers and retail competitors such as Digital Network Access and Centrex services. The large incumbent carriers are competing against one another by providing telecommunications services outside of their traditional home serving territories. These services include data and IP services targeted at business customers, wireless services, business local exchange services, international telecommunication services, satellite transmission capacity, and associated land segment services (uplink and downlink).

b) Major incumbent carriers

The most important of the major incumbent carriers are Aliant Telecom, Bell Canada, MTS, SaskTel, TELUS, Teleglobe and Telesat Canada. The others are Northwestel, which provides services in the Yukon, the Northwest Territories, Nunavut and parts of British Columbia, and Télébec and TELUS Québec, which provide services in Quebec.

c) Incumbent out-of-territory service providers

There are three active players in this category: (i) Bell Canada and MTS through Bell West, (ii) TELUS, and (iii) SaskTel through Navigata.

d) Small incumbent carriers

There are 39 small incumbent telephone companies in Canada. With the exception of municipally-owned Prince Rupert City Telephones (CityTel) in British Columbia, these carriers are dispersed throughout the provinces of Ontario and Quebec. Small incumbent carriers are municipally owned or independently owned, either privately or publicly. Most serve mainly rural areas. Overall, small incumbent carriers serve less than 2% of the total population of Canada.

Given their limited serving areas, small incumbent carriers typically do not provide facilities-based long distance services. However, they do provide a range of local voice, data, Internet and wireless services. One exception is O.N.Telcom.

e) Competitive service providers

Competitive service providers in the Canadian telecommunications market provide telecommunications services on a facilities or resale basis, as well as on a combined facilities/resale (or hybrid) basis.

f) Facilities-based competitive service providers

Facilities-based competitive service providers are those competitive service providers that own physical transmission facilities. This includes companies such as Allstream, Call-Net, Microcell, 360networks services ltd/360networks Canada Ltd and FCI Broadband.

5 Status of Competition in Canadian Telecommunications Markets: Deployment/Accessibility of Advanced Telecommunications Infrastructure and Services. Report to the Governor in Council, Ottawa, November 2003, Annex 4, available online from <http://www.crtc.gc.ca/frn/publications/reports/PolicyMonitoring/2003/gic2003.pdf> (updated 11 June 2004).

Table 1 – Major market participants (*end*)

g) Resellers

Resellers provide business customers with local, long distance and other services on a resale basis, and they provide residential customers with long distance and Internet access services. They include Primus Telecommunications Canada Inc., Distributel Communications Limited and YAK Communications (Canada) Inc.

h) Resale-based Internet service providers (ISPs)

While incumbent carriers and cable companies account for the majority of the Internet access market, there are also hundreds of other independent ISPs operating across the country today. These companies provide business and residential customers with Internet access services, as well as web hosting, e-commerce and other services. Most independent ISPs provide service on a local basis, although some service providers, such as AOL Canada, provide service on a national basis.

i) Payphone service providers

Numerous providers have registered as Competitive Pay Telephone Service Providers (CPTSPs), with the intent of providing competitive alternatives to the incumbent carriers. The vast majority of these new entrants are either inactive or very small.

j) Cable providers

The largest cable providers provide a diverse range of services which, in addition to cable modem service, include a variety of other wireless and wireline telecommunications services. EastLink is the only Canadian cable provider to provide cable telephony services to date.

k) Utility telcos

Historically, many utility companies (e.g. in the electricity, energy, gas or other utility businesses) have managed their own telecommunications facilities to meet internal service requirements for administrative data, voice and power system protection and operation. They own facilities that include microwave radio, fibre-optic cable, power line carrier and mobile radio systems, although microwave radio systems have been or are in the process of being replaced by fibre-optic systems..

Source: CRTC.

Information about the Canadian telecommunication industry is also available from the following sources.

For a description of Canadian telecommunication incumbents, see "Incumbent Telecommunications Carriers by Main Operating Territory, 2002"[6] (Figure 1).

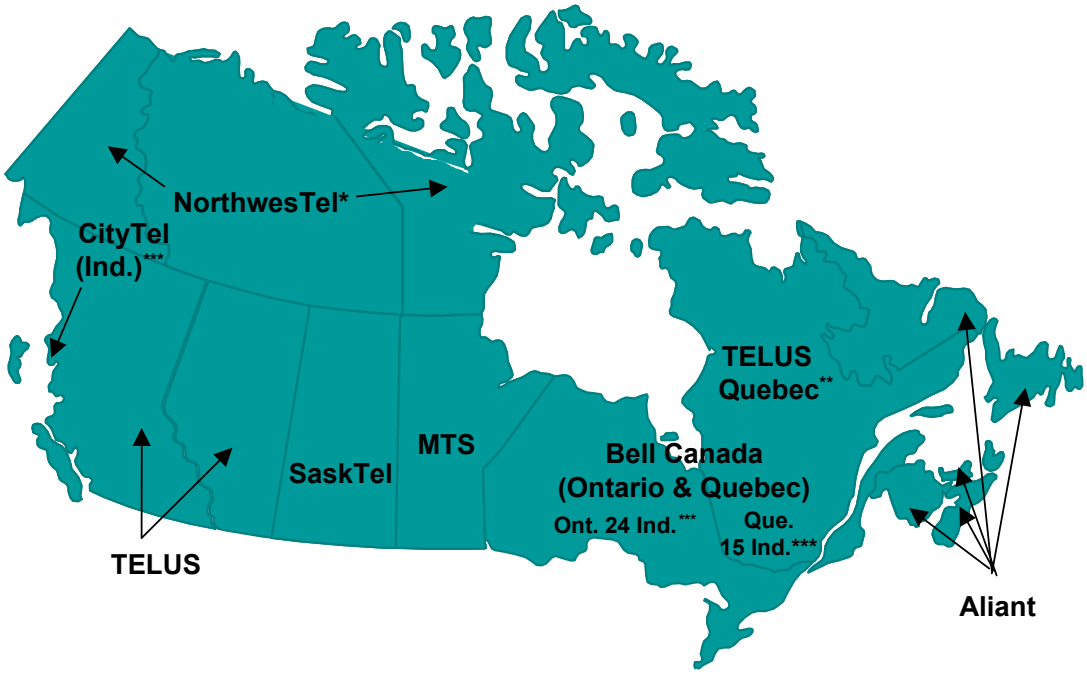
For an overview of the Canadian telecommunication industry, see "Telecommunications Service Industry Key Players"[7] (Figure 2).

6 Industry Canada, Telecommunications Service in Canada: An Industry Overview. Figure 2-7 on page 2-9, available online from the Industry Canada site at <http://strategis.ic.gc.ca/epic/Internet/insmt-gst.nsf/en/sf06283e.html> (updated 12 May 2004)

7 Ibid., Figure 2-2, p. 2-3.

Figure 1

Incumbent telecommunication carriers by main operating territory, 2003



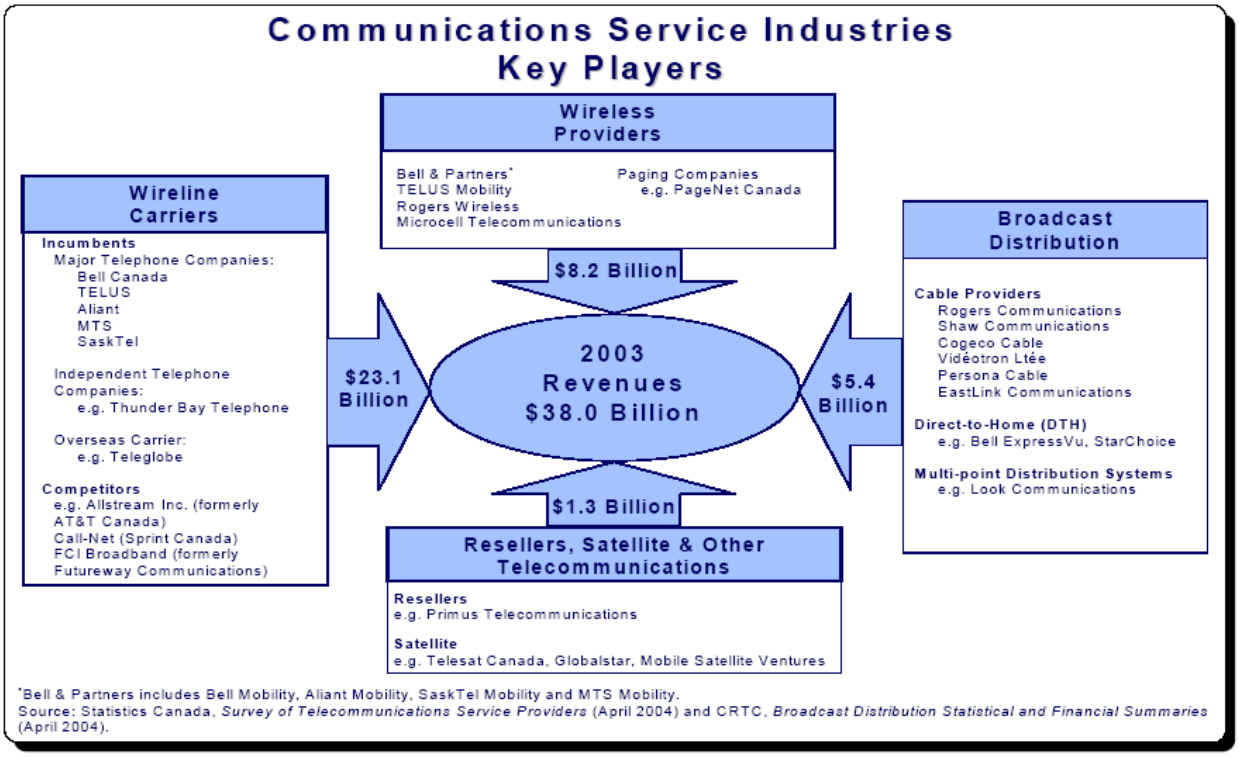
* Provides local telephone service in the Yukon, Northwest Territories, Northern British Columbia and Nunavut.

** Provides local telephone service in municipalities around Quebec, Lower St. Lawrence, Gaspésie and North Shore regions of Quebec.

*** Ind. = Independent telephone companies.

Source: Industry Canada (January 2004), *Telecommunications Service in Canada: An Industry Overview*, Figure 3.1-1. <http://strategis.ic.gc.ca/TelecomServicesOverview>

Figure 2



For a description of national mobile services coverage (digital and analogue) and the penetration of providers of mobile services, see *Status of Competition in Canadian Telecommunications Markets: Deployment/Accessibility of Advanced Telecommunications Infrastructure and Services*, a report to the Governor in Council, Ottawa, November 2003, pp. 75-76 (available online from <http://www.crtc.gc.ca/frn/publications/reports/PolicyMonitoring/2003/gic2003.pdf>, last updated 11 June 2004

Additional information is available from the Industry Canada website, in Appendix B ("Selected Listing of Canadian Telecommunications Providers") found at <http://strategis.ic.gc.ca/epic/Internet/insmt-gst.nsf/en/sf08119e.html> (updated 17 August 2004).

2 Emergence of a Canadian industry of converging information and communication technologies

Technological innovation and market penetration are driving the growth of the information and communication technologies industry in Canada. Thus, with 51 per cent of Canadian households connected to the Internet, the proportion of households with high-speed Internet access actually exceeded those with dial-up access (28 per cent versus 24.[8]) The market for Internet access services continues to boom, with the highest rate of revenue growth in the industry (27 per cent).[9] Deployment of the broadband infrastructure continued apace, and 85 per cent of Canadians now have high-speed Internet access available in their communities.[10]

(a) Industry convergence

At a time of converging technologies, it is interesting to observe a different form of convergence, shown by the retail revenue statistics of the ISP market: in 2002, 41 per cent of industry revenues were generated by incumbent telephone operators, 35 per cent by incumbent cable operators, and 23 per cent by other service providers. One half of the total figure was accounted for by four major ISPs.[11] Industry convergence is coming into its own as cable operators prepare to enter the telephony market with voice over Internet Protocol (VoIP).[12]

To understand convergence, it may be instructive to examine the activities of BCE, one of the main players in the Canadian industry. Concentrated within this company are information and communication services that include wireline and wireless services, broadcasting, publishing and Internet services. For more detailed information about the activities of BCE, see the report by Industry Canada at <http://strategis.ic.gc.ca/epic/Internet/insmt-gst.nsf/en/sf07005e.html>, with Figure 4.6 ("BCE Organizational Chart") giving an overview of the broad range of activities in which the company is engaged.

8 CRTC, Report to the Governor in Council, p. ii.

9 Ibid.

10 Ibid.

11 Ibid.

12 Industry Canada, op. cit., pp. 3-16 and 3-17.

(b) Technological breakthroughs in the era of convergence

Among the recent technological innovations that have helped Canadian industry sustain its momentum in the development of information and communication services and technologies, attention is drawn to two in particular: (i) mobile telephony and (ii) basic programming services.

(i) Cellular telephony and personal communications services

Growth on the mobile services market, in terms of revenues and subscriber numbers, remained strong in 2002, although it was less pronounced than it has been in recent years.[13] Growth in revenues from data transmission via mobile services is a sign of the increasing popularity of this service, with an increase of 48 per cent since 2001.[14] This can also be seen in four promising innovations, as identified by Industry Canada:

- **2.5G Technology:** Mobile Internet access continues to be a nascent industry in Canada. However, mobile Internet usage may prove to be an increasingly important method of accessing the Internet with the arrival of 2.5G technology. 2.5G technology was recently introduced by the national wireless service providers. In late 2001 and early 2002, Microcell and Rogers AT&T Wireless began to offer enhanced data services employing general packet radio services (GPRS) in limited urban areas. GPRS supports flexible data transmission rates typically between 20 Kbps and 40 Kbps, as well as continuous connection to a network. With its digital GPRS network, AT&T offers integrated wireless voice and high-speed packet data services to 93 per cent of the Canadian population. Over the same period, Bell Mobility and TELUS Mobility began to commercially introduce 2.5G CDMA (1XRTT) technology in major centers around Canada. This technology now operates at speeds up to 86 Kbps, with the potential for speeds up to 144 Kbps in the future.[15] Additionally, regional wireless operators Aliant Mobility, Sasktel Mobility and MTS Mobility all launched their respective 1XRTT networks by the end of 2002.[16]

- **Short Message Service (SMS)**: In November 2001, Canada's four national wireless carriers joined forces to offer SMS across all networks, a move that was the first of its kind in North America.[17] Furthermore, in January 2003, cross-border inter-carrier text messaging services were introduced, allowing consumers to exchange text messages between the United States and Canada. The Canadian Wireless Telecommunications Association (CWTA) reports that approximately 32 million mobile-to-mobile text messages were sent in Canada in September 2003, up from approximately 16 million in September 2002.[18]

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13 CRTC, op. cit., pp. 73-74.

14 Ibid, p. 70

15 Industry Canada, op. cit. Note that on page 2-18 Industry Canada reports that "this technology [i.e. 1XRTT] now operates at speeds up to 86 Kbps, with the potential for speeds up to 144 kbps in the future", while further, on page 3-27, it states: "These technologies [i.e. 2.5G CDMA (1XRTT)] are expected to operate between speeds of 30 and 55 kbps".

16 Ibid., pp. 2-19, 2-20 and 3-27.

17 Showwei, C., "Cell phones to speak as one: four wireless firms [Bell Mobility, TELUS Mobility, Rogers Wireless Inc., Microcell Connexions] team up to offer text messaging services across all networks", *The Globe & Mail*, 7 November 2001, page B3, cited in Industry Canada, op. cit., p. 2-21.

18 Industry Canada, op. cit., p. 2-21.

- **Wireless phone and digital camera**: In October 2002, three companies brought this type of service onto the Canadian market. Rogers AT&T Wireless offered a wireless phone that doubles as a digital camera. MTS introduced a service called Mobile eMail, which allows its mobile customers to have access to their office e-mail and other corporate information through a digital, web-enabled mobile phone. Aliant Mobility brought out VoiceNet, a voice e-mail recognition service. A few months later, TELUS Mobility announced an agreement with Research in Motion (RIM) to offer RIM's Blackberry wireless platform. Industry Canada, reporting on this service, writes:

> Launched in the first half of 2003 on TELUS' 1X wireless data network, the Blackberry includes wireless e-mail, phone capability, text messaging, and organizer applications. During the same period, Bell Mobility and Microcell introduced, respectively, an integrated wireless device combining the features of a wireless phone, personal digital assistant (PDA), MP3 player and Internet browser, and a wireless tool combining a PDA, a wireless phone and a digital camera into one device.[19]

(ii) Basic programming services

In addition to cable, direct-to-home (DTH) broadcasting and multipoint distribution systems (MDS), basic programming services may benefit from a number of other recent innovations:

- **Broadcasting services based on two new technologies: Asynchronous Digital Subscriber Line (ADSL) and Very-high data-rate Digital Subscriber Line (VDSL), in conjunction with their existing copper infrastructure:**

> In the fall of 2002, SaskTel launched "Max", an ADSL-based digital television service in Saskatchewan, reporting about 10 000 subscribers one year later. In late 2002, MTS also launched a digital television service in Winnipeg using VDSL technology. By the early 2004, MTS had 10 000 MTS TV customers. Likewise, Bell Canada is currently deploying VDSL technology to provide its Bell ExpressVu television service to multiple dwelling units in the greater Toronto area to overcome the limitations of DTH satellite service in this market.[20]

- **Television distribution via Digital Subscriber Line (DSL) networks**: Currently in its infancy, this service, offered by several incumbent telecommunications service providers, captures less than 1 per cent of the Canadian television distribution market.[21]

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[19] Ibid.

[20] Ibid., pp. 3-18 and 3-19.

[21] Ibid., p. 3-15

B) The Canadian regulatory framework for telecommunications

1 Regulatory competence

In Canada, the Telecommunications Act[22], which came into effect on 25 October 1993, consolidated and updated laws governing Canadian telecommunications.[23] The legislation brought amendments to the Radiocommunication Act[24], and to the special acts relating to Bell Canada, BC Tel, Teleglobe Canada and Telesat Canada, and abrogated others. The CRTC is an independent federal agency with quasi-judicial status, responsible for the regulation and supervision of telecommunications and broadcasting services in Canada since 1976. Its institutional structure and powers are outlined in the CRTC Act[25], the Broadcasting Act and the Telecommunications Act. Industry Canada has responsibility for telecommunications policy and international submarine cable licensing under the Telecommunications Act, as well as responsibility for spectrum policy and management under the Radiocommunication Act.

The Telecommunications Act brought a revision of the Canadian regulatory framework for more competition in the telecommunication industry. Thus, articles 7(f), 34 and 35 of the Act set the CRTC the dual objective of (a) promoting market forces for telecommunication companies, and (b) refraining from regulation in markets where there is sufficient competition to protect consumer interests. At the same time, anticompetitive practices are kept in check by the *Competition Act*[26]. The Competition Bureau and the CRTC have a common mission: to maintain market competition while providing adequate protection for the public interest.[27]

(a) Promoting competition

The Canadian market started to open up to competition in 1979, beginning with the market for data and private lines[28]. There followed the market for terminal equipment in 1982, the wireless market in 1984, and the long distance resale market in 1987. On 12 June 1992 the CRTC authorized the opening of the public long distance market to competition[29]. In 1993 the objectives of Canadian telecommunication policy, including the promotion of competition, were entrenched in Article 7 of the Telecommunications Act as follows.

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22 Telecommunications Act, S.C. 1993, c. 38.

23 In Canada, broadcasting is governed by the Broadcasting Act R.S., c. B-9.01. The cable industry was included with broadcasting for the purposes of the Broadcasting Act, on the theory that broadcasting companies fell within the federal jurisdiction. Under the Broadcasting Act, cable companies are licensed as undertakings for the reception of broadcasting.

24 Radiocommunication Act, R.S., 1985, c. R-2.

25 Canadian Radio-television and Telecommunications Commission Act, R.S. 1985, c. C-22.

26 Competition Act, R.S. 1985, c. C-34.

27 Competition Bureau, "CRTC/Competition Bureau Interface", Industry Canada, available online at <http://competition.ic.gc.ca/epic/Internet/incb-bc.nsf/en/ct01544e.html> (updated 21 November 2003).

28 CRTC Report to the Governor in Council, op. cit., Annex 1.

29 Telecom Decision CRTC 92-12 ("Competition in the provision of public long distance voice telephone services and related resale and sharing issues"), Ottawa, 12 June 1992.

> It is hereby affirmed that telecommunications performs an essential role in the maintenance of Canada's identity and sovereignty and that the Canadian telecommunications policy has as its objectives:
>
> a) to facilitate the orderly development throughout Canada of a telecommunications system that serves to safeguard, enrich and strengthen the social and economic fabric of Canada and its regions;
>
> b) to render reliable and affordable telecommunications services of high quality accessible to Canadians in both urban and rural areas in all regions of Canada;
>
> c) to enhance the efficiency and competitiveness, at the national and international levels, of Canadian telecommunications;
>
> 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;
>
> f) to foster increased reliance on market forces for the provision of telecommunications services and to ensure that regulation, where required, is efficient and effective;
>
> g) to stimulate research and development in Canada in the field of telecommunications and to encourage innovation in the provision of telecommunications services;
>
> h) to respond to the economic and social requirements of users of telecommunications services; and
>
> i) to contribute to the protection of the privacy of persons.

In Telecom Decision CRTC 94-19 ("Review of Regulatory Framework")[30], the CRTC set forth a new regulatory framework that placed greater reliance on market forces, established safeguards to protect against abuses of market power, encouraged the provision of innovative new services and established an alternative to rate base/rate of return regulation.

Through the licensing of Personal Communication Service (PCS) spectrum in 1995 under the Radiocommunication Act, two more competitors were allowed to enter the mobile cellular telephone market and begin to offer services. In 1997, the CRTC announced the regulatory framework for competition in local telephone services, as well as price cap regulation[31]. The principal requirement for the incumbent local exchange carriers (ILECs) under this framework concerned unbundling, to permit interconnection between all of the local and long distance ILECs and wireless operators. The new system also included the introduction of portable contributions[32]. Under this scheme, every local exchange carrier (LEC) providing a service to a subsidized subscriber should have access to the subsidy source.[33] The

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30 Telecom Decision CRTC 94-19 ("Review of Regulatory Framework"), Ottawa, 16 September 1994.

31 Telecom Decision CRTC 97-8 ("Local competition"), Ottawa, 1 May 1997. Telecom Decision CRTC 97-9 ("Price cap regulation and related issues"), Ottawa, 1 May 1997.

32 In Decision 97-8, note 31 above, the CRTC uses the term "portable contribution", but "portable subsidy" would have been more accurate.

33 Telecom Decision CRTC 97-8 ("Local competition"), § 173.

CRTC explains that "providing access to subsidy sources will substantially reduce barriers to entry by CLECs into high cost areas, thereby ensuring that the benefits of competition are made available as widely as possible".[34]

In 1998, the CRTC liberalized the public pay telephone service market.[35] Also in 1998, the CRTC opened the facilities-based international telecommunications market to competition and established a new regulatory framework for all international services. Furthermore, Canada has made spectrum available for wireless broadband in a number of frequency bands. Thus, in order to accommodate the increased demand for high-speed local access, Industry Canada in June 1998, announced that it would be making available new wireless broadband spectrum at 24 GHz and 38 GHz. This spectrum is aligned with that in the United States.[36] Finally, Telesat Canada's monopoly on satellite telecommunications carriage was ended on 1 March 2000.[37]

(b) Forbearance

Article 34 of the Telecommunications Act describes four scenarios for the CRTC's power to refrain from regulation:

> 1) The CRTC **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 under sections 24, 25, 27, 29 and 31 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 sections mentioned in this passage can be simply summarized.[38]
>
> 2) Furthermore, where it finds as a question of fact that a telecommunications service or class of services provided by a Canadian carrier is or will be subject to competition sufficient to protect the interests of users, the Commission **shall** make a

---

34 Ibid.

35 Telecom Decision CRTC 98-8 ("Local Pay Telephone Competition"), Ottawa, 30 June 1998, by which the CRTC announced the introduction of competitive local payphone service.

36 Industry Canada, op. cit., p. 6-10.

37 Telecom Decision CRTC 99-6 ("Telesat Canada – Transitional Regulatory Framework and Forbearance for Fixed Satellite Services"), Ottawa, 25 May 1999.

38 (a) Section 24: The offering and provision of any telecommunications service by a Canadian carrier are subject to any conditions imposed by the Commission or included in a tariff approved by the Commission.

(b) Section 25: No Canadian carrier shall provide a telecommunications service except in accordance with a tariff filed with and approved by the Commission that specifies the rate or the maximum or minimum rate, or both, to be charged for the service.

(c) Section 27: Every rate charged by a Canadian carrier for a telecommunications service shall be just and reasonable, and no Canadian carrier shall, in relation to the provision of a telecommunications service or the charging of a rate for it, unjustly discriminate or give an undue or unreasonable preference… toward any person...

(d) Section 29: No Canadian carrier shall, without the prior approval of the Commission, give effect to any agreement or arrangement, whether oral or written, with another telecommunications common carrier respecting (a) the interchange of telecommunications…; (b) the management or operation of their telecommunication facilities; or (c) the apportionment of rates or revenues between the carriers.

(e) Section 31: No limitation of a Canadian carrier's liability in respect of a telecommunications service is effective unless it has been authorized or prescribed by the Commission. From Telecom Decision CRTC 95-19 ("Forbearance – Services provided by non-dominant Canadian carriers"), Ottawa, 8 September 1995.

determination to refrain, to the extent that it considers appropriate, conditionally or unconditionally, from the exercise of any power or the performance of any duty under sections 24, 25, 27, 29 and 31 in relation to the service or class of services.

3) The CRTC **shall not** make a determination to refrain in relation to a telecommunications service or class of services if the Commission finds as a question of fact that to refrain would be likely to impair unduly the establishment or continuance of a competitive market for that service or class of services.

4) The Commission **shall** declare that sections 24, 25, 27, 29 and 31 do not apply to a Canadian carrier to the extent that those sections are inconsistent with a determination of the Commission under this section.

The CRTC has made use of its power to refrain on several occasions. The principal decisions are listed below:

Table 2 – Summary of Canadian telecommunications markets subject to CRTC forbearance rulings[39]

Market	Year	Details
Terminal equipment	1994	Sales and rental of terminal equipment.
Wireless	1994	Cellular, personal communications services, mobile radio and paging except in the case of incumbent in-house mobile service providers. Forbearance extended to incumbent mobile operations, starting in 1998, once competitive safeguards had been implemented.
Satellite services	1994	Telesat's digital video compression services initially; further services offered by Telesat, such as sale/lease of earth stations and RF channels, in subsequent years.
Services provided by non-dominant carriers	1995	Services, such as long distance, data, Internet and private line, provided by non-dominant competitive carriers.
Data and private line	1997	High-speed/DDS inter-exchange private line services provided by the incumbent telephone companies on a route-specific basis.
Internet services	1997	Incumbent telephone companies' retail Internet services in 1997 and those of cable providers in 1998.
Long distance	1998	Toll and toll free services.
International services	1998	Initially excluded Teleglobe; however, certain international services provided by Teleglobe later forborne as well.

Source: CRTC.

[39] CRTC, Report to the Governor in Council, op. cit., Appendix 2.

C) Licensing and other administrative formalities

In Canada, unlike other countries, the telecommunication regulatory system did not grow around a licensing framework for telecommunication services and operation of telecommunication equipment. In general, most telecommunication operators are able to start providing telecommunication services 30 days after registering with the CRTC, as long as the technical and regulatory conditions are fulfilled and public interest priorities and objectives are met.

1 CRTC Registration and reporting requirements

In principle, operators must deal with the CRTC, at least for the purpose of fulfilling their obligation to contribute to the universal access fund that is used to subsidize residential local telephone use in rural and remote areas. Thus, with few exceptions, telecommunication operators with revenues of 10 million dollars or more have an obligation to contribute and, therefore, fulfil the associated administrative formalities.[40] The exceptions are for certain Internet and paging services.[41]

The requirement to comply with the rules on foreign ownership must also be emphasized.[42] Resellers, who do not have their own transmission facilities, are not considered as Canadian companies and are therefore exempt from the restrictions on foreign ownership.

A partial examination of the Canadian regulatory framework has allowed us to draw up a list of the main registration and reporting requirements for different types of service providers (see Table 4, "CRTC Registration and reporting requirements"). At the time of printing, the information on the CRTC website was not complete, but a comprehensive update was apparently to be conducted within a matter of weeks.[43] Lists of telecommunication companies registered with the CRTC in accordance with the various decisions promulgated by the Commission may be consulted at <http://www.crtc.gc.ca/eng/lists.htm>.

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[40] Decision CRTC 2000-745 ("Changes to the contribution regime"), Ottawa, 30 November 2000, § 88. The operators in question are: incumbent local exchange carriers (ILECs), alternative providers of long distance services (APLDSs), competitive local exchange carriers (CLECs), resellers, wireless service providers (WSPs), incumbent international license holders, satellite service providers, IPSs (in cases where telecommunication service is included), payphone service providers, leased-line and data service providers, and leased-line providers. Their contributions are based on Canadian telecommunications services revenues (CTSR), with certain deductions. See CRTC, "Reporting instructions" at <http://www.crtc.gc.ca/PartVII/eng/8638/CRTC/CCMRep.htm>.

[41] Ibid, § 91.

[42] "Foreign investment in facilities-based telecommunications service suppliers is permitted up to a cumulative total of 46.7% of voting shares, based on 20% direct investment and 33% indirect investment. Such suppliers must be controlled in fact by Canadians." This restriction on foreign ownership does not apply to the following types of service: international submarine cable, mobile satellite systems, fixed satellites, resale of telecommunication services. It should be noted that the government of Canada has announced that these restrictions may be reviewed. See Industry Canada, Foreign Investment Restrictions Applicable to Telecommunications, Ottawa, Ministry of Supply and Services, Canada, 2002.

[43] CRTC Telecom Circular 2003-1 ("Telecommunications industry data collection: updating of CRTC registration lists, telecommunications fees, Canadian contribution mechanism fund administration, international licences and monitoring of the Canadian telecommunications industry"), Ottawa, 11 December 2003.

2 Mandatory licences

A licence is required for (a) the provision of international telecommunication services, (b) the construction and operation of an international submarine cable, and (c) the provision of radiocommunication services.

Additional information may be found in Table 5: "Services subject to licensing in Canada", and Table 6: "Canada's licensing regime for the provision of information and communication services and the operation of underlying facilities".

(a) International telecommunication services

The CRTC awards two types of licences for the provision of international telecommunication services: class A licences issued to firms that own and operate telecommunication facilities, and class B licences that provide services to and from Canada but do not operate their own facilities.[44] These two categories of companies can arrange for international traffic routing, and are therefore in a position to enter into arrangements with foreign carriers that could have anti-competitive effects in the Canadian market. To forestall such anti-competitive effects, licensees are required to provide information on affiliate companies that offer basic telecommunication services and a list of all agreements with foreign telecommunication operators.[45] The differences between the two classes may be summarized as follows:

> The key distinction between the two classes is the ability of the telecommunications service provider to determine the routing of international telecommunications traffic. This is because providers capable of routing traffic could strike direct agreements with foreign carriers that harm competition in the Canadian market. Thus the division is not between telecommunications common carriers and resellers, as in the rest of the Telecommunications Act. Instead, Class A licensees include switch-based resellers as well as common carriers. Class B licensees include service providers who only resell switched services of other service providers, or who subcontract all of their international traffic to another service provider in Canada for termination in another country. The primary regulatory concern for such providers would be anti-competitive exploitation of a relationship with a Canadian service provider. [*Notes have been omitted*][46]

Under the previous regime of contributions, the distinction between class A and class B served to distinguish between those licensees who were liable to pay a contribution to the universality fund (class A), and those who were not (class B). Under the new system, both classes are liable for contributions. However, only class A licensees are required to keep a record of traffic minutes.

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[44] CRTC Telecom Decision 98-17 ("Regulatory Regime for the Provision of International Telecommunications Services"), Ottawa, 1 October 1998, § 351.

[45] Ibid., § 338.

[46] S. Handa, Communications Law in Canada, Markham, Ont., Butterworth, 2000, no. 4.22.

As of 31 December 2003, the CRTC had issued 258 licenses for the provision of international telecommunications services.[47] Industry Canada depicts the increasing effectiveness of the transmission infrastructure thanks to technological progress, and states that the trend is to reduce international telecommunication rates gradually. Industry Canada further observes that, although competition has allowed for lower international calling rates, it has come at the expense of the profitability of several companies, notably 360networks and Teleglobe.[48] Despite the decline in revenues in 2001, the steady increase in the level of international telecommunications traffic continued. Furthermore, outgoing traffic to the U.S. continued to exceed incoming traffic originating from the U.S. for a second straight year as the gap between the two widened in 2001.[49]

(b) Construction and operation of submarine cables

Two types of international submarine cable licences are issued by Industry Canada: a "terminating licence" for cables that interconnect with Canadian networks, and "through licence" for cables which do not interconnect in Canada.[50] Applications for a licence must include documentation to substantiate compliance with the Canadian Environmental Assessment Act.[51] In addition, international submarine cable licences may have such additional conditions imposed as the minister considers to be compatible with the objectives of Canada's telecommunication policy.[52]

Until quite recently, three companies were licensed to operate the six cable landings in Canada. The number of landings has since been reduced to four, as TAT-9 and TPC-4, the Nova Scotia and British Columbia cables belonging Teleglobe Inc., have been taken out of service.[53]

(c) Provision of radiocommunication services

Industry Canada issues the following types of licences: radio licences, spectrum licences, broadcasting certificate, radio operator certificates and technical acceptance certificates[54]. It is a term of a radio licence that the holder of the licence may install, operate or possess radio apparatus at a fixed station, mobile station or space station to perform any of the following services, as authorized by the radio licence, namely: aeronautical service, amateur radio service, public information service, developmental service, fixed service, intersatellite service, land mobile service, maritime service, and radiodetermination service.[55]

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47 Industry Canada, op. cit. p. 2-26.

48 Ibid., p. 2-27

49 Ibid.

50 *International Submarine Cable Licences Regulations*, SOR/98-488, 1 October 1998, article 2.

51 Canadian Environmental Assessment Act, S.C. 1992, c. 37.

52 Telecommunications Act, § 19(2).

53 Industry Canada, op. cit., p. 6-12. TAT-9 was taken out of service in December 2003 and TPC-4 in July 2004.

54 Radiocommunication Act, Article 5.

55 Radiocommunication Regulations, SOR/96-484, 5 November 1996, Article 3.

Under Article 4 of the Radiocommunication Regulations, "it is a term of a radio licence that the holder of the radio licence shall restrict the activities of the station to those radiocommunication services that are specified in the licence".[56] In addition, spectrum licences authorize "the utilization of specified radio frequencies within a defined geographic area", and set out "terms and conditions as to the services that may be provided by the holder thereof".[57]

In Canada, there are two categories of wireless mobile service: (1) those that are connected to the public switched telephone network (cellular services, PCS, satellite-based), and (2) other wireless services.[58] Cellular services of the first generation, 1G, rely on analogue technology, while those of the second generation, 2G (such as personal communications services, PCS), are based on digital technology. Canada's numerous wireless operators for the most part offer 2G services. A directory of those operators can be consulted on the website of the Canadian Wireless Telecommunications Association (CWTA) at <http://www.cwta.ca/members/all.php>.

For broadband wireless services, the allocated frequency bands are as follows:

- **2 500 MHz band:** Currently licensed for Multipoint Distribution System (MDS) broadcasting and for wireless Internet Multipoint Communication System (MCS) services).

- **3 500 MHz band:** The Department initiated public consultation in 2001 on opening the band for Fixed Wireless Access and Wireless Communications Services currently operating in the 2 300 MHz range. The Department indicated that up to 200 MHz for FWA and 30 MHz for WCS could be opened in the 3 500 MHz band.[59]

Theoretically, an operator could offer a wireless telecommunication service on a national scale, under the service tier-based allocation system that is discussed in the following section ("Licence allocation mechanisms"). Currently, the broadest coverage is at the provincial tier; a national-tier license has not been allocated to date. The procedures governing such licensing, and the time required, can vary considerably depending on the licensing method, as shown in Table 6 ("Canada's licensing regime for the provision of information and communication services and the operation of underlying facilities").

There are two eligibility principles for the provision of wireless services:

> 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;

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[56] Ibid., art. 4.

[57] Radiocommunication Act, Article 5(1)a(i.1).

[58] Telecom Decision CRTC 96-14 ("Regulation of mobile wireless telecommunications services"), Ottawa, 23 December 1996.

[59] Industry Canada, op. cit., p. 6-8.

- 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.[60]

With regard to the second eligibility principle, the OECD explains that

> [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 anticompetitive 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.[61]

Further information about Canadian policy is available under the following URLs:

Spectrum management and telecommunications:
<http://strategis.ic.gc.ca/epic/Internet/insmt-gst.nsf/en/h_sf01841e.html>

Radio systems policies: <http://strategis.ic.gc.ca/epic/Internet/insmt-gst.nsf/en/h_sf06120e.html>

Spectrum utilization policies: <http://strategis.ic.gc.ca/epic/Internet/insmt-gst.nsf/en/h_sf06121e.html>

Related spectrum/licensing documents:
<http://strategis.ic.gc.ca/epic/Internet/insmt-gst.nsf/en/h_sf05502e.html>

Spectrum advisory bulletins: <http://strategis.ic.gc.ca/epic/Internet/insmt-gst.nsf/en/h_sf06123e.html>

It may be of interest to note that Canada has started to rely on ICTs for licence administration. In 2002 Industry Canada introduced the notion of a "virtual radio licence"[62], essentially a computerized system to take the place of the old paper-based radio licensing procedure. The Internet site of Industry Canada, "Spectrum Direct"[63], has become the online service centre for spectrum management, in which organizations that have a web profile can submit licence applications and review their account data online.

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60 OECD, Regulatory reform in the telecommunications industry, Paris, OECD, 2002, pp. 17-18.

61 Ibid, pp. 18-19. See also Industry Canada, Framework for Spectrum Auctions in Canada, Principle 1: Restricting Participation and Principle 2: Spectrum Aggregation Limits.

62 See <http://strategis.ic.gc.ca/epic/Internet/insmt-gst.nsf/vwapj/faq-e.PDF/$FILE/faq-e.PDF>.

63 See <http://sd.ic.gc.ca/engdoc/main.jsp>.

To conclude, spectrum management for Canada entails the conclusion of international agreements, in particular with the United States and Mexico, concerning the provision of mobile and fixed-satellite services, radio and broadcasting.[64] It will also be influenced, inevitably, by the fact that in June 2002 Industry Canada published a revised spectrum policy framework for Canada, in which the minister argued for public discussion leading to the application of a new framework, thoroughly revised in the light of, notably, multi-service delivery convergence.[65]

D) Licence allocation mechanisms

Industry Canada allocates the spectrum with a view to advancing public policy objectives, preventing harmful interference and enforcing international obligations.

1 The first-come, first-served principle and the competitive licensing process

In general, Canada has had a policy of allocating spectrum on a "first-come, first-served" basis in those markets where there are sufficient spectrum resources. However, as the choice of licence allocation mechanism is left to the Minister of Industry, Industry Canada may suspend the first-come, first-served (FCFS) system in favour of competitive licensing.[66] For competitive licensing, which includes spectrum auctions and comparative review processes, four tiers of service areas have been established, described as follows:

> Tier 1 is a single national service area. Tier 2 consists of 8 provincial and 6 large regional service areas in Ontario and Quebec. Tier 3 contains 59 smaller regional service areas. Tier 4 comprises 172 localized service areas. A fifth tier has been developed to accommodate the transition of non-auctioned cellular and personal communications services (PCS) licences from apparatus-based licences to spectrum licences.[67]

The "Framework for Spectrum Auctions in Canada" lists those instances in which auctions are not used: (1) broadcasting licences, (2) priority users, and (3) satellite services.[68]

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64 See "International Agreements" at <http://strategis.ic.gc.ca/epic/Internet/insmt-gst.nsf/en/h_sf06101e.html>, "Terrestrial Radiocommunication Agreements and Arrangements" at <http://strategis.ic.gc.ca/epic/Internet/insmt-gst.nsf/en/h_sf01361e.html>, and "Terrestrial Broadcasting Agreements and Arrangements" at <http://strategis.ic.gc.ca/epic/Internet/insmt-gst.nsf/en/h_sf01396e.html>.

65 Industry Canada, A Spectrum Policy Framework for Canada (2002 revision), June 2002, p. 20.

66 Industry Canada, Guidelines on the licensing process and spectrum release plan (2001 edition), PR-020, December 2001, pp. 4-5.

67 Industry Canada, Spectrum Management and Telecommunications, Service Areas for Competitive Licensing, at the Industry Canada website at <http://strategis.ic.gc.ca/epic/Internet/insmt-gst.nsf/en/h_sf01627e.html> (most recent revision 16 April 2004).

68 Industry Canada, Framework for Spectrum Auctions in Canada, October 2001 (2nd edition), pp. 3-4.

Multiple-round auctions are held, with a simultaneous tender process which remains open until acceptable offers are received for a licence. Several rounds are held. The results of each round are announced to the bidders before the next round is held. Bidding is conducted via Internet, using the latest PKI encryption techniques and digital signatures to protect bid integrity.[69]

2 Examples of licensing by means of spectrum auctions

In "Telecommunications Service in Canada: An Industry Overview", Industry Canada describes two examples of spectrum auctions[70], for the 24 GHz and 38 GHz bands, and for the 2 GHz band respectively.

a) 24 GHz and 38 GHz:

> In June of 1998, Industry Canada announced that it would be making available, across the country, new wireless broadband spectrum at 24 GHz and 38 GHz to accommodate the increased demand for high-speed local access infrastructure. This spectrum is aligned with that in the United States [...] In November of 1999, Industry Canada held an auction for the 1 200 MHz of spectrum in the 24 GHz and 38 GHz frequency range. The auction, the first ever held in Canada, was conducted… over the Internet [...] A total of 256 licences were awarded to 12 companies. The winning companies bid a total of more than $171 million.

b) 2 GHz:

> In January 2001, the Department held its second auction, … for additional PCS spectrum in the 2 GHz range. [All] were eligible to apply to participate in the PCS auction. This auction provided opportunities for existing companies to obtain additional spectrum and created opportunities for new entrants with viable business plans. The availability of this spectrum enables the enhancement of existing PCS systems, provides for the introduction of new third generation-like services and stimulates innovation in the dynamic wireless environment. The PCS auction ended February 1, 2001 following 51 rounds of bidding over 14 days. Fifty-two out of a total of 62 licenses were auctioned. The auction winners bid a total of $1.5 billion.

Table 3 – PCS Auction Winners (5)

Bidder	Bids ($ millions)
Bell Mobilité Inc.	720.5
Rogers Wireless Inc.	393.5
TELUS Communications Inc.	356.0
W2N Inc.	11.4
Thunder Bay Telephone Ltd	0.6

Source: Industry Canada.

69 For a description of this type of bidding, see H. Intven, Telecommunications Regulation Handbook, Geneva, InfoDev, 2000, p. 2-15.

70 Industry Canada, op. cit., p. 6-10.

More recently, licences were granted for the 2 300 MHz and 3 500 MHz bands.

c) 2 300 MHz and 3 500 MHz:

> Hearings were held from 9 to 16 February 2004 for a potential total of 392 licences. Awards were made to twenty-two companies for bids totalling $11.2 million, making them eligible for a licence upon final payment settlement. This auction was intended to boost the expansion and improvement of access and broadband wireless services across Canada, in rural and urban regions alike.[71]

In "Telecommunications Service in Canada: An Industry Overview", Industry Canada writes[72]:

> Other wireless broadband spectrum suitable for high capacity point-to-multipoint has also been made available. […] [The licence] was recently returned to the Department; however, plans to re-assign this spectrum have not yet been developed. The Department is currently undertaking a comprehensive review of the use of spectrum in the 3 to 30 GHz range. As a result of this review, additional spectrum could be designated for wireless broadband access. The Department has a strategic plan for releasing new spectrum. The plan can be found in Radio Systems Policy 020, *Guidelines on the Licensing Process and Spectrum Release Plan* (RP-020), available at <http://strategis.ic.gc.ca/SSG/sf01853e.html> on the Spectrum Management and Telecommunications website.

E) The regulatory challenges posed by the convergence of information and communication technologies

In the context of convergence, one of the broad underlying principles of the Canadian regulatory framework is the absence of impact on technology.[73] Some examples are cited below.

1 Applying the principle of technology neutrality

At the outset, the CRTC allowed all Canadian competitors to become CLECs, regardless of transmission technology used and whether the services offered were fixed or mobile, on condition that they accepted the regulatory obligations established in Decision 97-8.[74]

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[71] Industry Canada, "Auction of the 2300 MHz and 3500 MHz Frequency Bands". See Industry Canada site: <http://strategis.ic.gc.ca/epic/Internet/insmt-gst.nsf/en/sf05472e.html> (updated 28 May 2004).

[72] Industry Canada, op. cit., p. 6-8

[73] The principle of technology neutrality was established by the CRTC in Telecom Decision CRTC 94-19 ("Review of regulatory framework"), 16 September 1994, and was renewed recently in its Telecom Public Notice CRTC 2004-2 ("Regulatory framework for voice communication services using Internet Protocol"), Ottawa, 7 April 2004, § 11.

[74] Telecom Decision CRTC 97-8.

In addition, the policy statement on convergence[75] played an important role by creating a framework for competition between telecom carriers and cable TV companies in their core markets. The CRTC began permitting telephone companies to apply for broadcasting distribution licences and cable companies to register with the CRTC as CLECs to provide local telephone service.

2 Voice over Internet Protocol communication services

In line with the principle of technology neutrality, the CRTC is currently (2004) tending towards making Voice over Internet Protocol (VoIP) subject to the existing regulatory framework.[76] The CRTC makes a basic distinction between VoIP services, which handle traffic to and from the PSTN, and P2P services, with universal fund contributions being levelled only on certain specific types of VoIP service.[77] It follows that the regulatory requirements imposed on VoIP service providers would depend on the class of the service provider (e.g., ILEC, CLEC, non-dominant Canadian carrier, mobile wireless service provider, local service reseller) and the type of service being offered.[78]

3 Webcasting

In its "Exemption order for new media broadcasting undertakings", the CRTC exempted from regulation, without terms or conditions, all new media broadcasting undertakings that operate in whole or in part in Canada. New media broadcasting undertakings are those undertakings that provide broadcasting services delivered and accessed over the Internet. As a result, new media broadcasting undertakings are not subject to licensing by the CRTC. The Commission also emphasized that the exemption order does not apply to the licensed broadcasting activities (e.g. over-the-air radio and television broadcasting) of a company that also operates a new media broadcasting undertaking. This regulation in no way modifies the regulatory obligations that apply to licensees.[79]

More information about the position of the CRTC on this question may be found in Broadcasting Public Notice CRTC 1999-84 / Telecom Public Notice CRTC 99-14 ("Report on new media"), 17 May 1999[80], as well Public Notice 1999-118 concerning the meaning given to the expression "accessed and delivered" to describe the class of exempt undertakings.[81]

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75 Industry Canada, Convergence Policy Statement, available online at the Industry Canada website: <http://strategis.ic.gc.ca/epic/Internet/insmt-gst.nsf/en/sf05265e.html>.

76 Telecom Public Notice CRTC 2004-2.

77 Ibid., § 29.

78 Ibid., § 23.

79 Public Notice CRTC 1999-197 ("Exemption order for new media broadcasting undertakings"), Ottawa, 17 December 1999. It will be interesting to see if the CRTC revises this order after five years, in late 2004 or early 2005.

80 Broadcasting Public Notice CRTC 1999-84 / Telecom Public Notice CRTC 99-14 ("Report on new media"), Ottawa, 17 May 1999.

81 Public Notice CRTC 1999-118 ("Call for comments on a proposed exemption order for new media broadcasting undertakings"), Ottawa, 19 July 1999.

Before concluding, it may be useful to recall the Canadian experience with broadcasting service retransmission by Internet. The first such experience was that of iCraveTV, which came to a halt in the face of intellectual property litigation brought by Canadian and US authorities. Subsequently, another company, JumpTV, conducted a similar exercise, but restricted its offer to Canadian customers only, and complied with Canadian intellectual property regulations applicable to retransmitters. Subsequently the company withdrew its offer, citing excessive delays. Against this background, the government of Canada amended the Copyright Act in December 2002 to prevent Internet retransmitters from benefiting from the same compulsory licence regime as satellite broadcast retransmitters and cable distribution operators. Instead, they will have to negotiate royalties with copyright holders prior to obtaining broadcast authorization.[82]

[82] An Act to amend the Copyright Act, Bill C-11, assented to 12 December 2002, available at the website of the Parliament of Canada <http://www.parl.gc.ca/37/2/parlbus/chambus/house/bills/government/C-11/C-11_4/C-11_cover-E.html>.

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CRTC, "Regulatory framework for voice communication services using Internet Protocol", Telecom Public Notice CRTC 2004-2, Ottawa, 7 April 2004.

Table 4 – CRTC Registration and reporting requirements

Type of telecommunication service provider	Obligations	Comments
Competitive local exchange carrier (CLEC) [1] A CLEC provides local residential or commercial services in competition with the telephone companies that provided the service prior to the introduction of competition in local service.	√ CRTC registration and compliance with administrative requirements (e.g. provide a map of the proposed service area, meet a set of consumer safeguards, technical interoperability and interconnection requirements, etc.[2]. √ Canadian ownership and control requirements. √ Subject to universal fund contributions. √ Full CLEC obligations are listed at http://www.crtc.gc.ca/frn/public/2003/8180/CRTC/clecobl.htm.	√ Forbearance exercised with respect to end-user tariffs, including resellers[3]. √ A list of CLECs is available at http://www.crtc.gc.ca/eng/public/iplists/clec.htm.
Non-dominant carriers[4] A non-dominant carrier is a service provider other than an incumbent local exchange carriers (ILEC), providing services that fall under Telecom Decision CRTC 95-19 of 8 September 1995 ("Forbearance – services provided by non-dominant Canadian carriers").	√ CRTC registration, indicating categories of service, and providing certain other items of information[5]. √ Canadian ownership and control requirements. √ Subject to universal fund contributions. √ Other obligations: Participate in numbering planning, provide points of interconnection and so on[6].	√ **Dominant** telecommunication operators must file their tariffs with the CRTC. √ A list of **non-dominant** carriers is available at <http://www.crtc.gc.ca/frn/public/iplists/non-dom.htm>.
Telecommunication service resellers and high-speed retail Internet service resellers[7] A reseller of telecommunications services is a service provider or a company engaged in the sub-sequent sale or lease on a commercial basis, with or without adding value, of a telecommuni-cations service provided by a Canadian carrier on a wholesale basis. [A] reseller of High Speed Retail Internet Service means a service provider engaged in the resale of retail Internet Services. Cable carriers are cable distribution undertakings that also provide telecommunications services using the same facilities that they use to provide cable service.	√ Resellers of long-distance services : (a) must register with the CRTC prior to offering their services, and (b) are subject to universal fund contributions. √ Additionally subject to licensing obligations if they provide international telecommunications services[8]. √ High-speed retail Internet service resellers: only those ISPs which also provide telecommunication services are subject to universal fund contributions[9].	√ No obligations for Canadian ownership and control, as this category explicitly includes only Canadian Carriers. √ Local service resellers: no registration[10]. √ A list of telecommunication service resellers is available at: http://www.crtc.gc.ca/eng/public/iplists/reseller.htm. √ A list of high-speed retail Internet service resellers is available at: http://www.crtc.gc.ca/eng/public/iplists/Internet.htm.
Basic international telecommunications service licensees A Basic International Telecommunications Services (BITS) licensee offers tele-communication services on an international level.	√ CRTC registration[11]. √ Mandatory class A or B[12] licence with associated administrative requirements such as full disclosure of (1) affiliates; (2) all agreements or arrangements that the applicant has entered into with any foreign telecommunications service provider(s) for the purposes of (a) interconnection, (b) exchange, or (c) termination of Canadian originating or terminating basic international telecommunications traffic; (3) ownership, or rental from a separate provider, of facilities used in (a) transporting basic telecommunications service traffic between Canada and another country or (b) operating telecommunication systems to convert (i) minutes of basic international circuit-switched traffic originating in Canada into non-circuit switched traffic, or (ii) non-circuit switched traffic originating outside Canada into basic minutes terminating in Canada[13]. √ Subject to universal service fund contributions. √ Canadian ownership and control requirements. √ Full BITS obligations are listed at: http://www.crtc.gc.ca/eng/public/8190.htm.	√ Class A list: http://www.crtc.gc.ca/eng/public/iplists/class-a.htm. √ Class B list: http://www.crtc.gc.ca/eng/public/iplists/class-b.htm.

Table 4 – CRTC Registration and reporting requirements (*end*)

Type of telecommunication service provider	Obligations	Comments
Competitive payphone service providers[14)] A Competitive Pay Telephone Service Provider (CPTSP) is a company other than an Incumbent Local Exchange Carrier (ILEC) that provides pay telephones at customer locations.	√ CRTC registration; administrative requirements such as providing the name of the carrier supplying the access lines, providing the CRTC with maps showing areas where the service is to be provided and making them available for public consultation in their business offices, providing details on the manner of dealing with customer complaints, incorporating consumer rights protection in its contracts with other CLECs and ILECs (including access to emergency services, access for hearing-impaired and physically handicapped persons, clear operating instructions and cost information, limitations on the functionality, complaint submission, compliance with CRTC regulations on customer privacy[15)]. √ Subject to universal fund contributions. √ Canadian owership and control requirements. √ Full CPTSP obligations are listed at: http://www.crtc.gc.ca/frn/public/8180-9.htm.	√ An ILEC is only required to register as a CPTSP if it provides pay telephones outside of the territory in which it formerly operated as a monopoly[16]. √ ILECs and resellers alike can be CPTSPs[17)]. √ A list of CPTSPs is available at: http://www.crtc.gc.ca/eng/public/iplists/cptsp.htm.
Wireless service providers (WSPs)	√ No registration required unless they choose CLEC qualification[18)]. √ No obligation to register with the CRTC, except in the case of wireless services offered by dominant companies. Exceptions: 1) Those connected to the public switched telephone network must comply with confidentiality requirements. 2) Bell Canada and Rogers Cantel had to submit their agreements with telephone company affiliates and comply with other obligations, including the prohibition of exchange of confidential customer information and of cross-subsidies[19)]. √ Submit a list of their subsidiaries, affiliates and related companies[20)]. √ Subject to licensing requirements under the *Radiocommunication Act*. √ Subject to universal service fund contributions[21)]. √ Canadian ownership and control requirements.	√ The fees charged by the fixed operators to the cellular operators for using their network are regulated.
Internet service providers (ISPs)	√ The prices charged by the incumbent telephone and cable companies to ISPs to access their infrastructure are subject to CRTC approval[22)]. √ Contribution : two categories, one subject to universal fund contributions and the other exempt[23)]. √ Registration required for those which qualify as resellers[24)]. √ Internet service providers which provide high-speed digital services (DSL) via wire-based lines must register. Companies wishing to become digital subscriber line service providers 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 collocation. As DSL service providers they cannot use these loops to provide voice services unless they undertake to become CLECs. Entrants to the long distance market need to register with the CRTC[25)]. √ DSL providers may not enter the local switched telephony market[26)].	√ No entry procedures, registration process or obligations. √ The tariffs charged by ISPs to end customers are not subject to regulation.
Sharing group[27] A Sharing Group is a group of persons or companies who share telecommunications services such as a company sharing the same lines or network of lines, as in the case of a Centrex system.	√ CRTC registration.	√ A list of sharing groups is available at: http://www.crtc.gc.ca/eng/public/iplists/shgroup.htm.

Notes relative to Table 4:

1) See the CRTC fact sheet at <http://www.crtc.gc.ca/eng/info_sht/t1014.htm>.

2) CRTC, Telecom Decision CRTC 97-8 ("Local competition"), Ottawa, 1 May 1997, § 279 and § 295. See also Telecom Decision CRTC 98-8 ("Local pay telephone competition"), Ottawa, 30 June 1998, sections II-D and II-E.

3) Ibid., § § 258, 272, 273, 274.

4) See the CRTC fact sheet at <http://www.crtc.gc.ca/eng/info_sht/t1016.htm>.

5) Telecom Decision CRTC 95-19 ("Forbearance – services provided by non-dominant Canadian carriers"), 8 September 1995.

6) OECD, Regulatory reform in the telecommunications industry, Paris, OECD, 2002, p. 21.

7) See the CRTC fact sheet at <http://www.crtc.gc.ca/eng/info_sht/t1017.htm>.

8) Handa, S., Communications Law in Canada, no. 4.30.

9) Decision CRTC 2000-745 ("Changes to the contribution regime"), Ottawa, 30 November 2000, § 88.

10) Handa, S., op. cit., no 4.30.

11) Telecom Decision CRTC 98-17 ("Regulatory regime for the provision of international telecommunications services"), Ottawa, 1 October 1998.

12) Telecommunications Act, L.C. 1993, c. 38, art. 16.1 (2).

13) Telecom Decision CRTC 98-17.

14) See the fact sheet at <http://www.crtc.gc.ca/eng/info_sht/t1015.htm>.

15) Telecom Decision CRTC 98-8, Part II-B.

16) Ibid. See also the fact sheet at <http://www.crtc.gc.ca/frn/INFO_SHT/t1015.htm>.

17) Telecom Decision CRTC 98-8, see in particular Part III-C. See also Handa, S., op. cit., no 4.33.

18) Handa, S., op. cit., no. 4.35.

19) Ibid. See also Telecom Decision CRTC 96-14 ("Regulation of Mobile Wireless Telecommunication Services"), Ottawa, 23 December 1996; Telecom Decision CRTC 87-13 ("Cellular radio – adequacy of structural safeguards"), 23 September 1987; and Telecom Decision CRTC 92-13 ("Rogers Cantel Inc. v. Bell Canada – marketing of cellular service"), 29 June 1992.

20) Decision CRTC 2000-745 ("Changes to the contribution regime"), Ottawa, 30 November 2000, § 128.

21) Telecom Order CRTC 97-590, 1 May 1997.

22) OECD, op. cit., pp. 37-38.

23) Additional information is available in Telecom Order CRTC 98-929, 17 September 1998, § § 15-23, 30-33 and 23.

24) CRTC, Telecom Order CRTC 96-1471, 17 December 1996. See also Telecom Order CRTC 97-590, § 82.

25) OECD, op. cit., pp. 16-17.

26) Order CRTC 2000-983 ("Digital subscriber line service providers' access approved for unbundled loops and co-location"), 27 October 2000, § § 26-9, 41.

27) See the fact sheet at <http://www.crtc.gc.ca/eng/info_sht/t1018.htm>.

Table 5 – Services subject to licensing in Canada

Services subject to licensing	Services not subject to licensing
International basic telecommunications services	Domestic wireline telecommunications services
Domestic and international satellite and wireless telecommunications services (does not include Wi-Fi).	

Source: Industry Canada.

Table 6 – Canada's licensing regime for the provision of information and communication services and the operation of underlying facilities

Licence type	Scope of licence	Licence terms	Authority
Radio licence	Install, operate or possess radio apparatus to perform any of the following services at a fixed station, mobile station or space station: i) aeronautical service, ii) amateur radio service, iii) public information service, iv) developmental service, v) fixed service, vi) intersatellite service, vii) land mobile service, viii) maritime service, and ix) radiodetermination service[1].	♦ **Scope:** It is a term of a radio licence that the holder of the radio licence shall restrict the activities of the station to those radiocommunication services referred to in paragraph 3(a) of the Radiocommunication Regulations that are specified in the licence[2]. ♦ **Ban on discrimination**: It is a term of a radio licence that the holder of the radio licence who is a radiocommunication service provider shall provide its radiocommunication services without unjust discrimination[3]. ♦ **Eligibility**[4] (Restriction on foreign ownership). ♦ **Minister's discretion**. ♦ **Transfer and assignment**: Requires ministerial authorization[5] . ♦ **Radio licence fees**: Various[6]. ♦ **Conditions of licence**. Example: Mobile operators are required, as part of their licence obligations, to invest 2% of adjusted gross revenues in research and development.	Industry Canada
Spectrum licence Authorizations available for assignment in an auction	Use specified radio frequencies within a defined geographic area[7].	♦ **Term**: Generally valid for ten years from the date of licence issuance[8]. ♦ **Renewal:** As a rule, there is a high expectation of renewal for a further ten-year term. A public consultation regarding the renewal of the licence will commence no later than two years prior to the end of the licence term if the Department foresees the possibility that it will not renew this licence or if renewal fees are contemplated[9]. ♦ **Modifications:** The minister has the power to amend the terms and conditions of licences, in exceptional cases and following due consultation [10]. ♦ **Reallocation of licences**: In exceptional circumstances[11]. ♦ **Utilization**: Market forces must determine who will gain access to spectrum as well as how it will be used (flexibility in determining the services they will offer and the technologies they will employ)[12]. ♦ **Service areas:** Following service area tiers [13]. ♦ **Transfer and divisibility**: In whole or in part, in both the bandwidth and geographic dimensions to a qualified recipient (larger than a single spectrum grid cell)[14]. ♦ **Eligibility**: i) radiocommunication users or radiocommunication service providers (art. 9(1) RR); ii) radiocommunication carriers (art. 10 RR). Minister to be informed of any changes. ♦ **Technical requirements**[15]. ♦ **Obligations under the sharing and coordination arrangements between Canada and the United States**[16]. ♦ **Conditions for implementation of service or roll-out conditions**: May be imposed [17].	Industry Canada
Broadcasting certificate	No person shall, except under and in accordance with a radio authorization, install, operate or possess radio apparatus, other than: *a*) radio apparatus exempted by or under regulations made under paragraph 6(1)(m) of the Radiocommunication Act, *b*) radio apparatus that is capable only of the reception of broadcasting and that is not a distribution undertaking[18].		Industry Canada

Table 6 – Canada's licensing regime for the provision of information and communication services and the operation of underlying facilities (*end*)

Licence type	Scope of licence	Licence terms	Authority
Radio operator certificate		♦ **Eligibility**: The following persons are eligible to be issued a radio operator certificate: a) an individual who has passed the examinations set by the Minister in respect of the radio operator certificate being applied for; b) an individual who has met reissuance requirements or the requirements for the issuance of an equivalent certificate, set out in section 28 of the Radiocommunication Regulations; or c) an individual who is a citizen of a country other than Canada if i) the individual is the holder of an authorization that is issued by the responsible administration of that country and that corresponds with the applicable radio operator certificate set out in subsection 26(1) of the Radiocommunication Regulations, and ii) a reciprocal arrangement that establishes correspondence between radio operator certificates is in effect between the responsible administrations of Canada and that country [19].	Industry Canada
Technical acceptance certificate		♦ To certify technical acceptance and compliance with applicable standards[20].	Industry Canada
International submarine cable licence	Two types: Terminating licence Through licence	♦ **Term**: Ten years[21]. ♦ **Renewal or modification**: Upon licensee request[22]. ♦ **Transfer**: Subject to ministerial consent[23]. ♦ **Suspension and revocation**: if the Minister believes on reasonable grounds that the licensee has ceased to be eligible under the regulations or has contravened the Telecommunications Act, the regulations or any condition of the licence after giving notice in writing of the reasons for the suspension or revocation and a reasonable opportunity to make representations to the Commission[24]. ♦ **Environmental compliance**: An application for a licence must include documentation indicating compliance with the requirements set out in the Canadian Environmental Assessment Act (CEAA)[25]. ♦ **Other conditions**: An international submarine cable licence may contain such conditions as the Minister considers are consistent with the Canadian telecommunications policy objectives[26].	Industry Canada
International telecommu-nications service licence	Class A Class B	♦ **Term**: 10 years[27]. Licences were issued initially for five years[28]. ♦ **Renewal**: On application by the licensee[29]. ♦ **Modification**: Possible[30]. ♦ **Transfer**: With CRTC consent[31]. ♦ **Suspension or revocation of licence:** if the Minister believes on reasonable grounds that the licensee has ceased to be eligible under the regulations or has contravened the Telecommunications Act, the regulations or any condition of the licence after giving notice in writing of the reasons for the suspension or revocation and a reasonable opportunity to make representations to the Commission[32]. ♦ **Competition**: i) Prohibition of engaging in anti-competitive conduct[33], ii) Obligation to furnish and maintain an up-to-date list of all agreements or arrangements entered into with any foreign telecommunications service providers[34], iii) Provide any other information needed[35]. ♦ **Minutes of traffic**: Class A licensees must retain quarterly international traffic minute data until the CRTC has determined the requirements in the framework of Public Notice CRTC 2000-175 ("Monitoring the Canadian telecommunications industry") of 15 December 2000[36].	CRTC

Notes relative to Table 6:

1) Art. 5 of the Radiocommunication Act, R.S.C., 1985, c. R-2 and art. 3 of Radiocommunication Regulations, DORS/96-484, 5 November 1996.

2) Radiocommunication Regulations, art. 4.

3) Ibid., art. 5.

4) Ibid., art. 9, 10 and 10.1 of the Radiocommunication Regulations.

5) Ibid., art. 11.

6) Ibid., art. 55 ff. and Annex III.

7) Ibid., art. 5.

8) Industry Canada, Framework for Spectrum Auctions in Canada, 2nd edition, October 2001, pp. 6-9.

9) Ibid.

10) Radiocommunication Act, art. 5 (1)b).

11) Radiocommunication Regulations, art. 40.

12) Industry Canada, op. cit. 8.

13) Ibid.

14) Ibid.

15) Ibid.

16) Ibid.

17) Ibid.

18) Radiocommunication Act, art. 4 and Radiocommunication Regulations, art. 17.

19) Radiocommunication Regulations, art. 26 ff.

20) Ibid., art. 19 ff.

21) Telecommunications Act, S.C. 1993, c. 38, art. 19 (3) and International Submarine Cable Licences Regulations, DORS/98-488, 1 October 1998, art. 4(1)(f).

22) Telecommunications Act, art. 19(4).

23) Ibid., art. 19(4).

24) Ibid., art. 20(1) (2).

25) International Submarine Cable Licences Regulations, art. 4(1)(e).

26) Telecommunications Act, art. 19 (2).

27) Ibid., art. 16.3 (4).

28) Telecom Decision CRTC 98-17 ("Regulatory regime for the provision of international telecommunications services"), Ottawa, 1 October 1998, paragraph 367.

29) Telecommunications Act, art. 16.3 (5).

30) Ibid., art. 16.3 (3).

31) Ibid., art. 16.3 (6).

32) Ibid., art. 16.4 (1) (2).

33) Telecom Decision CRTC 98-17, paragraph 316.

34) Ibid., paragraph 338.

35) Ibid., paragraph 340.

36) Order CRTC 2001-4 ("Changes to reporting requirements of class A licensees"), 11 January 2001, paragraph 7.