

**An Examination of Issues raised in the
Telecommunications Policy Review Panel's
March 2006 Report regarding the
Canadian Mobile Wireless Services Industry**

September 29, 2006

*Prepared for the
Canadian Wireless Telecommunications Association*

WALL COMMUNICATIONS INC.

NOTE

The views expressed in this report are those of Wall Communications Inc. and, as such, they are not intended to and nor do they necessarily reflect the views of the Canadian Wireless Telecommunications Association.

***Wall Communications Inc.** is an economics consulting firm specializing in telecommunications, broadcasting, film and television production, new media, copyright and intellectual property and competition policy. The firm provides policy and strategic planning advice, conducts economic research and analysis and prepares evidence for regulatory and other proceedings.*

*Wall Communications Inc.
Ottawa, Ontario*

Contacts:

Gerry Wall

Phone: 613 747 0555

E-mail: gerry.wall@sympatico.ca

Bernie Lefebvre

Phone: 613 235 1624

E-mail: lefebvre@rogers.com

Web: www.wallcom.ca

TABLE OF CONTENTS

EXECUTIVE SUMMARY	i
1.0 INTRODUCTION	1
2.0 ISSUES RAISED IN THE TPRP REPORT DEALING WITH THE CANADIAN MOBILE WIRELESS SERVICES INDUSTRY	2
3.0 COMPARISONS BETWEEN CANADIAN AND FOREIGN MOBILE WIRELESS SERVICE INDUSTRIES	4
3.1 Mobile Wireless Penetration.....	4
<i>Wireless Penetration in Canada versus European OECD Countries</i>	5
<i>Wireless Penetration in Canada versus the United States</i>	9
3.2 Mobile Wireless Pricing	11
<i>International Mobile Wireless Service Price Comparisons</i>	12
3.3 Mobile Wireless Usage.....	17
<i>Minutes of Use (MOU)</i>	17
<i>Average Revenue per User (ARPU)</i>	19
<i>Data Service Revenue</i>	20
3.4 Deployment of Wireless Number Portability	20
3.5 Deployment of Advanced Mobile Wireless Technologies	22
3.6 Summary Remarks	24
4.0 TPRP POLICY RECOMMENDATIONS AFFECTING THE MOBILE WIRELESS INDUSTRY	27
4.1 Antenna Tower Sharing and Rooftop Access Arrangements.....	28
4.2 Spectrum Licensing & Management and Policy Direction.....	30
4.3 Summary Remarks	33
ATTACHMENT 1 - Mobile Penetration Rates in OECD Countries	35
ATTACHMENT 2 – Canadian and U.S Subscriber Growth.....	37

EXECUTIVE SUMMARY

The Telecommunications Policy Review Panel (TPRP) was established in April 2005. It was given a broad mandate to review Canada's telecommunications policy framework and provide recommendations as how it could improved and modernized. The TPRP set out its recommendations its Report issued in March of this year.

The primary focus of the TPRP's Report is on the wireline segment of the industry. Given that the Canadian mobile wireless industry is not subject to direct regulation of prices and other terms of service, the focus on wireline is understandable. Nevertheless, the TPRP provided its views on the current state of competition in the Canadian mobile wireless services industry and also made several recommendations that, if implemented, would have important implications for the wireless industry.

Wall Communications was asked by the Canadian Wireless Telecommunications Association to examine and comment on statements made by the TPRP relating to the Canadian mobile wireless services industry as well as the TPRP's recommendations relating to the wireless segment of the Canadian telecommunications services industry.

The TPRP's Comments on the Canadian Wireless Industry

In its report, the TPRP questions the vibrancy of competition in the Canadian mobile wireless services industry, suggesting the Canada compares unfavourably with other countries, especially the U.S. in certain instances, with respect to a variety of key industry indicators such as subscriber penetration, rate levels, voice and data service usage levels and the rate of deployment of advanced third generation (3G) wireless technologies.

Differences in industry performance across countries are often explained by a variety of inter-related factors, including historical, institutional and structural distinctions along with differences between countries in consumer preferences, service quality, prices for related products and services and income levels, etc. Consequently, a cursory examination of a handful of industry indicators across countries can be misleading. A more careful and detailed examination and assessment of the specific mobile wireless industry indicators and parameters presented in the TPRP Report shows that, contrary to the TPRP's conclusion, Canada does in fact compare favourably with other OECD countries, including the U.S.

With respect to penetration rates, both Canada and U.S. lag Europe and Asia when it comes to aggregate penetration rates for mobile wireless services. European and Asian penetration rates are often above 100%, whereas they are currently 53% in Canada and just over 70% in the U.S. However, the higher penetration rates in Europe and Asia appear to be largely explained by the significantly greater popularity of low call volume, pre-paid wireless services in Europe and Asia, combined with rate plans where mobile subscribers only pay for outgoing calls. Pre-paid services are far less popular in Canada and even more so in the U.S. relative to Europe and Asia. When pre-paid subscribers are stripped out, Canada's penetration of post-paid mobile wireless subscribers compares favourably with other OECD countries (i.e., it is very close to the 30 OECD country average).

The current penetration gap between Canada and the U.S., on the other hand, appears to be largely a result of the 18 month head start in launching wireless services enjoyed by the U.S. The average annual growth rates in subscribers in the two countries have been roughly equal, both growing at an average annual rate of roughly 35% per year over the last twenty years. Consequently, the gap in penetration rates from the outset of the industry has grown simply due to the fact that the underlying base of wireless subscribers in the U.S. has consistently been larger than in Canada.

Comparing mobile wireless service prices across countries is a complex task given the numerous rate elements and usage considerations involved. However, the OECD's biannual mobile wireless service price comparison results suggest that Canadian mobile wireless rates have consistently compared favourably with other OECD member countries. Relative to the U.S, Canadian mobile wireless rates have also compared favourably, except more recently in the case of high volume users. However, this is the case for the vast majority of OECD countries, not just Canada.

In contrast, we believe the wireless price comparison study prepared by the SeaBoard Group, on which the TPRP relied, was too narrowly focused to provide an accurate comprehensive picture of price levels in Canada versus other OECD countries.

On a related point, the TPRP claimed that Canadian prices are higher than in the U.S. because there are fewer wireless carriers operating in Canada compared to the U.S., although no evidence was provided in support of this claim. However, in terms of the number of mobile wireless operators, Canada is very similar to most other OECD member countries, which generally have no more than three wireless operators accounting for the vast majority of their domestic mobile wireless markets. In fact, two European countries have lower prices than the U.S., yet have fewer wireless service operators than Canada, which contradicts the logic of the TPRP's assertion.

Further, in terms of pricing, it should also be noted that average revenue per minute (RPM) in Canada has declined by 43% over the last five years. While average RPM has declined faster in the U.S., Canada has nevertheless outstripped RPM reductions in most OECD countries. As well, Canada's current RPM rates rank third lowest among OECD countries, behind only Finland and the U.S.

In terms of average monthly minutes of use (MOU) per user levels, the TPRP pointed out that Canada lags the U.S. While it is true that monthly MOU per user is currently 400 in Canada versus 800 in the U.S., the TPRP failed to point out that Canada ranks well ahead of all other OECD countries in terms of monthly per subscriber MOU levels. Moreover, Canada also ranks very favourably among OECD countries in terms of monthly MOU per capita.

In terms of average revenue per user (ARPU) levels, the TPRP noted that Canada ranks below the U.S. However, Canada has narrowed the gap over the last year having reached at ARPU of US\$46 versus US\$53 in the U.S. However, the TPRP failed to point out that Canada ranks third highest among all OECD countries in terms of ARPU, behind only the U.S. and Japan.

In terms of data usage levels, the TPRP pointed out that both Canada and the U.S. lag Europe in terms of data revenues as a percentage of total revenues. However, we

believe that this simply reflects the fact that Europeans and Asians rely on SMS service as a substitute for voice calling due to the high cost of calling in those countries.

Lastly, the TPRP's observation that Canada lags somewhat behind the U.S., Europe and Japan in the deployment of 3G technology is not surprising. The extent and importance of the lag, however, is overstated by the TPRP, and fails to take into account the need for Canadian wireless carriers to prudently invest in new technologies at a rate that anticipates rather than runs ahead of customer demand.

Overall, the TPRP Report mischaracterizes the relative position of Canada to other OECD countries including the U.S. We believe that given the limited and selective data which was examined by the TPRP, it is premature to conclude that there is "a need to develop a more efficient and vibrant wireless industry in Canada", as proclaimed by the TPRP. While we believe that industry performance can always be improved, we do not see any glaring examples of substantive inefficiencies or lackluster performance based on the measures employed by the TPRP.

TPRP Technical Regulation and Policy Direction Recommendations

The TPRP set out a number of "technical" regulation-related recommendations intended to remove barriers faced by entrants requiring access to essential infrastructure including support structures, rights-of-way, buildings and in-building wire. While most of the recommendations addressed existing barriers faced by wireline entrants, they also were extended to cover mandated tower sharing and a prohibition of exclusive rooftop access arrangements.

The TPRP relied largely on the recent National Antenna Tower Policy Review (NATPR) Report to support its recommendations in this respect. However, the TPRP went beyond the recommendations put forward in the NATPR and, moreover, it appears that the TPRP had little, if any, new evidence supporting the need for the specific measures it proposed either with respect to mandating tower sharing or prohibiting exclusive rooftop antenna tower access arrangements. While the need for these recommended measures in today's environment can be questioned, the recommendations relating to tower sharing and access to rooftops are, nevertheless, consistent with the TPRP's other recommendations on access to essential infrastructure.

The TPRP also recommended that responsibility for spectrum management and licensing be transferred from Industry Canada to the CRTC, suggesting that a number of benefits would flow from this move. While the existence or significance of many of the cited benefits are debatable, moving the Spectrum Branch from Industry Canada to the CRTC may at least remove any appearance of possible political influence from the spectrum licensing and management processes.

Lastly, while the majority of the TPRP's spectrum policy direction recommendations are generally uncontroversial, the TPRP's recommendation to use spectrum caps to provide an entry opportunity for new entrants is more contentious. As noted spectrum caps or spectrum set-asides can have distorting market effects since they may prevent the use of a resource in its most productive application. It is also questionable whether the Canadian market can support a fourth mobile wireless entrant. Even still, we consider that the potential to create an opportunity for entry is an extremely important policy tool and that the actual form of this mechanism (i.e. whether a spectrum cap, a set-aside or

other means) is somewhat secondary to ensuring that some manner of allowing new entry exists. However, before adopting any specific mechanism to preserve new entry opportunities, we suspect that Industry Canada will continue to canvass industry members and potential entrants, review international experience and carefully analyze all options (preferably in an open and transparent process) before settling on a specific mechanism.

1.0 INTRODUCTION

The Telecommunications Policy Review Panel (TPRP) was established by the federal government in April 2005. It was given a broad mandate to review Canada's telecommunications policy framework and provide its recommendations on how to modernize the framework to ensure that Canada has a strong, internationally competitive telecommunications industry that delivers world-class services for the economic and social benefit of all Canadians. More specifically, the TPRP was asked to provide its recommendations on:

- how to implement an efficient, fair, functional and forward-looking regulatory framework that serves Canadian consumers and businesses, and that can adapt to a changing technological landscape;
- mechanisms to ensure that all Canadians continue to have an appropriate level of access to modern telecommunications services; and
- measures to promote the development, adoption and expanded use of advanced telecommunications services across the economy.

The TPRP drew on many sources of information and advice in conducting its review, including numerous submissions in response to its June 2005 Consultation Paper, presentations and discussions that took place in Whitehorse and Gatineau as well as consultations with Canadian stakeholders and experts along with researchers, policy makers and regulators in other countries.

The TPRP's report was issued in March of this year. In the report, the TPRP sets out over 120 recommendations aimed at improving Canada's telecommunications policy and regulatory frameworks.

The TPRP's primary focus is on the wireline segment of the industry. Given that the Canadian mobile wireless industry is not subject to direct regulation of prices and other terms of service, the focus on wireline is understandable. Nevertheless, the TPRP does comment on the current state of competition in the Canadian mobile wireless services industry and also makes a handful of recommendations that, if implemented, would have important implications for the mobile services wireless industry.

As part of a larger review of the wireless industry, Wall Communications was asked by the Canadian Wireless Telecommunications Association (CWTA) to examine and comment on statements made by the TPRP relating to the Canadian mobile wireless services industry as well as the TPRP's recommendations relating to the mobile wireless segment of the Canadian telecommunications services industry.

2.0 ISSUES RAISED IN THE TPRP REPORT DEALING WITH THE CANADIAN MOBILE WIRELESS SERVICES INDUSTRY

As noted, only a relatively limited portion of the TPRP Report deals specifically with the Canadian mobile wireless services industry. The introductory chapter of the report provides a brief overview and assessment of the current state of competition in the Canadian telecommunications industry, including mobile wireless services industry segment. In this context, the TPRP concludes that “Canada’s mobile wireless industry lags behind its major trading partners on a number of key measures” including mobile wireless service penetration, usage, pricing and advanced wireless technology deployment.

In particular, the TPRP identified five areas where it claims that Canada’s mobile wireless industry compares unfavourably with foreign jurisdictions. The Panel states that:¹

- i) Canada is second to last among OECD countries in terms of mobile wireless penetration (i.e., measured in terms of subscribers per 100 inhabitants) and, more importantly, has shown a persistent and growing gap in respect of wireless penetration relative to the U.S.
- ii) Mobile wireless pricing is “significantly higher” in Canada relative to the U.S. and other countries which, according to the Panel, may be a result of the smaller number of wireless service providers in Canada relative to the U.S. and, by extension, the lower degree of competition in Canada relative to the U.S.
- iii) Canadian mobile wireless subscribers have “much lower usage” rates (measured in terms of average minutes of use per month) and generate lower average revenue per user (ARPU) levels compared to the U.S. As well, the Panel noted that Canadian mobile wireless subscribers’ usage of data services is below that of Japan and European countries.
- iv) Canada has “lagged in the introduction of wireless local number portability”, noting that wireless number portability in Canada is only scheduled to come into effect in March 2007 whereas it was introduced years ago in a number of Asian and European countries.
- v) Canada lags behind in the rollout of many new mobile wireless services and features, especially with respect to the deployment of third-generation (3G) high-speed data services when compared to the U.S. as well as other countries.

Based on these observations, and other considerations, the TPRP concluded that “because of the growing importance of this segment, Canada should develop a more efficient and vibrant wireless industry.” Yet, despite the above-noted concerns, very few of the more than 120 recommendations contained in the TPRP Report specifically relate to the mobile wireless industry. In fact, only three recommendations do:

¹ All of the following points are drawn from the TPRP Report, pages 1-16 to 1-21.

- Recommendation 5-5:² The CRTC should be empowered to regulate and promote the sharing of antenna towers used for telecommunications purposes, resolve disputes regarding tower access, and enforce its regulations in an effective and timely manner.
- Recommendation 5-6:³ The CRTC should be empowered to prohibit wireless carriers from entering into exclusive arrangements for locating telecommunications antennas on rooftops and, in those cases where building owners and wireless service providers are unable to agree on terms and conditions of access, should be empowered to resolve the dispute on such terms as it considers appropriate, with its rulings binding on the parties.
- Recommendation 5-9:⁴ Industry Canada should develop a new spectrum policy to provide clear direction to the CRTC in exercising its new authority to manage and regulate Canada's radio spectrum. The new policy should take into account the work completed by Industry Canada as part of its ongoing spectrum policy framework review, and should ensure that the following areas are addressed:
 - o availability of adequate spectrum to meet demand for deployment of fixed and mobile broadband networks across Canada,
 - o availability of licensed and licence-exempt spectrum for the broadband deployment ("U-CAN") program recommended by the Panel,
 - o reliance on market-based approaches to spectrum management as much as possible,
 - o establishment of market-based exclusive spectrum rights (i.e. ability to buy, sell and lease spectrum holdings) and elimination of barriers to the development of secondary markets in spectrum,
 - o recovery and "refarming" of previously assigned spectrum that is unused or underutilized in order to accommodate new services,
 - o review of current licence fees to correct fee imbalances that may exist among service providers, separating where practical cost-recovery fees from those fees charged for the use of a limited public resource, and applying market-based pricing for non-auction licences,
 - o streamlining and standardization of licensing processes, and
 - o continued use of regulatory mechanisms such as spectrum caps (aggregation limits) where spectrum is scarce in order to provide an opportunity for new entrants to acquire spectrum and for Canadians to have an expanded choice of service providers.

Each of the five observations regarding the state of competition in the Canadian mobile wireless industry is examined and assessed in Section 3. The TPRP's three noted recommendations impacting the Canadian mobile wireless industry are examined and assessed in Section 4.

² TPRP Report, page 5-13.

³ Ibid. page 5-13.

⁴ Ibid. Report, page 5-21.

3.0 COMPARISONS BETWEEN CANADIAN AND FOREIGN MOBILE WIRELESS SERVICE INDUSTRIES

In the following sub-sections, we examine each of the observations made by the TPRP relating to the relative position of the Canadian mobile wireless industry compared to foreign jurisdictions (i.e., or more specifically other countries belonging to the Organization for Economic Co-operation and Development or OECD). In each case, we explain, to the extent possible, and to provide an appropriate context regarding Canada's current ranking on key indicators relative to the U.S. as well as other OECD countries.

3.1 Mobile Wireless Penetration

Cellular mobile wireless services were launched in Canada in 1985. Second generation (2G) digital mobile wireless services were launched in the latter half of the 1990s and then followed by enhanced 2G services (i.e., 2.5G services featuring moderate speed data services) over the last several years. More advanced third generation (3G) mobile wireless services (including high-speed data services) have been launched in Canada over the last year or so.

Over the last 20 years the mobile wireless service subscriber base in Canada has grown rapidly. As of the end of the first quarter of this year, there were over 17 million mobile wireless subscribers in Canada, representing a penetration rate of roughly 53% of the total population of the country.⁵ The average annual rate of growth in wireless subscribers in Canada over the last five years alone was roughly 17%, representing the addition of approximately 1.6 million new subscribers on average each year since 2001.⁶

While the growth in Canada's mobile wireless industry has been impressive since its inception, the TPRP highlights the fact that Canada's mobile wireless penetration rate as of 2004 (of roughly 47% at the time) lagged behind the U.S. (at roughly 61% at the same time) and well behind other European OECD countries (a number of which had penetration rates of over 100% in 2004).⁷ In addition, the TPRP Report claims that the wireless penetration gap between Canada and the U.S. is widening.⁸

When comparing penetration rates between countries, it is important not to draw normative conclusions (such as inferring one country is "performing better" in some sense simply because it has a higher penetration rate) without examining the factors that may exist in one country (but not another) that may affect penetration levels. The types of considerations to be examined include relative price levels and pricing mechanisms, relative prices compared to substitutes or near substitutes, customer preferences and relative quality, among other factors.

⁵ Merrill Lynch, *Global Wireless Matrix* (GWM) 1Q06, 27 June 2006, page 74.

⁶ Ibid.

⁷ TPRP Report, page 1-18.

⁸ Ibid. page 1-19.

Wireless Penetration in Canada versus European OECD Countries

There is no question that Canada's overall mobile wireless penetration rate is lower than most other OECD countries and has been for years. More recently available penetration rate data (compared to that relied on by the TPRP) confirms that there has been no significant change in Canada's position relative to other OECD countries over the last year.⁹ If one looks back far enough, to the early 1990s when penetration rates were zero or very low in all current OECD countries, wireless penetration gaps between countries were largely inconsequential. However, since the mid to late 1990s, penetration rates in many European and Asian OECD countries accelerated rapidly, far more so than in the cases of Canada as well as the U.S.¹⁰

The TPRP readily acknowledges there are a number of important factors which explain the lower mobile wireless penetration levels in Canada, as well as the U.S., relative to other OECD countries.

For one, the TPRP notes that there are important historical differences in the quality, availability and pricing of wireline telephone service in Canada compared to Europe. The quality of wireline access service in Canada compares very favourably with other OECD countries.¹¹ Wireline penetration among Canadian households has been close to 98% for years, although last year it began to decline slightly as the number of wireless-only households increased.¹² Wireline access penetration in Canada (measured on a per capita rather than household basis) has consistently ranked near the top among OECD countries, despite Canada's geographic enormity and vast rural and remote areas relative to most other OECD countries.¹³ As well, Canadian prices for residential and business telephone services rank well below the average for all 30 OECD countries.¹⁴

In this respect, it is the relative price of wireless to wireline service that would be an important factor affecting the take up rate of mobile wireless services (to the extent that wireless service is considered as a close or partial substitute for wireline service¹⁵). Some researchers have suggested that it is the low wireline prices that may be

⁹ Merrill Lynch, GWM 1Q06, page 36.

¹⁰ See, for instance, OECD, Working Party on Telecommunications and Information Services Policies, Cellular Mobile Pricing Structures and Trends, May 2000, page 74.

¹¹ OECD 2005 Communications Outlook, Chapter 8. For instance, Canada ranks second lowest among all reporting OECD countries with respect to the number of faults per 1,000 access lines.

¹² CRTC Telecommunications Monitoring Report, July 2006, page 5.

¹³ OECD 2005 Communications Outlook, Table 4.6, page 107.

¹⁴ OECD 2005 Communications Outlook, Tables 6.6 and 6.8, pages 185 and 187, respectively. The OECD compares rates measured in U.S. dollars translated from domestic currencies using applicable international exchange rates as well as purchasing power parity (PPP) translators. Depending on the price translator used, individual country rankings can change significantly.

¹⁵ A number of research studies suggest that as relative prices have fallen between the two services, consumers have substituted away from wireline towards wireless. See for example M. Ward and G. Woroch, *Usage Substitution between Mobile Telephone and Fixed Wireless in the U.S.*, May 2004 and Stephen Pociask, *Wireless Substitution and Competition*, CEI, December 15, 2004.

responsible for relatively low mobile penetration rates in Canada.¹⁶ Wireless prices have been falling steadily in Canada as in other countries. However, wireless rates are still generally higher than wireline prices in Canada, other than in the case of low call volume users.¹⁷ The same is true of the vast majority of OECD countries.¹⁸ It is our expectation, *ceteris paribus*, that wireless will increasingly become a substitute for wireline services if wireless prices continue to decline relative to wireline prices.

It should be noted, however, that low relative wireline prices do not necessarily correlate with lower wireless penetration rates. Luxembourg, for instance, had 120 mobile wireless subscribers per 100 inhabitants in 2004, compared to 47 in Canada. At the same time, Luxembourg enjoyed a higher overall level of wireline penetration as well as lower residential and small business wireline telephony rates relative to Canada. Sweden is another country where both wireline and wireless penetration is higher than in Canada and residential and small business wireline telephony rates are lower.¹⁹ We would suggest, therefore, that it is important to examine all environmental factors when examining the data.

The TPRP Report also notes that different approaches to pricing wireless services across countries may have created stronger incentives to subscribe to wireless services in Europe. In this respect, it is important to note that other than Canada, the U.S. and New Zealand, all other OECD countries have “metered” local telephone service rates -- i.e., call calls are subject to per second, per call or per unit billing of some form.²⁰ Consequently, while metered usage charges for local calls could be viewed as a service feature that could inhibit adoption of mobile wireless subscribers in Canada as well as the U.S.; this would not be the case in Europe and Asian OECD countries.²¹

Perhaps more importantly, other than Canada and the U.S., virtually all other OECD countries have instituted calling party pays (CPP) rate structures for mobile wireless service. With CPP, a mobile wireless customer pays for only outgoing calls. Incoming calls are paid for by the calling party. CPP has the effect of reducing the effective cost of mobile wireless service to the subscriber and also provides the subscriber with more control over the cost of the service. In contrast, in Canada and the U.S., mobile wireless subscribers incur costs for both incoming and outgoing calls -- i.e., mobile service or

¹⁶ Neil Quigley and Margaret Sanderson, *Going Mobile — Slowly: How Wireline Telephone Regulation Slows Cellular Network Development*, C.D. Howe Institute, Commentary No. 222, December 2005.

¹⁷ Based on a comparison of wireline and wireless rates provided in the OECD’s 2005 Communications Outlook, Table 6.5 and 6.11 to 6.13.

¹⁸ *Ibid.* Rates for low volume mobile users are lower than residential wireline rates in all OECD countries, whereas only 5 of the 30 OECD countries have lower wireless rates compared to residential wireline rates when rates for medium volume mobile users are considered. Note that the residential wireline charges used in this comparison excluded additional costs of calls to mobile users which, therefore, would tend to understate residential wireline charges reported for Europe and Asia.

¹⁹ The comparisons are based on pricing data reported in the OECD 2005 Communications Outlook. We also note that mobile wireless prices are also lower in both Luxembourg and Sweden compared to Canada according to OECD price comparisons, and this could affect the relative penetration rates of both wireline and wireless.

²⁰ OECD 2005 Communications Outlook, Table 6.1, page 180.

²¹ Although, this has not been the case in New Zealand where wireless penetration rates are well above those in both Canada and the U.S.

receiving party pays (RPP). There is some limited evidence that CPP-based rate structures may have resulted in higher subscription rates to mobile wireless services. For example, Mexico adopted a CPP for mobile wireless services in 1999. Since that year, average annual growth in mobile wireless subscribers in Mexico has outpaced Canada and the U.S. almost three-fold.²²

The TPRP Report also suggests that Europe's leadership in developing and deploying 2G and 3G wireless technologies, resulted in superior products and services being available to European consumers for a period of time, and this may also have contributed to higher mobile penetration rates in Europe relative to Canada.

Digital or 2G mobile wireless services were launched in Canada in 1997. A number of European countries launched 2G mobile wireless services somewhat earlier.²³ As well, while 3G mobile wireless services were launched in Canada over the last year or so, 3G services were launched in some OECD countries several years ago (e.g., in Japan and South Korea). However, it should be recognized that the higher penetration rates in those same countries may well have helped justify the earlier deployment of the more advanced technologies. Until very recently, the Canadian wireless industry had failed to generate positive net income in almost every year since its inception in 1985, suggesting that the industry's ability to invest in new generation digital technologies at the same time and rate as other OECD countries would have been limited.

More importantly, the introduction of "pre-paid" mobile wireless service was a key pricing innovation that was facilitated by the adoption of digital wireless technology. Pre-paid services were first introduced in Europe in 1996, two years ahead of Canada and three years ahead of the U.S.²⁴ Because pre-paid service provides users with a "cash and carry" approach to mobile telephony, it opens up the service to users who otherwise would not be able to purchase it. In that sense, pre-paid service has helped to drive wireless penetration rates at an earlier stage in Europe as well as other OECD countries.

Moreover, pre-paid may be more suited to consumer tastes in some countries relative to other countries. Since overall penetration rates reported in many studies include both pre-paid and post-paid, the figures are not directly comparable and, in particular, may not be of much use in drawing normative conclusions.

For instance, according to OECD estimates for 2004 (see Attachment 1, Figure A1), Italy had achieved a mobile wireless penetration rate of 108 subscribers per 100 inhabitants, 91 of which were on pre-paid rather than contract or post-paid plans (i.e., 84% of the total). In Portugal, there were 99 mobile wireless subscribers per 100 inhabitants in 2004, 79 of which were on pre-paid plans (i.e., 80% of the total). In most European countries, the ratio of pre-paid to total wireless penetration rates is 40% or more. In contrast, the ratio of pre-paid to total subscribers in 2004 was 19% in Canada and only 8% in the U.S. according to OECD estimates.

²² Ibid. Tables 4.8 and OECD, *Cellular Mobile Pricing Structures and Trends*, May 2000, page 40. Again, it is important to consider all relevant environmental factors. It should also be noted that Mexico's mobile wireless penetration rate still remains the lowest of all OECD countries.

²³ OECD 2001 Communications Outlook, Figure 4.5, page 75.

²⁴ OECD 2005 Communications Outlook, Figure 4.9, page 110.

Pre-paid customers are typically low call volume users that generate far lower ARPU per month on average compared to post-paid subscribers. For instance, in Canada, Bell Mobility's ARPU for pre-paid subscribers was \$12 versus \$61 for its post-paid subscribers in 2004, which illustrates the significant differences in user characteristics when it comes to the two wireless service options.²⁵

In terms of penetration of post-paid customers alone, Canada compares favourably with other OECD countries. As of 2004, there were 38 post-paid mobile wireless subscribers in Canada per 100 inhabitants. The OECD average was 42 per 100 inhabitants in the same year. Focusing solely on post-paid subscribers, Canada advances 13 places in terms of its ranking with other OECD countries. (See Attachment 1, Figure A2 versus Figure A1)

It is likely that the combination of pre-paid services and CPP have jointly played an important role in stimulating mobile wireless penetration in Europe relative to Canada as well as the U.S. Pre-paid service combined with CPP allows a subscriber to better manage cost relative to RPP based mobile wireless pricing regimes. It appears that subscribers in both Canada and the U.S. have a marked preference for post-paid rather than pre-paid plans under a RPP pricing regime.

It is also worth noting that with pre-paid plans, users can easily subscribe to more than one wireless service in order to take advantage lower "on-net" call charges on more than one wireless network. This practice appears to be popular in Europe where rates can vary significantly from one country to another not to mention across service providers. In such cases users purchase multiple "subscriber identity module" or SIM cards to take advantage of different rate plans. With a common GSM wireless technology platform in place for virtually all mobile wireless service providers in Europe, all a user need do is swap out the SIM card in his/her cellphone to take advantage of alternative prep-paid rate plans.

A study conducted in 2001 by the U.K. regulator, Ofcom, estimated that 13% of mobile wireless subscribers in Italy used multiple SIM cards at the time. Estimates reported in the study for Portugal and Finland were lower at 7% and 3% respectively.²⁶ It has also been noted that by the OECD that the high penetration rate in Luxembourg is likely due to users residing in neighbouring countries purchasing a second SIM card for use in Luxembourg.²⁷

The practice of purchasing multiple SIM cards in Canada does not appear to be common, or feasible. Moreover, unlike Europe where a single wireless technology prevails, multiple handsets rather than simply swapping SIM cards would be required to take advantage of different rate plans within the country. Consequently, penetration rates in certain European countries are likely inflated relative to Canada as a result of this phenomenon.

²⁵ NBI/Michael Sone Associates Inc., *Canadian Mobile Wireless Communications Services Market Report*, 2005 Edition, December 2005, page 22.

²⁶ Oftel (now Ofcom), *Use of multiple SIM cards in mobile phones by consumers in Italy, Finland & Portugal*, Research Summary, April-May 2001.

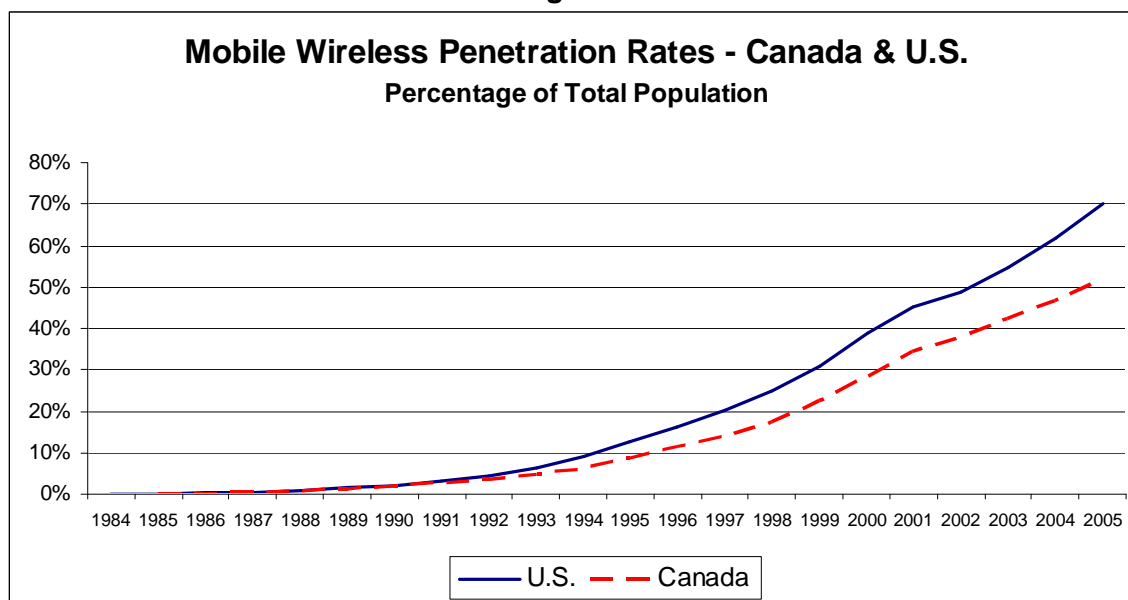
²⁷ OECD 2005 Communications Outlook, page 95.

Wireless Penetration in Canada versus the United States

In comparison to European OECD member countries, both Canada and the U.S. tend to rank relatively low in terms of wireless penetration rates. However, Canada has also consistently lagged behind the U.S. in terms of penetration. The TPRP has suggested that the wireless penetration gap between Canada and the U.S. is widening.

Mobile wireless services were launched in the U.S. roughly 18 months ahead of Canada in the early 1980s (i.e., in late 1983 in the U.S. and in 1985 in Canada). U.S. penetration rates have always been greater than Canada. However, as shown in Figure 1 below, a more noticeable gap in penetration rates between the two countries developed in the early 1990s when penetration rates began to reach critical mass levels (i.e., rates of 5% were achieved). In 1990, for instance, the penetration rate difference between the two countries was well below 1% and grew to roughly 4% by 1995. Since that time the difference between U.S. and Canadian penetration rates has continued to grow each year. As of 2004, the difference was roughly 15 percentage points and as of 2005, 18 percentage points.

Figure 1



Source: Based on CTIA and CWTA historical wireless subscriber data and U.S. Census Bureau and Statistics Canada population data

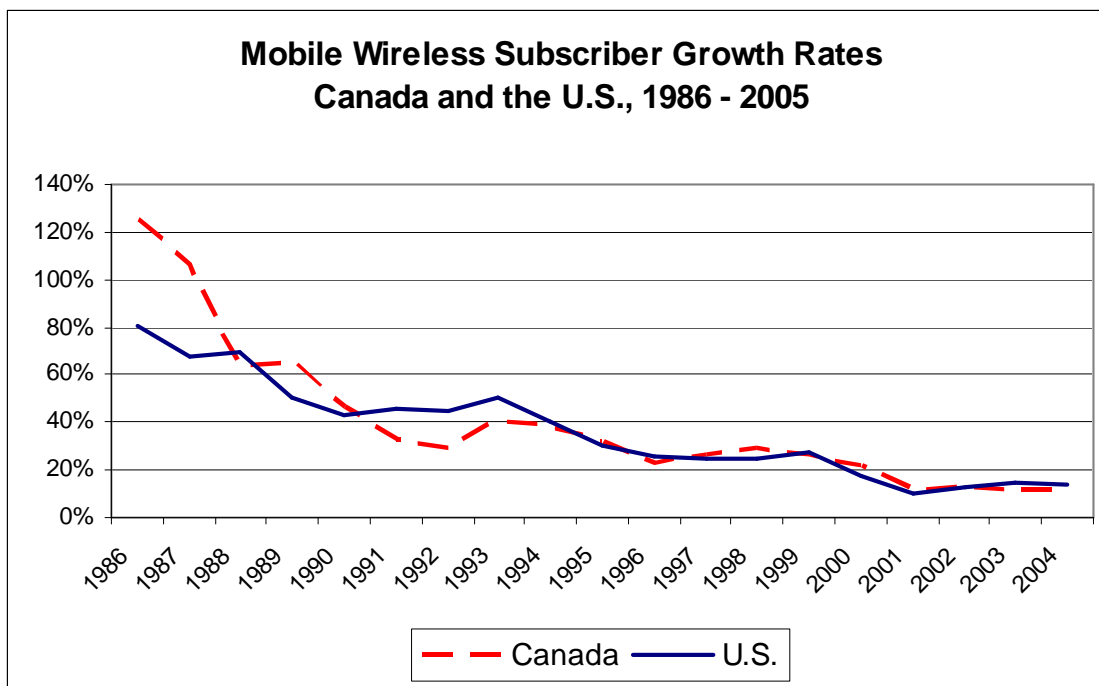
Mobile wireless service offerings in Canada and the U.S. have generally been comparable in terms of service features and pricing. At times, price levels have been found to be lower in Canada compared to the U.S., as is discussed in the following section. Generally, wireless prices have been declining rapidly in both countries since the services were first launched in the 1980s. Consequently, rather than price being the determinative factor, relative income levels may have played a more of a role in penetration rates growing faster in the U.S. relative to Canada.

Even more importantly, the fact that the U.S. wireless industry had an 18 month head start on Canada tends to explain the vast majority of the difference in penetration rates

between the two countries, including the fact that it has generally been widening over time.

Wireless subscriber growth rates in the two countries have been virtually identical ever since the services were launched as is shown in Figure 2.²⁸ As illustrated in Figure 2, the only period during which subscriber growth in the U.S. outstripped Canada was in the early 1990s; however, subscriber growth in Canada was faster than in the U.S. in the immediate preceding years and briefly in subsequent years. Over the last twenty years (1986 to 2005), the average annual growth rate in Canada was 37% versus 35% in the U.S. As well, during the earlier half of this period (1986 to 1996), average annual subscriber growth was 55% in Canada and 52% in the U.S. and in the latter half (1996 to 2005) average annual subscriber growth was 24% in Canada and 25% in the U.S. Consequently, there is no gap in the rate of growth of wireless subscribers in the two countries.

Figure 2



Source: Based on CTIA and CWTA historical wireless subscriber data.

Due to the fact that the U.S. had an 18 month head start implies that the U.S. has been continually growing a larger underlying base of wireless subscribers relative to Canada for the last twenty years. As a result, the penetration “gap” that existed in the 1980s, and was relatively minimal in absolute terms at the time, is now much larger. Consequently, the difference in penetration rates has generally grown wider as well.

²⁸

Note that we excluded the initial years in the two countries since growth rates at that time were very much higher given that the subscriber bases were growing from near zero levels.

However, if the U.S.'s penetration rates are adjusted for the 18 month head start (i.e., moved forward to correspond with the launch date of wireless services in Canada), there is virtually no remaining penetration rate gap between the two countries, with one notable exception. In the last few years (i.e., 2003 to 2005), the "adjusted" penetration difference is between 4 and 6 percentage points. In this respect, we note that U.S. subscriber growth has been slightly higher in the U.S. over the last few years, which may be explained by more rapidly declining wireless prices in the U.S. over this same time period (as is discussed in the following sub-section). However, it is unclear whether this trend will continue in view of the fact that subscriber growth rates in the two countries have historically been very similar over the last twenty years.

Note that the historical U.S. and Canadian wireless subscriber and penetration rate data used in this section are provided in Attachment 2, Table A1.²⁹

3.2 Mobile Wireless Pricing

In its report, the TPRP claims that mobile wireless pricing is significantly higher in Canada relative to the U.S. and other countries.³⁰ In support, it cites a recent study conducted by the SeaBoard Group (SeaBoard) which found that an "average" mobile wireless subscriber in Canada pays 60% more than the U.S. and 19% more than in Europe.³¹

The TPRP further suggests that this price difference may be explained by the relatively small number of mobile wireless service providers in Canada compared to the U.S. It notes in its report that according to Federal Communications Commission (FCC) data, 87% of Americans live in areas with five or more mobile wireless operators and 41% live in areas with at least six,³² whereas in Canada, the maximum number of mobile wireless operators is three. The TPRP also suggests that:

...the smaller number of mobile providers in Canada — and the fact that all three national wireless service providers are also owned by large telecommunications service providers that also provide wireline services — may mean that there is less competition in the Canadian wireless market than in the U.S. market, which consequently has resulted in higher prices, less innovation, lower uptake and lower rates of usage.³³

While the number of competitors is one factor that can contribute to the competitiveness of a market, it is certainly not the only factor, nor is it necessarily the most important.

²⁹ Note also that there are some minor differences in the penetration rate data we developed for Canada and the U.S. which are provided in Attachment 1, Table A1 compared to the OECD's Communications Outlooks. We relied on historical subscriber data as currently reported by the CTIA for the U.S. and by the CWTA for Canada as well as total population data provided by the U.S. Census Bureau and Statistics Canada. The OECD likely relied on the same sources, but would have used less up-to-date data.

³⁰ TPRP Report, page 1-21.

³¹ SeaBoard Group, *Lessons For Canada Wireless Pricing: A Cross-National Survey: Canada, U.S. & Europe*, July 2005.

³² FCC, *10th Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, released: September 30, 2005.

³³ TPRP Report, page 1-21.

Typically, studies of market competitiveness consider the definition of the product and geographic markets, conditions of entry and exit, the degree of rivalry, and the potential for countervailing power, among other conditions. While the following is not intended to be a full-blown competitive analysis of the mobile market, many of the above-noted factors are considered.

International Mobile Wireless Service Price Comparisons

At the outset, it should be recognized that comparing mobile wireless service prices across countries is far from a straightforward exercise. There are numerous mobile wireless service elements to be taken into account, including set-up fees, local and long distance usage charges by time of day, feature charges, promotions, ancillary fees, handset costs and taxes. There are a variety of pre-paid versus post-paid or contract rate plans. In addition, usage levels must be considered for typical low, medium and high volume users. Consequently, the design of alternative mobile service baskets to be compared across countries is complex and can have a significant effect on the results. In addition, rate levels across wireless service providers within a country can vary considerably as well. Lastly, the conversion rate to translate local currencies into a common currency is also critical (e.g., typically US\$ exchange rates or US\$ purchasing power parity or PPP translators are used, but each can provide very different conclusions).

We would also note that quality levels should be taken into account when comparing prices to ensure that apples are being compared to apples. Unfortunately, we are unaware of any international comparative studies that take account of quality dimensions such as call drop rates, congestion, speech clarity or even coverage measures. Without standardizing for quality of service differences, international price comparisons provide an incomplete picture.³⁴

The OECD produces comparisons of mobile wireless service rates in its biannual Communications Outlook. Its price comparisons take into account a set of mobile wireless rate elements for a typical low, medium and high user. The rate elements taken into account include calling call volumes by type (local, national international, mobile to mobile etc.) and time of day (day, evening, weekend, etc.), among other factors. The overall price for the set of services in each basket is estimated using published rates for what is determined to be the lowest cost wireless service provider in each OECD country. However, in this respect, rates for only the two largest wireless service providers are taken into account. This approach, therefore, may not reflect generally available prices across a given country or, for that matter, the lowest available price in any given OECD country.³⁵

³⁴ Moreover, as noted by the FCC, pricing comparisons do not necessarily tell us anything definitive about competitive behaviour “[s]ince price changes may reflect corresponding changes in underlying costs rather than a change in the competitive environment, pricing data and trends can be a misleading indicator of the status of competition.” FCC, WT Docket No. 04-111; FCC 04-38], clause 54.

³⁵ Note that Teligen Ltd. designs the mobile wireless service baskets in conjunction with the OECD and collects the necessary price data to conduct price comparisons across OECD countries. For more information see www.teligen.com.

The OECD's 2001 Communications Outlook provides mobile wireless price comparisons across OECD member countries for a consumer (low volume/50 minute per month) user and business (high volume/300 minute per month) user. The prices compared were in effect in 2000 and translated in US\$ using a US\$ PPP translator.³⁶ For the low volume mobile wireless user basket, Canadian rates were 5% higher than the OECD average and almost 30% higher than in the U.S. On the other hand, for the high volume mobile wireless user, Canadian prices were 25% lower than the OECD average, and 15% higher than in the U.S. Consequently, according to the OECD's 2000 results, Canadian mobile wireless rates were close to or below the OECD average, but higher than rates in the U.S.³⁷

The OECD's 2003 Communications Outlook provides more detailed mobile wireless price comparisons. In this report mobile wireless service baskets are constructed and compared for low, medium and high volume users where the baskets by user group vary by the number of calls per month and the number of short message service (SMS) or text messages sent monthly. The baskets were rated by country using prices in effect in August 2002.³⁸ In this case, the Canadian mobile wireless rates were found to be consistently and significantly below the OECD average. For low volume users, Canadian rates were the sixth lowest across all 30 OECD countries, although they were 10% higher than U.S. rates. For medium volume users, Canadian rates were the second lowest among OECD countries. Only rates in Finland were cheaper. Canadian rates for medium volume users were 13% cheaper than U.S. rates. For high volume users, Canadian rates were again the second lowest among all 30 OECD countries. In this category, rates in the U.S. were lowest, roughly 20% cheaper than Canadian rates.

In the OECD's most recent Communications Outlook, released in 2005, a similar cross-OECD country mobile wireless service price comparison was conducted based on rates in effect in August 2004. In the case of low volume users, Canadian rates were tenth lowest among the 30 OECD member countries. Rates for low volume users in the U.S. were about 10% cheaper than those in Canada. In the case of medium volume users, rates in Canada were seventh cheapest and about 15% cheaper than in the U.S. For high volume users, on the other hand, Canada was 13th cheapest. Rates in the U.S. were almost 40% cheaper for high volume users. Rates in Denmark, Finland, Iceland and Luxembourg were consistently found to be lowest among the OECD member countries regardless of volume.

Overall, the OECD mobile wireless service price comparison results suggest that Canadian rates have consistently compared favourably with other OECD member countries. Relative to the U.S, they have been comparable or below U.S. rates at times, other than in the case of high volume users.³⁹

³⁶ Note that the OECD also compares rates using international US\$ exchange rates. However, PPP translators are generally considered as superior for the purpose of product and services price comparisons across countries. The mobile wireless price comparison results differ significantly when a US\$ exchange rather than PPP translators are used.

³⁷ OECD 2001 Communications Outlook, pages 185-186.

³⁸ Ibid., pages 163-164 and pages 184-186.

³⁹ Based on our review of the most current price comparisons for OECD countries (conducted by Teligen Ltd) for the OECD and which will underlie the OECD's next Communications Outlook to be released in 2007), Canada continues to perform well overall relative to other OECD countries and in comparison to the U.S.

SeaBoard's mobile wireless pricing study referenced by the TPRP was conducted somewhat more recently in that it examined prices in effect in the second quarter of 2005 in Canada and the U.S., the U.K., Germany and Sweden.⁴⁰ SeaBoard considered prices in four Canadian cities, three U.S. cities and one city in each of the three selected European countries. Like the OECD price surveys, SeaBoard constructed mobile service baskets for what it defined as a low, average and high volume user. The SeaBoard's wireless service baskets are somewhat more detailed in terms of the service elements included compared to the OECD study. SeaBoard considered minutes of use by time of day, domestic and international log distance and for average and high volume users calling features (such as voice mail and call display) and SMS and ringtone downloads (for average and high volume users) are also included. Low volume users are assumed to use 70 minutes per month in local calling, average users 500 minutes and high volume users 1,200 minutes. Minutes of use are divided between incoming and outgoing, since in the selected European countries, users only pay for outgoing minutes under a CPP rate regime.

For "low" volume mobile wireless users, Seaboard found that pre-paid rather than post-paid plans were the most economical option in each city considered, with the exception of Stockholm, Sweden. The lowest rates (converted to US\$ using a PPP translator) were found in Canada (in the cities of Toronto and Kelowna). Consequently, for low volume users, Canadian rates were found to be the lowest among the cities compared as long as a pre-paid plan is selected.

Moving to the "average" volume mobile wireless user, the lowest rates are found in Stockholm, Sweden. The next lowest rates were found in the three U.S. cities covered. Notably, rates in three out of the four Canadian cities included in the study were lower than those found in London, England and Berlin, Germany. When the rates found in latter two cities are averaged along with rates available in Stockholm, average rates in Canada were found to be higher than in the three European cities combined (as noted earlier, by 19%). Rates in the three selected U.S. cities, once averaged, were found to be 60% cheaper than those in the four selected Canadian cities, on average.

Moving to Seaboard's "high-end" 1,200 minute per month mobile wireless service plan comparisons, once again U.S. rates are lower than those found in the selected cities in Canada as well as in Europe. However, it should be noted that for the high-end basket, Canadian rates were found to be lower than those in the three selected European cities, on average. For instance, the lowest Canadian high-end rates, found in Winnipeg, were over 30% less than those found in the London, England.

Seaboard notes that one of the primary reasons for the lower high-volume rates in the U.S. is the fact that American wireless service providers moved toward "big-minute bucket all inclusive" plans several years ago. Not only do these U.S. plans provide users with a large volume of local minutes, but also domestic roaming and long distance minutes as well at no additional charge. Consequently, including 50 minutes of long distance usage in the average user basket immediately puts Canadian as well as European plans at a disadvantage to the selected American plans. As also noted by

⁴⁰ The selected cities include Toronto, Saskatoon, Winnipeg and Kelowna in Canada, New York, Los Angeles, Athens (Georgia) in the U.S., London, England (U.K.), Berlin, Germany and Stockholm, Sweden.

Seaboard, the big-minute- bucket plans in the U.S. also include many calling features at no additional charge. The rate plans considered in the study for Canada did not. This again puts the Canadian as well as European plans at a relative disadvantage to the selected U.S. plans.

In addition, SeaBoard's selection of a 500-minute plan as an "average" plan tends to bias its results in favour of the U.S. (which, as noted earlier, has promoted "big-minute-bucket" plans). In early 2005, the period during which prices were gathered for the study, mobile wireless minutes of use (MOU) per month per user in the U.S. were close to 700 minutes, on average, versus 350 minutes in Canada (and even far lower still in each of the selected European countries).⁴¹ Consequently, it is not surprising to find that the U.S. compared favourably with both Canada and the selected European countries (with the exception of Sweden) for a 500 minute per month mobile wireless service plan. Such a plan could more correctly be viewed as a high rather than average volume plan, at least by Canadian standards where an average Canadian uses 400 minutes per month. Indeed, in the study, Seaboard points out that there are Canadian mobile wireless 400 minute per month rate plans that are competitive with the U.S., excluding consideration of calling features and data transmission rates.⁴²

Further, it should also be noted that average mobile wireless usage prices, measured on the basis of revenue per minute (RPM), have been declining dramatically for years in most countries. Over the last five years alone, average RPM has declined by 62% in the U.S., whereas in Canada average RPM has declined by 43%. While not as pronounced as in the U.S., the Canadian RPM reduction over the last five years has nevertheless outstripped RPM reductions in most OECD countries.⁴³ In fact, the current average RPM rate in Canada is one of the lowest among all OECD countries; only Finland and the U.S. are lower.⁴⁴

In sum, Canadian rates have generally been found to compare favourably with those found in the U.S. when it comes to low and medium volume monthly MOU plans, but not with high volume minute plans. Seaboard's finding regarding high-volume minute plans is also the case for many if not all other OECD member countries. Further, the OECD and SeaBoard studies suggest that that Canadian mobile wireless service rates compare favourably with OECD member countries as a group.

The Number of Wireless Carriers in a Market and Wireless Price Levels

As noted, the TPRP attributes the fact that certain Canadian rate plans can be more expensive relative to the U.S. to the greater number of wireless carriers in the U.S. and, by implication, suggests that the Canadian mobile wireless marketplace is less competitive than the U.S.

⁴¹ Merrill Lynch, GWM 1Q06, pages 161 and 75, respectively.

⁴² SeaBoard Group, July 2005, page 15.

⁴³ Merrill Lynch GWM 1Q06 Report, pages 161 and 75, respectively.

⁴⁴ According to Merrill Lynch's GWM 1Q06 Report, page 48, the average RPM in the U.S. is estimated to be US\$0.07, in Finland, US\$0.08 and in Canada US\$0.11 as of first quarter 2006. All other listed OECD countries are higher and, in many cases, much higher (for instance, Japan's average RPM is US\$0.27).

With Rogers' acquisition of Microcell in November of 2004, there are now three national facilities-based wireless carriers present in most Canadian markets.⁴⁵ Although, there are additional regional facilities-based wireless carriers in Canada and a growing number of Mobile Virtual Network Operators (MVNOs) including, for instance, Virgin and Primus.

In the U.S., there are four near-nation-wide mobile wireless carriers (each covering a population base of 200 million Americans or more). There are also a large number of regional mobile wireless carriers operating in the U.S. as well as MVNOs. The FCC reported that close to 90% of the U.S. population have access to five or more facilities-based mobile wireless carriers in 2005; however, this figure is likely to drop with the recent merger of national-wide mobile wireless carriers Sprint and Nextel, as well as other recent mergers of smaller regional players in the U.S.

The number of mobile wireless carriers operating in the U.S. jointly on a national or regional basis in any event exceeds that of Canada. However, the same is true when the U.S. is compared to many other OECD countries as well. Indeed, it would appear that the sheer size of the U.S. market, in terms of population (both nationally and regionally) provides a potential basis to support more wireless carriers that in most, if not all, other OECD countries, including Canada.

As the OECD's biannual price comparison surveys demonstrate, those countries with the lowest mobile wireless prices change over time and, moreover, countries with the greatest number of mobile wireless carriers do not necessarily have the lowest prices or the highest penetration levels.

As noted above, in the most recent OECD member country price comparison conducted for the OECD's 2005 Communications Outlook, the lowest prices, regardless of usage volumes, were found in Denmark, Finland, Iceland and Luxembourg. In Denmark's case there are over five mobile wireless service operators, the largest four of which accounted for 86% of the total market in 2004. In Finland's case, there are three major mobile wireless service operators, the largest two of which accounted for 80% of the total market. In Iceland's case, there are effectively two mobile wireless service operators. And, lastly, in Luxembourg's case, there are also just two mobile wireless service operators.⁴⁶ Consequently, despite the fact that there are many more mobile wireless service operators in the U.S. compared to each of these four European OECD countries, U.S. rates were nevertheless found to be consistently higher than those in Denmark, Finland, Iceland and Luxembourg across all three user volume categories.

In terms of the number of mobile wireless operators, the situation in Canada is very similar to the majority of other OECD member countries. Fourteen of the 30 countries have either 2 or 3 mobile wireless operators. An additional eight countries have four mobile wireless operators. The remaining eight OECD countries have five or more mobile wireless operators. In the vast majority of cases, however, the top two or three mobile wireless carriers account for a very large percentage of the mobile wireless market.⁴⁷

⁴⁵ Bell does not however compete directly in certain provinces like Saskatchewan.

⁴⁶ OECD 2005 Communications Outlook, Table 2.6, page 46.

⁴⁷ Ibid.

In the U.S, the number of mobile wireless service operators varies considerably by region. There are generally more options available to subscribers in urban compared to rural areas. In fact, the FCC has monitored the state of competition in rural as well as urban areas. Based on data for early 2005, it estimated that while there is an average of 5.5 mobile wireless competitors in urban areas, there is an average of 3.7 mobile wireless competitors in rural areas. Even still, the FCC concluded that “despite the smaller number of mobile operators in rural areas as compared to urban areas, there is no evidence in the record to indicate that this structural difference has enabled carriers in rural areas to raise prices above competitive levels or to alter other terms and conditions of service to the detriment of rural consumers.”⁴⁸

It is important to bear in mind that relative to Europe, there is still a very sizable potential for subscriber growth in both Canada and the U.S. For example, the most recent Canadian penetration rate is estimated to be 53%. Consequently, regardless of the number of carriers in the market, one would expect that there would be vigorous competition for new subscribers the mobile wireless services in view of the fact that many potential customers do not yet have a mobile service. Indeed, this was an observation made by the Competition Bureau when it reviewed the Rogers-Microcell merger.⁴⁹

In sum, drawing conclusions about the state of competition solely on the basis of the number of service providers in a market can be misleading.

3.3 Mobile Wireless Usage

The TPRP notes in its report that Canada’s mobile wireless usage rates are lower than those found in the U.S. and five other selected European and Asian countries: the U.K., France, Germany, Italy and Japan. Based on data for early 2005, the TPRP noted that monthly MOU is much higher in the U.S. compared to Canada, ARPU is lower in Canada compared to the U.S. and Canada’s mobile wireless data usage rates are lower than those in Europe and Asia.⁵⁰

On each of these three points, the TPRP focused on comparisons where Canada’s lags other countries. However, contrary to the TPRP’s conclusions, when put in broader context with the U.S., European and Asian countries as a whole, Canada compares very favourably in terms of mobile wireless service usage rates.

Minutes of Use (MOU)

On the first point, more recent data for the first quarter of this year suggest that there has been no significant change the relative ranking of monthly MOU rates across the countries compared by the TPRP. The U.S. still ranks well ahead of all other countries at close to 800 monthly MOU per user on average. Canada is one of the very few

⁴⁸ FCC, 10th Annual CMRS Report, September 2005, paragraph 95.

⁴⁹ Competition Bureau, Technical Backgrounder - Acquisition of Microcell Telecommunications Inc. by Rogers Wireless Communications Inc, April 2005.

⁵⁰ TPRP Report, page 1-20. All usage data referenced by the TPRP was drawn from Merrill Lynch’s, Global Wireless Matrix 2Q05 Report, released in December 2005.

countries that are even close to the U.S. in this respect, with almost 400 MOU per user on average. Other countries lag significantly behind the U.S. as well as Canada. For instance, Italy has the highest current penetration rate, yet its average monthly MOU per user is only 127. In Sweden, another country with penetration above 100%, average monthly MOU per user is only 139. Other European countries, such as Germany, are even lower still at 83. These cases may be explained in part by the very high ratio of pre-paid to post-paid users -- pre-paid users typically use less minutes per month than post-paid subscribers. On the other hand, Japan has relatively few pre-paid users, yet its average monthly MOU per user is only 145.⁵¹ Consequently, Canada's ranks second among OECD countries in terms of average MOU per subscriber.

As noted earlier, the reason that the U.S. leads all other countries can be explained by the fact that most wireless service providers in the U.S. began marketing "big-minute-bucket" national plans over the last several years, which in addition to providing users with a large volumes of local calling minutes also allow users to avoid roaming and long distance calling charges. This had the effect of dramatically increasing monthly MOU per user over the last several years. As a result, the gap between monthly MOU in the U.S. and virtually all other countries has grown rapidly.

It should also be noted that due to differences in per minute rating schemes in the U.S and Canada (i.e., RPP) versus Europe (i.e., CPP), the observed differences in monthly MOU levels can be somewhat overstated. For instance, call minutes between mobile users are effectively double counted in the U.S. and in Canada since mobile wireless users pay for both outgoing and incoming calls. On the other hand, since users only pay for outgoing minutes in Europe, reported outgoing minutes are typically adjusted or grossed up to account for incoming minutes.⁵² This adjustment process could introduce error as well when it comes to comparing MOU per user rates in North America versus Europe.

As discussed in Section 3.1, wireless penetration rates in European countries are generally much higher than those in Canada and the U.S. One key reason for this difference is the much greater popularity of low-usage volume pre-paid plans in Europe. Due to this fact, higher European penetration rates are counter-balanced by lower average monthly MOU levels per subscriber compared to Canada and the U.S. Indeed, when average monthly MOU levels are measured on a per capita basis, the U.S. ranks first among all OECD countries at close to 550 monthly MOU per capita as of year-end 2005. Canada ranks fifth overall, at just over 200 monthly MOU per capita, behind Finland, Korea and Ireland. On the basis on wireless usage per capita, therefore, Canada compares very favourably with other OECD countries.⁵³

⁵¹ All referenced data from Merrill Lynch, GWM 1Q06, page 41.

⁵² Merrill Lynch applies gross up factors of between 20% and 30%. See Merrill Lynch, GWM 1Q06, page 165.

⁵³ We estimated fourth quarter 2005 monthly MOU per capita using data on population, subscriber levels and monthly MOU levels for OECD countries which is reported in Merrill Lynch's 1Q06 GWM Report. Note that data for three of the 30 OECD countries (i.e., Iceland, Luxembourg and the Slovak Republic) is not available in the Merrill Lynch Report.

Average Revenue per User (ARPU)

On the second point, it should be noted at the outset that ARPU rates can be influenced by numerous factors. Changes in ARPU over time can be due to variations in price (e.g., usage rates), calling volumes (e.g., growth in MOU), feature subscriptions (e.g., calling features), data service usage and the mix of pre-paid to post-paid customers, among other factors. As well, exchange rate variations over time also affect cross-country comparisons of ARPU when measured in a common currency such as US\$.

The ARPU comparisons which the TPRP relied on in its report were measured as of 2Q05 and were converted into US\$ using international exchange rates. The TPRP focused on the same seven countries, including Canada, for its comparisons. Canada had the fourth highest ARPU rate among the seven countries compared at US\$44. The U.S. was ahead of Canada at US\$55. The highest ARPU cited by the TPRP was for Japan at US\$62.

More recently available ARPU figures for 1Q06 demonstrate that ARPU rates can fluctuate significantly over a relative short period of time (in this case, three quarters).⁵⁴ For instance, ARPU in Germany was US\$30 in 2Q05, but fell to US\$ 21 as of 1Q06 (a drop of 30%). Similar dramatic declines in ARPU, measured in US\$ dollars, occurred in Italy (-27%) and France (-24%) and, to a lesser degree Japan (-11%). On the other hand, ARPU in Canada grew between 2Q05 and 1Q06, while it declined in the U.S., narrowing the ARPU gap between Canada and the U.S. from US\$11 to US\$7 as of 1Q06. As a result, Canada improved to the third highest ARPU among the seven countries compared by the TPRP (at US\$46 as of 1Q06).

However, when considered on a broader basis, Canada's ARPU is third highest among all OECD countries. Only the U.S. and Japan had higher average ARPU rates as of first quarter 2006.

When changes in ARPU over the last five years, measured in domestic currencies to avoid exchange rate variations, are considered for the countries noted in the TPRP Report, Canada once again compares very favourably. ARPU in Canada rose 11% over the last five years (to CDN\$52.50 as of 1Q06). In contrast, ARPU in the U.S. has declined 4% over the same period (to US\$53.08). The U.K. and France achieved limited increases in ARPU, although well less than the 11% increase in Canada. The other three countries noted in the TPRP's ARPU comparisons all experienced reductions in ARPU, including a 15% reduction in Germany and 19% reduction in Japan.⁵⁵

It should also be noted that the somewhat lower ARPU level in Canada compared to the U.S. (as reported by the TPRP) may, in part, be due to the higher relative number of pre-paid users in Canada versus the U.S. -- i.e., roughly 23% versus 13%, respectively, as of 1Q06.⁵⁶ However, we do not think that a simple comparative measure of ARPU is necessarily indicative of good or bad market performance -- as noted, there are many factors that can lead to changes in ARPU.

⁵⁴ Most recent US\$ ARPU comparisons across OECD and other countries to 1Q06 are provided in Merrill Lynch, GWM 1Q06, page 37. The earlier Merrill Lynch, GWM 2Q05 Report was used by the TPRP.

⁵⁵ Merrill Lynch, GWM 1Q06, country-specific charts, pages 74 to 161.

⁵⁶ Ibid., pages 74 and 160, respectively.

Data Service Revenue

Third, with respect to data revenue shares as a percentage of total revenues, European and Asian countries continue to outperform both Canada and the U.S. Over the last year, data revenue as a percentage of total revenue has grown to 10% in Canada and 11% in the U.S. Data revenue shares have also grown in the other countries included in the TPRP's comparison. In fact, data revenue shares in the selected European countries are as much as two times higher than those in Canada and the U.S. In Japan, data revenue accounts for almost 30% of total revenue.⁵⁷

The higher data revenue shares in Europe and Asia relative to Canada and the U.S. are not surprising given the fact that Europeans and Asians rely far more extensively on SMS or text messaging compared to Canadians and Americans. SMS has been estimated to account for roughly 90% of European wireless operators' data revenues.⁵⁸ European mobile subscribers are more likely to use text messaging because it is cheaper than placing a call (due in large part to the CPP rating schemes in Europe and Asia). In contrast, Canadian and U.S. mobile wireless users are more likely to make a wireless phone call because the relative incremental per minute cost of a call is low. Consequently, while data usage rates (especially SMS rates) are lower in Canada and the U.S. than Europe and Asia, the flip side of this usage pattern is reflected in the much higher monthly MOU per user rates in Canada and U.S.

It remains to be seen what impact the deployment of 3G technologies will have on data revenue. For instance, Japan is generally ahead of both Canada and the U.S. in this regard and its data revenue share is greater than (and has been growing faster than) other OECD countries. However, at the same time, as noted earlier, ARPU in Japan has been consistently declining over the last five years suggesting that the data services have been displacing voice services to a significant degree.

3.4 Deployment of Wireless Number Portability

The TPRP notes in its report that Canada lags other countries with respect to the deployment of wireless number portability (WNP) -- i.e., the ability of wireless users to retain their wireless telephone numbers when they change wireless service provider.⁵⁹ The TPRP notes that several European countries implemented this capability between 1998 and 2000 and that it was implemented in the U.S in 2003.

There is no question that Canada is currently behind most other OECD countries with respect to the implementation of wireless number portability. Canada is one of several OECD countries yet to implement to WNP.

However, until recently, there has been relatively limited demand for WNP in Canada. In 1998, Microcell applied to the CRTC requesting that the CRTC mandate WNP in

⁵⁷ Ibid., page 56.

⁵⁸ FCC, 10th Annual CMRS Report, September 2005, paragraph 192.

⁵⁹ TPRP Report, page 1-21.

Canada. However, that request was denied by the CRTC.⁶⁰ At the time, the CRTC was focused on implementing local number portability between local exchange carriers or LECs. In fact, in the following year, the CRTC ruled that access to the local number portability database would be restricted to registered LECs.⁶¹ Although wireline to wireless local number portability was subsequently implemented to accommodate wireless local exchange carriers (which Microcell later became).

The TPRP Report identifies several countries where WNP was introduced in the 1998 to 2000 period. These include the U.K., Netherlands and Sweden. It is interesting to note that all three of those countries had achieved wireless penetration rates that were, at the time, comparable to or even higher than the levels currently achieved in Canada. For instance, as of 2000, the penetration rate in the U.K. was 65%, in the Netherlands the rate was 69% and in Sweden the rate was 72%. Even in the U.S, where WNP was implemented more recently in November 2003, wireless penetration had reached 55% in the U.S. in 2003 (just above the current level in Canada as of 1Q06).⁶²

In principle, the lack of WNP creates a potential barrier for existing wireless customers considering changing wireless service providers. However, the magnitude of this potential barrier or impediment to users switching service providers is unclear. The FCC has observed, for instance, that the implementation of WNP beginning in November 2003 has not resulted in an increase in churn in the U.S.;⁶³ suggesting that it did not result in a significant migration of customers from one wireless service provider to another. On the other hand it also suggested that WNP has put added pressure on carriers to improve service quality in order to retain existing customers and to avoid increased churn.

Churn rates in the U.S. have tended to be slightly higher than those in Canada over the last five years (even prior to the implementation of WNP in the U.S.). However, churn rates in the U.S. have gradually declined over the last year and are now approaching levels similar to those in Canada (i.e., 1.8% versus 1.7% as of 1Q06, respectively).⁶⁴ Consequently, while we would not question the fact that WNP should have a positive effect on choice within the Canadian mobile wireless market, the magnitude of the impact may not be significant, especially in view of the substantial potential for continued growth in new subscribers in Canada.

The Canadian telecommunications industry is currently implementing a plan to deploy WNP. The current target date for the launch of the regime is March 2007.⁶⁵ By that time, we would expect that the penetration rate in Canada should be the 55% to 60% range, which is very similar to the rates when WNP was introduced in other countries.

More importantly, in 2007, Canada will be introducing full inter-modal number portability, which will allow users to retain their telephone numbers when they switch wireless

⁶⁰ Telecom Decision CRTC 99-12, *Microcell - Application for Mandated Wireless Number Portability*, 15 September 1999.

⁶¹ Telecom Order CRTC 99-5, 8 January 1999.

⁶² OECD 2005 Communications Outlook, Table 4.8, page 109.

⁶³ Churn refers to the number of customers a carrier loses over a given period of time, typically a month.

⁶⁴ Merrill Lynch, GWM 1Q06, page 31.

⁶⁵ As mandated by the CRTC in Telecom Decision CRTC 2005-72, *Implementation of wireless number portability*, 20 December 2005.

carrier, wireless carrier or move from wireline to wireless or vice versa. Once inter-modal number portability is implemented in Canada it will have leapfrogged ahead of the U.S. and many other OECD countries in terms of number portability capabilities.

3.5 Deployment of Advanced Mobile Wireless Technologies

Lastly, the TPRP notes that Canada also lags in the rollout of 3G high-speed data services. In particular, it states that deployment of 3G wireless systems in Canada lags Japan, South Korea and Europe, where initial 3G network upgrades started as early as 2001 in the first case and 2002 in the latter two. In addition, the TPRP suggests that Canada also lags the U.S., for which it claims that every major operator is in the late stages of building out and marketing 3G services.⁶⁶

In Canada, all of the major wireless carriers have been upgrading their 2G wireless networks to improve capacity and accommodate faster data transmission speeds. In the case of TDMA/GSM technology network operators such as Rogers Wireless this has included first upgrading to General Packet Radio Service (GPRS) and then Enhanced Data Rates for GSM Evolution (EDGE) technologies. These 2.5G GSM technologies allow for faster data transmission rates, offering average speeds of just over 100 kbps in the latter case.⁶⁷ The next step beyond EDGE is Wideband CDMA or Universal Mobile Telecommunications System (WCDMA/UMTS), which is considered a 3G technology, offering average speeds of over 200 to 300 kbps. Further still, WCDMA can be deployed with High Speed Data Packet Access (HSDPA) technology, offering even faster average data speeds of 400 – 700 kbps (although maximum potential speeds are much higher still).

In the case of CDMA technology network operators such as Bell Mobility and TELUS Mobility, 2G upgrades to CDMA2000 1xRTT technology which improves voice capacity as well as data transmission capacity, offering average data speeds of 40 – 70 kbps have been widely deployed to date. Beyond 1xRTT, the next logical upgrade involves moving to CDMA2000 1xEV-DO (evolution-data only or EV-DO), offering much faster average data speeds of 400 – 700 kbps (although again maximum potential speeds are much higher). 1xRTT is viewed as a 2.5G technology, whereas EV-DO is considered to be 3G.

Canadian wireless operators have been steadily upgrading their wireless networks first to 2.5G and then 3G technologies over the last several years. All major carriers have widely deployed 2.5G technologies (i.e., GPRS, EDGE and 1xRTT) and are now in the process of expanding 3G coverage. Aliant Mobility, Bell Mobility and TELUS Mobility began deploying EV-DO in major centres last year and are continuing to expand coverage this year. Rogers has announced that it intends to begin deploying CDMA/UMTS-HSDPA this year.

It is important to recognize that technology upgrades are capital intensive as well as time consuming. The deployment of 3G must also be carefully managed in step with the market. Customer demand is still being developed for 2G services in Canada. Rolling

⁶⁶ TPRP Report, page 1-20.

⁶⁷ All information on data transmission speeds provided in this and the following paragraph are drawn from the FCC's 10th CMRS Report, September 30, 2005, paragraphs 111-112.

out 3G prematurely would be imprudent. Moreover, capital constraints limit the wireless carriers from deploying 3G upgrades while also expanding 2.5G capacity and coverage.

Moreover, relative to the U.S, Europe and Asia, the Canadian wireless market is simply too small to support the deployment of unique technologies or, for that matter, early deployment of next generation wireless technologies. Consequently, Canada has generally adopted a “fast” or “smart follower” approach to the deployment of next generation technologies. This approach allows Canada to learn from early adopters and, in doing so, take advantage of standardized wireless technologies and lower equipment costs as scale economies are achieved. Canadian wireless carriers do not drive international wireless equipment and consumer product development, so there is no reason to expect that Canada would lead the way in terms of next generation wireless technology deployment.

As the TPRP points out, countries such as Japan and South Korea have been among the earliest to deploy 3G wireless technology (i.e., in the 2001-2002 timeframe). As well, many European countries also began to deploy 3G wireless systems in the 2003 – 2005 timeframe). Given the relatively high penetration rates in these countries early at the time, deployment of new technologies may have been justifiable. In Europe, many wireless carriers initially deployed CDMA/UMTS 3G technology (note that virtually all wireless operators in Europe use GSM technology).⁶⁸ The few European wireless operators who have deployed the more advanced, higher-speed CDMA/UMTS-HSDPA 3G technology have only done so very recently (i.e., late 2005 or even earlier this year). In fact, it appears that many European wireless operators plan to begin to rollout CDMA/UMTS-HSDPA sometime in 2006, which is at most 6 months ahead of Roger Wireless’ 3G deployment plans.

As well, it appears that in some respects European operators may well have deployed somewhat prematurely and in doing so have not properly addressed customer needs. As the FCC has observed:

Even though commercial 3G services are now widely available in Western Europe, analysts and experts continue to stress that consumer use of new services may be limited in the near term due to problems such as download speeds that are much slower than theoretical speeds, patchy coverage (especially inside buildings), and lack of “killer applications” that could drive demand for 3G services.⁶⁹

Consequently, Canada can learn valuable lessons from the mis-steps as well as the successes of early-adopter countries.

Similarly, while some wireless carriers in the U.S. may have deployed 3G technologies ahead of Canada, the gap between Canada and the U.S. is not as large as suggested by the TPRP. Verizon Wireless launched CDMA2000 1xEV-DO services in late 2003 and by mid 2005 it had extended its EV-DO coverage to a number of major cities in the U.S. While Cingular Wireless launched CDMA/UMTS based services in late 2004, it only began to deploy CDMA/UMTS-HSDPA technology as of late 2005. Also, in mid-

⁶⁸ Merrill Lynch, GWM 1Q06, page 23.

⁶⁹ FCC, 10th Annual CMRS Report, September 2005, paragraph 193.

2005, Sprint-Nextel began its deployment of EV-DO technology. T-Mobile, on the other hand, the fourth largest wireless carrier in the U.S., is yet to deploy 3G technology.

The FCC's next generation wireless technology coverage map for the U.S., which includes both 2.5G and 3G technologies, shows that 3G technology deployment was limited to major urban centres in 2005.⁷⁰ No doubt coverage has expanded over the last year. However, as of late 2005, 3G coverage in Canada was not very far behind the U.S. given that EV-DO services were available in a number of major cities in Canada at roughly the same time.

Consequently, the fact that Canada lags somewhat behind the U.S., Europe and Japan in the deployment of 3G technology is not surprising. The extent and importance of the lag, however, is overstated by the TPRP, and fails to take into account the need for Canadian wireless carriers to prudently invest in new technologies at a rate that anticipates rather than runs ahead of customer demand.

3.6 Summary Remarks

Wireless Industry comparisons across international jurisdictions are easily accomplished (at least with respect to some key indicators such as wireless penetration rates) and, therefore, are frequently made; however, properly understanding and explaining the reasons for observed differences or similarities are far more complex. Numerous inter-related factors are generally at play, including historical, institutional and structural differences along with differences between countries in consumer preferences, service quality, prices for related products and services and income levels, etc. Consequently, conclusions drawn from cursory international comparisons, such as those made by the TPRP, should be viewed with caution.

A more careful and detailed examination and assessment of the mobile wireless industry indicators and parameters included in the TPRP Report port show that, contrary to the Panel's conclusions, Canada does in fact compare favourably with other OECD countries, including the U.S.; i.e.,

- i) While both Canada and U.S. lag Europe and Asia when it comes to aggregate penetration rates for mobile wireless services, the difference in penetration appears to be largely explained by the significantly greater popularity of low call volume, pre-paid wireless services in Europe and Asia combined with CPP rating for incoming mobile calls. In general, pre-paid services are far less popular in both Canada and the U.S. relative to Europe and Asia. When pre-paid subscribers are stripped out, Canada's penetration of post-paid mobile wireless subscribers compares favourably with other OECD countries (i.e., it is very close to the OECD average).
- ii) While Canada ranks behind the U.S. in terms of aggregate penetration of mobile wireless services, the current gap appears to be largely a result of the 18 month head start in launching wireless services enjoyed by the U.S. Otherwise, the average annual growth rates in subscribers in the two countries have been

⁷⁰ Ibid., Map 9, page 100.

impressive and roughly equal (i.e., both growing at an average annual rate of roughly 35% per year over the last twenty years).

- iii) Comparing mobile wireless service prices across countries is a complex task given the numerous rate elements and usage considerations involved. The OECD's biannual mobile wireless service price comparison results suggest that Canadian mobile wireless rates have consistently compared favourably with other OECD member countries. Relative to the U.S, Canadian mobile wireless rates have also comparable favourably, except more recently in the case of high volume users -- however, this is the case for virtually all OECD countries, not just Canada.
- iv) The TPRP failed to properly qualify the Seaboard pricing study results on which it relied. The SeaBoard study shows that Canada compares favourably with the U.S. and European cities included in the study for low call volume users -- a point not mentioned by the TPRP. More importantly, the "average" user, as defined by SeaBoard in its study, should more correctly have been labeled a "high-volume" user. Consequently, the fact that the U.S. was found to have the lower rates for high-volume users compared to Canada was not surprising. Had the SeaBoard study been broader in scope, like the OECD pricing studies, Canada would have compared favourably with respect to true "average" as well as high-volume price levels.
- v) The TPRP's claim the Canadian wireless prices are higher than the U.S. because there are fewer wireless carriers operating in Canada compared to the U.S. is unfounded. In terms of the number of mobile wireless operators, Canada is very similar to most other OECD member countries, which generally have no more than three wireless operators accounting for vast majority of their domestic mobile wireless markets. The fact Luxemburg and Iceland were found to have lower prices than the U.S. (regardless of user call volume levels), yet only two wireless service operators, clearly contradicts the TPRP's assertion.
- vi) In terms of pricing, it should also be noted that average RPM in Canada has declined by 43% over the last five years. While average RPM has declined faster in the U.S., Canada has nevertheless outstripped RPM reductions in many European countries. Moreover, RPM rates in Canada rank third lowest among OECD countries behind only Finland and the U.S.
- vii) In terms of average monthly MOU levels, the TPRP pointed out that Canada lags the U.S. However, at 400 MOU per month, the TPRP failed to point out that Canada ranks well ahead of all other OECD countries in terms of monthly MOU levels. Moreover, Canada also ranks very favourably among OECD countries in terms of monthly MOU per capita.
- viii) In terms of average ARPU rates, the TPRP once again focused on a limited set of countries for comparison purposes and, in doing so, noted that Canada ranks below the U.S. However, Canada has narrowed the gap with the U.S. in ARPU over the last year and, moreover, Canada ranks third highest among OECD countries (a point not mentioned by the TPRP). In addition, it should be noted that Canada's average ARPU has been increasing over the last five years whereas in many OECD countries it has been declining.

- ix) In terms of data usage levels, the TPRP pointed out that both Canada and the U.S. lag Europe in terms of data revenues as a percentage of total revenues. However, this fact appears to be little more than a reflection of the fact that Europeans and Asians rely on SMS service as a substitute for voice calling due to the high cost of calling in those countries.
- x) Lastly, the TPRP's finding that Canada lags behind other countries, especially the U.S., in the deployment of 3G technologies is not surprising. However the extent and importance of the lag is overstated and, moreover, ignores the need for Canadian wireless carriers to prudently invest in new technologies in a manner that meets rather than runs ahead of customer demand

It is our view that the challenging task of the TPRP, conducted under extremely tight deadlines, likely made a more comprehensive examination of the key drivers and performance parameters in the wireless industry difficult if not impossible to achieve. Further, it is our view that the state of the Canadian wireless industry is not as dire as is implied by the TPRP. When examined in a broader context, and subject to issues of measurement technique and environmental differences, it appears that Canada in many areas is performing favourably compared to OECD countries as well as the U.S.

Finally we believe that given the limited and selective data which was examined by the TPRP, it is premature to conclude that there is an obvious need to "develop a more efficient and vibrant wireless industry" in Canada. While we believe that industry performance can always be improved, we do not see any glaring examples of substantive inefficiencies or lackluster performance based on the measures employed by the TPRP.

4.0 TPRP POLICY RECOMMENDATIONS AFFECTING THE MOBILE WIRELESS INDUSTRY

In Chapter 5 of its report, the TPRP discusses and makes a number of recommendations relating to various “technical” regulatory matters. These include matters relating to access to support structures, rights-of-way, building access and in-building wire. Other issues covered in the chapter include network interconnection and numbering resources, spectrum policy and management and the regulation of telecommunications equipment and devices.

As the TPRP notes in its report, the general objectives of technical regulation are to efficiently allocate scarce resources (e.g. numbers and spectrum), correct for externalities (e.g., the harmful effects of radio-frequency interference) and improve access to bottlenecks facilities (e.g., support structures and in-building wiring).⁷¹

The TPRP stated that the specific purposes of technical regulation include:⁷²

- ensuring efficient network interconnection and interoperability between telecommunications service providers;
- ensuring that telecommunications service providers have efficient, timely access to support structures, rights-of-way, in-building wiring and other facilities that are essential for the efficient rollout of telecommunications networks to all Canadians;
- ensuring effective and efficient licensing of spectrum and radiocommunication transmitters in order to promote achievement of the telecommunications policy objectives as recommended by the TPRP (in Chapter 2 of its report), as well as provision of licence-exempt spectrum where appropriate;
- preventing network harm and other harm through radio-spectrum interference, securing public health and safety, and ensuring that Canadians continue to have access to essential telecommunications services in emergencies; and
- ensuring efficient access to and use of numbering and addressing resources.

The TPRP indicated that it considers that technical regulation is justified when market forces alone are unlikely to achieve these objectives. The TPRP added that technical regulation should be efficient, effective and proportionate to its purposes, and should be designed so that it is competitively neutral and does not discourage investment.

With these considerations in mind, the TPRP examined a number of issues involving existing barriers to access of what it considered to be essential components of the Canadian telecommunications system, specifically including rights-of-way, support structures (poles, conduit and towers), building access and access to in-building wire in multi-unit buildings. Without access to these facilities, the TPRP noted that telecommunications service providers would be unable to deploy their networks and

⁷¹ Ibid., page 5-3.

⁷² Ibid.

provide service to customers. In effect, the TPRP viewed these components as “essential facilities” -- i.e., facilities that are monopoly controlled, are required by entrants as an input to provide service and are economically or technically difficult for new entrants to duplicate.

The TPRP concluded, therefore, that all barriers to competition should be removed, including limitations on access to these critical infrastructure elements. In this respect, we examine the TPRP’s recommendations relating to antenna towers in the following sub-section.

The TPRP also set out a number of recommendations relating to the management of radio spectrum by the CRTC rather than Industry Canada. We examine those recommendations in the Section 4.2 below.

4.1 Antenna Tower Sharing and Rooftop Access Arrangements

In its report, the TPRP makes two specific recommendations relating to the technical regulation of wireless network infrastructure, specifically antenna towers and tower sites:

- i) The CRTC should be empowered to regulate and promote the sharing of antenna towers used for telecommunications purposes, resolve disputes regarding tower access, and enforce its regulations in an effective and timely manner.
- ii) The CRTC should be empowered to prohibit wireless carriers from entering into exclusive arrangements for locating telecommunications antennas on rooftops and, in those cases where building owners and wireless service providers are unable to agree on terms and conditions of access, should be empowered to resolve the dispute on such terms as it considers appropriate, with its rulings binding on the parties.

Before turning to the supporting rationale for these recommendations, it should be noted by way of background to its recommendations relating to access to telecommunications infrastructure, that the TPRP provided an overview of the difficulties faced by entrants in terms of gaining access to support structures, rights-of-way and access to buildings including inside wire in multi-unit buildings.⁷³ The TPRP noted that the number of disputes relating to infrastructure access issues have been on the rise and have been protracted in nature, and have created significant barriers to entry.

The TPRP also noted that the current *Telecommunications Act* does not provide clear authority over access to support structures, rights-of-way or express authority over access to buildings. Consequently, the various recommendations the TPRP makes in this regard relate to revising of the *Act* to provide the CRTC with the power to resolve disputes and order access to infrastructure essential to telecommunications carriers.

In its recommendations, the TPRP expanded the network infrastructure over which it considers the CRTC should have express authority to include antenna towers. There

⁷³ Ibid., pages 5-4 to 5-11.

was no evidence presented to suggest that disputes over access to or sharing of antenna sites are as numerous or contentious as in the case of wireline infrastructure (e.g., access to poles and conduit, buildings and in-building wiring). Nevertheless, it appears that the TPRP decided to act on the recommendations contained in the recent National Antenna Tower Policy Review (NATPR) Report regarding sharing of antenna towers and dealing with disputes over exclusive rooftop access arrangements.⁷⁴ While the NATPR Report recommended that “policy options be considered by Industry Canada to stimulate the co-location of cellular and PCS antenna facilities in non-urban areas of the country”,⁷⁵ it did not go as far as the recommendations made by the TPRP in this respect. Nor did the NATPR Report consider or recommend transferring responsibility for antenna tower sharing issues (or for that matter spectrum management) to the CRTC.

In addition, with respect to treatment of exclusive rooftop access arrangements, the NATPR Report recommended that Industry Canada “examine” such arrangements used within the cellular/PCS service sector to determine their impact upon co-location or tower/site sharing activities within the sector.⁷⁶ Depending on the outcome of such an examination, the NATPR Report suggested that Industry Canada may want to explore policy options to reduce the use of exclusive access arrangements. Here again, the TPRP’s recommendations go beyond what was proposed in the NATPR Report and, moreover, the recommendations were not based on an examination of existing rooftop site acquisition arrangements as recommend in the NATPR Report. In fact, this issue does not appear to have been explicitly considered in the process that led to the TPRP Report. There was little, if any, evidence on or discussion of antenna tower sharing or rooftop site acquisition arrangements on the record of the TPRP’s policy review proceeding.

Consequently, in our view the recommendations made by the TPRP regarding antenna tower sharing and rooftop antenna tower site acquisition arrangements are not well supported by the evidence provided to the TPRP during its policy review process. At the same time, however, we would agree that for the purpose of consistency in approach with respect to all forms of “essential” telecommunications infrastructure (be it required by wireline or wireless carriers), the TPRP’s recommended changes to the *Act* in regard to infrastructure access issues should ultimately help reduce barriers to entry in the telecommunications industry. To the extent that antenna tower sharing and access to rooftop antenna tower sites issues prove to be few in number and less contentious than wireline infrastructure access issues, then the provisions recommended by the TPRP, if implemented, may only be required infrequently at best. However, the possibility of limited use does not imply that the recommendations should not be acted on together with the TPRP’s related recommendations involving support structures, rights-of-way and access to buildings.

⁷⁴ Report On: the National Antenna Tower Policy Review, study performed pursuant to Contract for Services No. 5007559 between Industry Canada and the University of New Brunswick (UNB), Principal Investigator: David A. Townsend, Faculty of Law, UNB, submitted: December 6, 2004.

⁷⁵ NATPR Report, page 124, emphasis added.

⁷⁶ Ibid, page 129.

4.2 Spectrum Licensing & Management and Policy Direction

The TPRP also considered whether changes to the current approach in Canada to spectrum policy development, regulation and management may be appropriate. In this respect, the TPRP considered approaches being followed in certain other countries including the U.S., U.K. and Australia, noting that each of these countries has moved towards more flexible and market-oriented approaches to spectrum management in recent years.

The TPRP acknowledged that Industry Canada has adopted market-oriented approaches to spectrum management, including adopting spectrum auctions as a form of competitive spectrum licensing, permitting spectrum trading and assigning spectrum to a use rather than a user. The TPRP also expressed support for the intent of Industry Canada's current review of Canada's spectrum policy framework, which is aimed at identifying areas where spectrum management practices could be improved to increase the efficiency of spectrum use, enable more flexible use of allocations, and generally facilitate access to spectrum for both licensed and licence-exempt applications for future services and consumer products.⁷⁷ In this regard, the TPRP concluded that:

To ensure that the full potential of wireless is exploited, Canada needs a policy framework that supports a strong and vibrant industry, enhances the efficient use of spectrum and facilitates the adoption of wireless. It should be a goal of Canadian spectrum policy to ensure that adequate licensed and licence-exempt spectrum is made available in a timely fashion to permit increased choice, encourage innovation and facilitate the deployment of advanced fixed and mobile wireless services with the appropriate level of oversight.⁷⁸

In terms of responsibilities for spectrum licensing and management, the TPRP pointed out the current mix of policy making and regulatory functions within Industry Canada is "something of an anomaly in comparison" with other OECD countries. It noted that in the majority of OECD countries, responsibilities for spectrum licensing and management have been transferred from government ministries to independent regulatory authorities.

Consequently, the TPRP recommended that authority to regulate Canada's radio spectrum and to license its use should be transferred from Industry Canada to the CRTC.⁷⁹ According to the TPRP, turning over spectrum licensing and management to the CRTC would likely give rise to several benefits -- i.e., the avoidance of duplication, overlap and inconsistencies; a reduction in administrative costs; the allowance for harmonized processes; the provision of more stability through open and transparent processes free from political pressure; the allowance for the development of a high level of expertise able to deal with complex and increasingly interrelated issues; and the strengthening of CRTC relationships with the international regulatory community and

⁷⁷ Industry Canada, *Consultation on a Renewed Spectrum Policy Framework for Canada and Continual Advancements in Spectrum Management*, May 2005, Gazette Notice DGTP-001-005.

⁷⁸ TPRP Report, pages 5-20 – 5-21.

⁷⁹ *Ibid.*, page 5-26.

other national regulators and the improvement of CRTC staff knowledge of global issues and trends.

While all the factors noted by the TPRP have some resonance, perhaps the most important consideration is the removal of any possible political involvement in decisions related to licensing spectrum. Since the Spectrum Branch now reports up to the Minister of Industry Canada, the possibility exists that decisions could be influenced outside of stated objective criteria. Perhaps this is more a theoretical concern than an actual problem since the record of the Department over at least the last decade in terms of sound and objective decision-making has been, in our opinion, extremely good. However, moving the Spectrum Branch outside of the Department would at least remove any appearance of possible influence.

It should be noted, however, that if spectrum licensing follows another TPRP recommendation by moving to more market-oriented licensing methods (i.e. auctions), then the potential concern with political influence is mooted.⁸⁰ The winner of a license is the party that puts in the highest bid. That is, there is no opportunity for political involvement and a key impetus for moving the Spectrum Branch would be removed.

The TPRP's recommendations relating to new spectrum policy directions to the CRTC are based on consideration of the work completed by Industry Canada as part of its ongoing spectrum policy framework review, and included ensuring that the following areas are addressed:⁸¹

- i) availability of adequate spectrum to meet demand for deployment of fixed and mobile broadband networks across Canada,
- ii) availability of licensed and licence-exempt spectrum for the U-CAN [broadband access expansion] program recommended by the TPRP,
- iii) reliance on market-based approaches to spectrum management as much as possible,
- iv) establishment of market-based exclusive spectrum rights (i.e. ability to buy, sell and lease spectrum holdings) and elimination of barriers to the development of secondary markets in spectrum,
- v) recovery and "refarming" of previously assigned spectrum that is unused or underutilized in order to accommodate new services,
- vi) review of current licence fees to correct fee imbalances that may exist among service providers, separating where practical cost-recovery fees from those fees charged for the use of a limited public resource, and applying market-based pricing for non-auction licences,

⁸⁰ Some might argue that politics could still influence the eligibility criteria or other bidding conditions, but given the transparency of the rule setting and the actual auction process, it is hard to see any involvement by a Minister or his colleagues as anything more than public policy involvement by properly elected political officials.

⁸¹ Ibid., page 5-21.

- vii) streamlining and standardization of licensing processes, and
- viii) continued use of regulatory mechanisms such as spectrum caps (aggregation limits) where spectrum is scarce in order to provide an opportunity for new entrants to acquire spectrum and for Canadians to have an expanded choice of service providers.

The first five of these eight policy directions involve ensuring that spectrum is used in an effective and efficient manner in the deployment and provision of fixed and mobile wireless services in Canada and, moreover, that market-oriented spectrum management approaches be relied to the greatest extent possible. These recommendations are generally consistent with the policy directions Industry Canada has been pursuing in recent years. We do not consider these recommendations to be controversial, regardless of whether Industry Canada or the CRTC is ultimately responsible to follow directions.

Similarly, the sixth and seventh recommendations, dealing with reviewing licence fees and streamlining existing standardization of licensing processes are commendable objectives. In particular, we would agree that a review of current licence fees is long overdue. Transferring spectrum licensing and management to the CRTC could provide an opportunity to revisit and re-set licence fees in a way that clearly separates spectrum management cost-recovery fees from fees charged for the use of a limited public resource, although such action could just as easily be initiated in its own right.

The last recommended policy direction dealing with the use of spectrum caps to provide an entry opportunity for new entrants is more contentious. Spectrum caps or spectrum set-asides can have distorting market effects since they may prevent the use of a resource in its most productive application. The ultimate cost of a cap or set-aside (in terms of loss of productive efficiency) would depend to some extent on the size of the cap or set-aside and the use that is made of it by the new entrant.

With the recent acquisition of Microcell by Rogers, the issue of how many suppliers can viably serve the Canadian mobile wireless market has been topical. According to the Competition Bureau:

Microcell faced significant challenges going forward in implementing its current business plan. While Microcell had some limited cost advantages due to its smaller network, the impact of this was diminishing due to the need for it to significantly expand the density of its existing coverage. It lacked product offerings in other markets that would have allowed it to offer bundles and it was absent from segments of the market that would have provided additional revenue to help finance the costs of network improvements.⁸²

Ultimately, the Bureau concluded that “Microcell would have faced significant challenges in maintaining its position as competitors move forward with the next generations of cellular service offerings.”

⁸² Competition Bureau, Technical Backgrounder - Acquisition of Microcell Telecommunications Inc. by Rogers Wireless Communications Inc, April 2005.

Similarly a recent examination by financial analyst John Henderson and his colleagues concluded that “despite Canada’s healthy wireless market, we believe a fourth wireless entrant ... would be an unattractive investment”.⁸³ In an extensive modeling exercise (employing pessimistic, realistic and optimistic scenarios) the financial prospects for a fourth entrant were found to be generally unattractive and in all cases unlikely to provide long term viability. Some of the reasons for this conclusion were cited as the high fixed cost of network facilities and spectrum, a likely smaller footprint, and the unique and individual advantages of existing competitors.

While we respect the examination and conclusions of both the Bureau and the quoted financial analysts, it may in fact be the case that the Canadian market can only support three facilities based competitors. However, the issue should ultimately be decided by market forces. Further, economists place considerable importance on the ability of new players to enter a market as a means to help discipline competitive behaviour. As long as new competitors can enter relatively quickly, existing competitors must be vigilant in maintaining a healthy competitive posture. While the ability to enter is readily available at the retail level (as an MVNO for example), ease of entry is lacking at the facilities level.

It is our view that the option to maintain an opportunity for entry is an extremely important policy tool. Further, the actual form of this mechanism (i.e. whether a spectrum cap, a set-aside or other means) is somewhat secondary to ensuring that some manner of allowing new entry exists. The Department may have several options in this regard, particularly as spectrum is increasingly recaptured from under-utilized purposes and made available for more productive purposes. However, before adopting any specific mechanism to preserve new entry opportunities, we suspect that the Department will continue to canvass industry members and potential entrants, review international experience and carefully analyze all options (preferably in an open and transparent process) before deciding on a preferred approach.

4.3 Summary Remarks

The TPRP set out a number of “technical” regulation-related recommendations in its report intended to remove barriers faced by entrants requiring access to essential infrastructure including support structures, rights-of-way, buildings and in-building wire. Most of the recommendations addressed existing barriers faced by wireline entrants. The TPRP also extended the scope of its recommendations in this respect to cover tower sharing and access to rooftops used as antenna tower sites. The TPRP relied largely on the recent NATPR Report to support these specific recommendations. However, the TPRP went beyond the recommendations put forward in the NATPR and, moreover, it appears that the TPRP had little, if any, new evidence supporting the need for the specific measures it proposed either with respect to mandating tower sharing or prohibiting exclusive rooftop antenna tower access arrangements. While the need for these recommended measures in today’s environment can be questioned, the recommendations relating to tower sharing and access to rooftops are, nevertheless, consistent with the TPRP’s other access to essential infrastructure.

⁸³ J. Henderson, et al. Scotia Capital, *Telecommunications Services: Fourth Wireless Entrant Economics Don’t Work*, May 16, 2006.

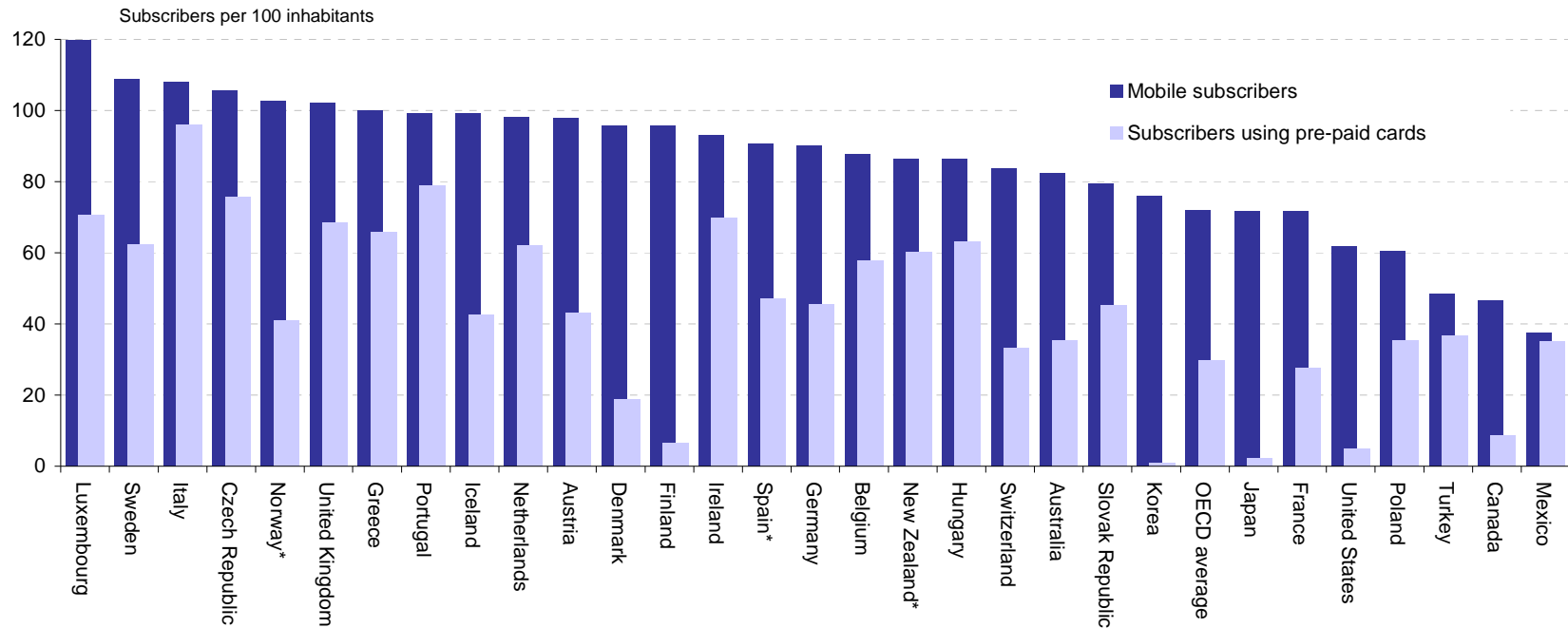
The TPRP claims that transferring responsibility for spectrum licensing and management from Industry Canada to the CRTC will result in a number of potential benefits. Again, the existence or significance of many of the cited benefits is debatable. However, moving the Spectrum Branch from Industry Canada to the CRTC may at least remove any appearance of possible political influence from the spectrum licensing and management processes.

Lastly, while the majority of the TPRP's spectrum policy direction recommendations are generally uncontroversial, the TPRP's recommendation to use of spectrum caps to provide an entry opportunity for new entrants is more contentious. As noted spectrum caps or spectrum set-asides can have distorting market effects since they may prevent the use of a resource in its most productive application. It is also questionable whether the Canadian market can support a fourth mobile wireless entrant. Even still, we consider that the potential to create an opportunity for entry is an extremely important policy tool and that the actual form of this mechanism (i.e. whether a spectrum cap, a set-aside or other means) is somewhat secondary to ensuring that some manner of allowing new entry exists. However, before adopting any specific mechanism to preserve new entry opportunities, we suspect that Industry Canada will continue to canvass industry members and potential entrants, review international experience and carefully analyze all options (preferably in an open and transparent process) before settling on a specific mechanism.

ATTACHMENT 1 - Mobile Penetration Rates in OECD Countries
Figure A1: Total and Pre-paid Mobile Penetration Rates in OECD Countries, 2004

OECD Key ICT indicators

2a. Mobile subscribers and Subscribers using pre-paid cards per 100 inhabitants in OECD countries, 2004



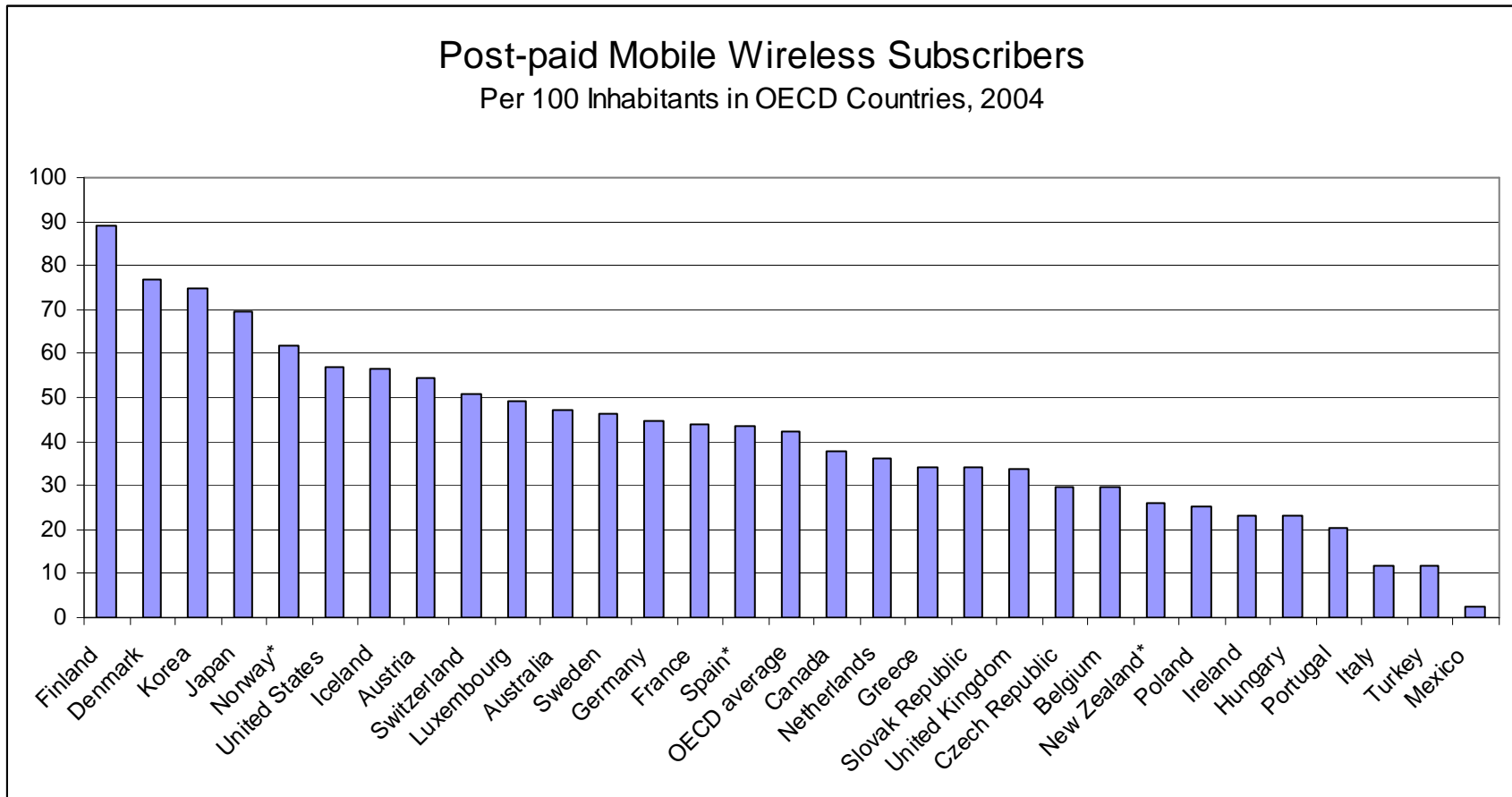
* Estimations

Source: OECD ICT Key Indicators [www.oecd.org/sti/ICTindicators]

See also : OECD Communications Outlook 2005 [www.oecd.org/document/15/0,2340,en_2649_33703_35269391_1_1_1_1,00.html]

Source: *OECD 2005 Communications Outlook*.

Figure A2: Post-paid Mobile Penetration Rates in OECD Countries, 2004



Source: Wall Communications using mobile wireless data provided in OECD 2005 Communications Outlook.

ATTACHMENT 2 – Canadian and U.S Subscriber Growth

Table A1
Canadian and U.S. Historical Wireless Subscriber Levels,
Growth and Penetration Rates

Year	United States			Canada		
	Subscribers (000s)	Growth Rate	Penetration (% Pop.)	Subscribers (000s)	Growth Rate	Penetration (% Pop.)
1983	na					
1984	92		0.0%			
1985	340	271%	0.1%	6		0.0%
1986	682	100%	0.3%	42	600%	0.2%
1987	1,231	81%	0.5%	95	125%	0.4%
1988	2,069	68%	0.8%	195	106%	0.7%
1989	3,509	70%	1.4%	317	63%	1.2%
1990	5,283	51%	2.1%	526	66%	1.9%
1991	7,557	43%	3.0%	771	47%	2.8%
1992	11,033	46%	4.3%	1,024	33%	3.6%
1993	16,009	45%	6.2%	1,321	29%	4.6%
1994	24,134	51%	9.2%	1,869	41%	6.5%
1995	33,786	40%	12.7%	2,584	38%	8.8%
1996	44,043	30%	16.3%	3,415	32%	11.5%
1997	55,312	26%	20.3%	4,207	23%	14.0%
1998	69,209	25%	25.1%	5,317	26%	17.6%
1999	86,047	24%	30.8%	6,883	29%	22.6%
2000	109,478	27%	38.8%	8,731	27%	28.4%
2001	128,375	17%	45.0%	10,679	22%	34.3%
2002	140,767	10%	48.8%	11,935	12%	37.9%
2003	158,722	13%	54.5%	13,442	13%	42.3%
2004	182,140	15%	62.0%	14,984	11%	46.7%
2005	207,896	14%	70.1%	16,809	12%	51.8%
CAGRs						
1986-1996		52%			55%	
1996-2005		19%			19%	
1992-2005		25%			24%	
1986-2005		35%			37%	

Source: Based on CTIA and CWTA wireless subscriber estimates and U.S. Bureau of Labour Statistics and Statistics Canada population estimates.