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**Working Party on Telecommunication and Information Services Policies**

**BENCHMARKING BROADBAND PRICES IN THE OECD**

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## **FOREWORD**

In December 2003 this report was presented to the Working Party on Telecommunications and Information Services Policy (TISP). It was recommended to be made public by the Committee for Information, Computer and Communications Policy (ICCP) in April 2004.

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## TABLE OF CONTENTS

MAIN POINTS.....	4
INTRODUCTION .....	6
Comparing Broadband Pricing by Capacity.....	9
Offers from 10 Mbps to 100 Mbps (Annex Table 1).....	9
Offers from 2 Mbps to less than 10 Mbps (Annex Table 2).....	10
Offers from 1 Mbps to less than 2 Mbps (Annex Table 3).....	11
Offers under 1 Mbps (Annex Table 4) .....	11
Benchmarking Incumbent Telecommunication Carriers .....	11
A Note on Methodology.....	13
Review of Broadband Pricing by Country .....	14
Australia.....	14
Austria .....	16
Belgium .....	18
Canada .....	19
Czech Republic.....	20
Denmark .....	21
Finland.....	25
France .....	27
Germany .....	28
Greece.....	30
Hungary .....	31
Iceland .....	32
Ireland.....	33
Italy .....	34
Japan.....	36
Korea .....	38
Luxembourg.....	39
Mexico.....	39
Netherlands.....	42
New Zealand.....	44
Norway .....	45
Poland.....	47
Portugal.....	48
Slovak Republic.....	50
Spain .....	50
Sweden.....	53
Switzerland .....	54
Turkey.....	55
United Kingdom .....	56
United States.....	58
ANNEX .....	61
NOTES .....	97

## MAIN POINTS

The price and performance ratio is a key indicator in assessing the state of broadband development in any given country. Analysis of prices, the level of service, and the range of choice available to users, can help inform questions about the take-up and use of broadband services as well as in assessing how competitive broadband access is in individual markets throughout the OECD. This document, therefore, aims to provide information to policy makers to assess developments in their country relative to other countries in terms of price and performance levels and goes well beyond any debate over definition of broadband in terms of capacity or 'always-on' availability and usage.

While there is still not enough data to systematically examine price and performance changes, the trend in prices is very much downward; and the trend in performance is upward. Competition is the main driver of improvements in price and performance. Specifically, Japan and Korea are significantly ahead of the rest of the OECD in terms of having the lowest prices and highest capacity available. These two countries are followed by Canada and the United States where prices are low and levels of baseline capacity offers exceed most other countries and are increasing. In Europe, prices are generally higher and baseline and premium services set at lower capacity levels. The leading European country in terms of baseline offers is Belgium. In terms of higher speed services Sweden is emerging as the European pace setter.

In terms of the best price and performance ratios among incumbents there were five clear leaders. The incumbent operators KT (Korea), Bell Canada, and Verizon (United States) had the lowest prices given the criteria of offers above 250 kbps and at least 1 Gigabyte of the monthly data transfer allowance set. The offers of NTT (East) and Belgacom also stand out in terms of the advertised service level. Over all, taking into account all aspects of service such as price and performance levels it might be concluded that Korea, Canada, the United States, Japan and Belgium had the most competitive markets based on the incumbent's prices. While it is true that other countries have incumbents with lower baseline prices than NTT (East) and Belgacom, these services have either data transfer allowances aimed at relatively low users or relatively slow speeds compared to Belgacom and NTT.

Broadband growth is accelerating in the OECD area but the pace is very uneven across different countries. In 2003, Korea is assessing whether it has reached a 'saturation point' with more than 70% of households having a broadband connection. On the other hand, several OECD countries such as the Czech Republic, Greece and the Slovak Republic only witnessed the launch of service in 2003. Penetration and availability of broadband access, considered in previous work, are, however, only two indicators of the overall development of broadband access. Another key indicator is the price and level of service available for that charge.

Price and performance ratios vary enormously across different countries. In many countries baseline broadband offers start at 256 kbps (or even 128 kbps in some cases). In other countries such as Japan and Sweden, for a similar price, a 26 Mbps service may be available. In other words, for a similar price, the difference in advertised performance between services might be a multiple of more than 100. In fact, in 2003, it was less expensive to have access to a 100 Mbps connection in Japan than a 128 kbps connection in several other countries. Accordingly, even when countries have a similar availability or penetration of broadband access their price and performance ratios may be very different. At the same time, within the

overall performance ratio the capacity of a connection is itself only one element of service. In some countries the price of broadband access is set at a fixed monthly rate. In other countries there is a fixed price and a metered element relating to usage of the service. Different pricing structures can lead to quite different outcomes in terms of the overall price paid by the user, their usage of the service and their willingness to take up the service. A summary of the price points considered in this report against the level of capacity offered is shown in the following table.

**Summary Table. Selected Broadband offers in the OECD area**

Capacity	Number of offers included in this report	Average price of offers (in USD)
10-100 Mbps	26	49
2-10 Mbps	95	157
1-2 Mbps	109	89
Less than 1 Mbps	245	56

Source: OECD.

This report builds on other work on broadband undertaken by the OECD, which includes reports on coverage in rural and remote areas, universal service, telephony and broadband over cable networks and so forth. The data in this report are designed to provide policy makers with a sample of reliable information on pricing in order to assess the developments in their country relative to other countries. The relationship between good price performance and wider economic benefits has been addressed elsewhere.<sup>1</sup> There are a number of remaining issues not addressed by this report such as quality of service of broadband connections. Not enough data exist yet in this area to make international comparisons.

## INTRODUCTION

This document reviews broadband access pricing in the OECD area. The aim is to provide policy makers with data to benchmark prices across countries. In that respect a range of offers mainly aimed at residential and small business users are included for each country. Larger corporate users continue to use leased lines to connect their business premises although they are increasingly taking advantage of new broadband platforms to connect individual employees.

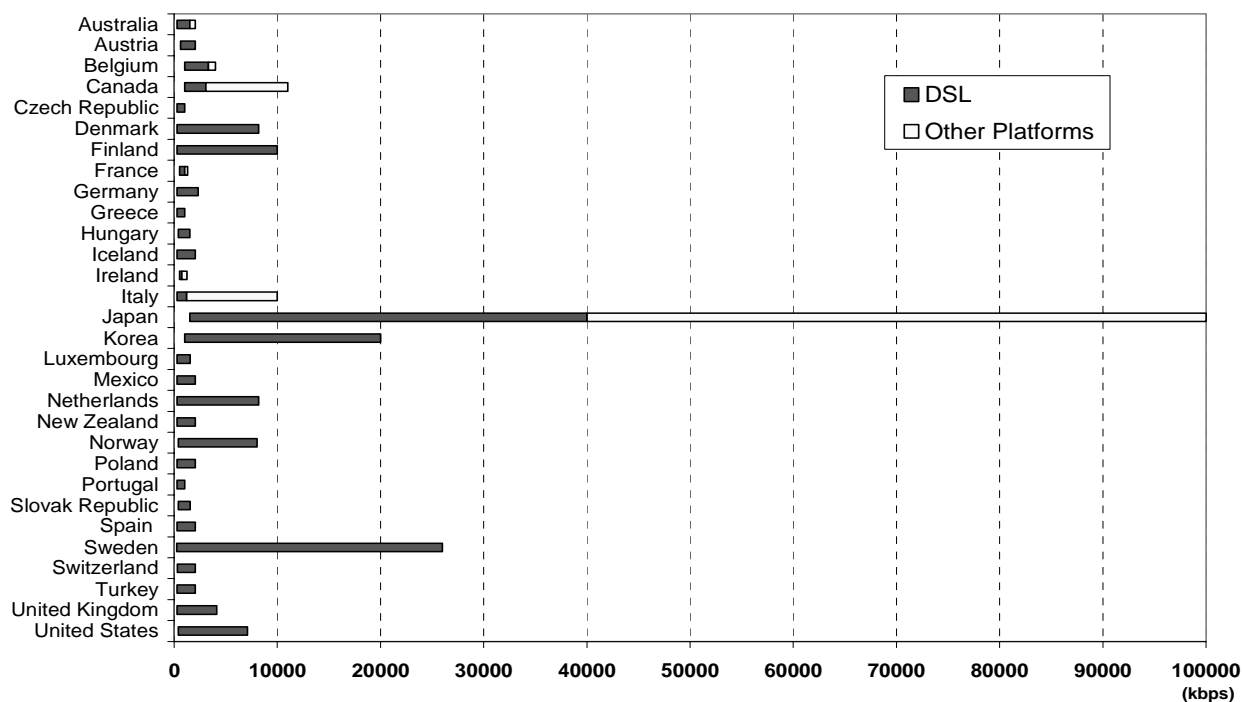
To assess the price of broadband service a number of different service elements are relevant. The main element is, of course, the price of the service. However, there is a large range of broadband services available across the OECD and two offers that have the same price may have very different characteristics and capabilities. The two leading elements that also need to be considered, when comparing broadband pricing, are the capacity of the service and the pricing structures in relation to data transfer. Other parameters, for future consideration, might include the quality of service but data are not generally available to allow this analysis to be undertaken across different countries.

The pricing of broadband access in relation to data transfer, or more rarely online time, takes on several different forms. The most prevalent and simple form of broadband pricing is unmetered service. With unmetered broadband access a user pays a fixed monthly charge irrespective of how much data is transferred or the amount of time spent online. The most common variation of this pricing structure is for a provider to include a fixed allowance of data transfer, in the base monthly fee, and for additional Megabytes to be charged on a metered basis. In some cases the fixed allowance is set so high that it is not expected that many customers will exceed that amount. In other cases, the fixed allowance is set at a low amount with metered pricing being integral to the overall monthly price paid by the user.

The other element necessary to consider in any assessment of the price of broadband access is the capacity of the connection made available to the user. In most cases operators advertise the maximum connection speed and the actual data transfer rates can be influenced by a number of other factors that are not always made transparent to the user (*e.g.* the contention ratio, distance from exchange) or other factors that are beyond the control of the operator. Advertised broadband access speeds range enormously across the OECD. In some countries fibre to the home connections are available at speeds up to 100 Mbps. By way of contrast baseline offers, using platforms capable of providing broadband access start as low as 128 kbps. While there is, in fact, no standard definition of the speed necessary for a connection to be considered 'broadband', there is widespread agreement that this should be faster than basic rate ISDN which operates at 128 kbps. In this document most attention is paid to offers higher than 250 kbps but in some markets lower speed offers using broadband platforms are available. The range of offers with different levels of capacity is shown for countries (Figure 1) and by incumbents for DSL (Figure 2). In Figure 2, the term 'incumbent' is used to denote the telecommunications company serving the largest city with DSL in that country. Arguably, cable companies could also be considered as incumbents in their traditional markets but, in this report, they are grouped with alternative infrastructure providers. The exception is where the incumbent telecommunications company also owns a cable network in the same area of service.

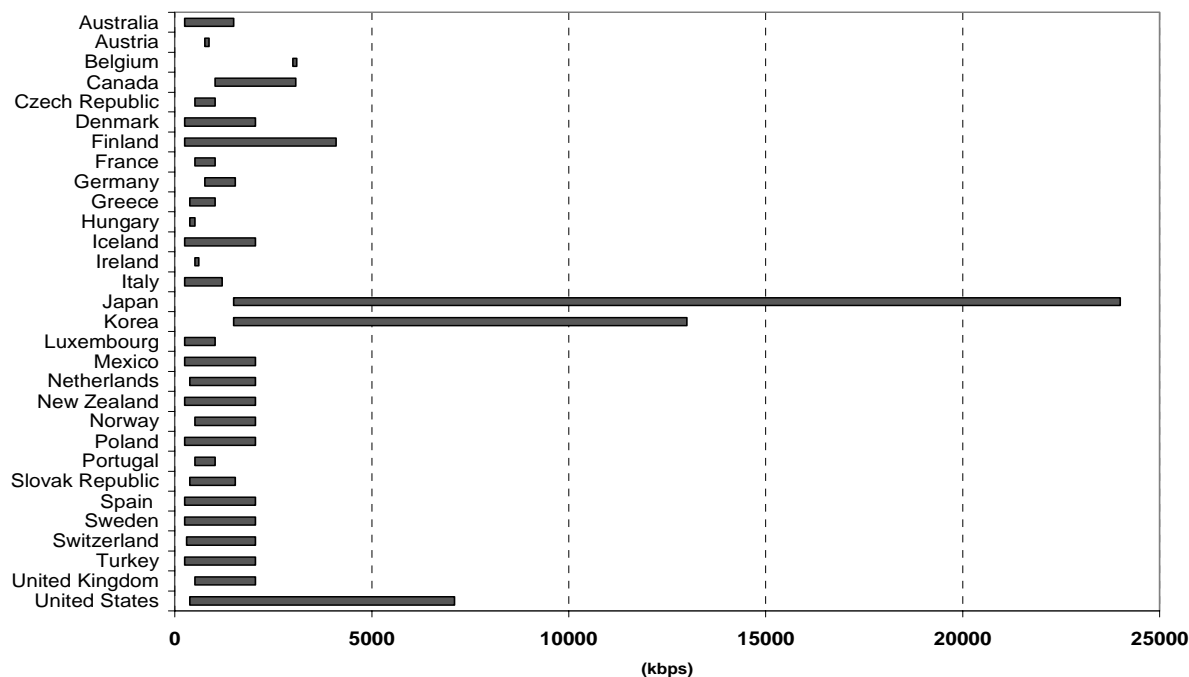
One further characteristic needs to be considered in relation to the capacity of broadband connectivity. Some broadband access connections are symmetrical. That means that the capacity available to downstream and upstream connections is the same. In other cases asymmetrical services are offered with the downstream capabilities being set at a higher rate than the upstream connections. For the sake of simplicity, in this document, services are generally referred to by downstream capabilities.

**Figure 1. The Range of Capacity across all Offers/Platforms in this Report, October 2003**



Note: The baseline offers in the figure are above 250 kbps.  
Source: OECD.

Figure 2. The Range of Capacity in DSL Offers by Incumbents, October 2003



Notes: The baseline offers in the figure are above 250 kbps.

Source: OECD.

Notwithstanding the foregoing there are several ways to compare broadband pricing. One method is to compare the best prices available irrespective of the capacity of the service, the type of platform or the scale of the service. This approach might be expected to favour low speed offers compared to high capacity broadband connections. Traditionally telecommunication carriers sold connections, such as leased lines, based on the capacity of the connection with higher capacity offers being charged at higher rates. This practice continues to hold true for the offers of a single company, albeit the incremental increases in price for some operators are negligible. This difference between 8 Mbps and 26 Mbps services in Japan can be as low as USD 4 per month. In practice this means that some very high speed broadband offers in some countries are, in fact, less expensive than very low speed offers in other countries. Moreover some of the lowest price offers in the OECD also have the highest advertised performance. Accordingly, the approach taken below focuses on best practice pricing within four bands of advertised capacity such as offers between 10 Mbps to 100 Mbps, 2 Mbps to 10 Mbps, 1 Mbps to 2 Mbps and offers below 1 Mbps.

A second approach is to benchmark the prices of the incumbent telecommunication carriers for DSL service. The incumbents rarely have the least expensive offer for broadband access but their pricing is an important indicator of the overall competitiveness of any market. In addition incumbent operators generally have the widest geographical coverage and the largest market share whereas the offers of some other service providers may be limited to specific locations (*e.g.* only serving apartment buildings, limited urban or rural areas and so forth). Moreover, while incumbents offer very different levels of performance in terms of the capacity offered under various plans, it might be expected that the quality of service is more comparable across incumbents. Finally incumbents are subject to regulation that may impact on their pricing to a greater extent than new entrants such that benchmarking between incumbents can be a useful indicator for policy makers in assessing their own regulatory frameworks.



## Comparing broadband pricing by capacity

The OECD undertook its first comparison of broadband access prices in 2000. At that time there was much more uniformity in the range of offers available in terms of baseline capacity. Accordingly, it was relatively easy to compare a range of offers with similar characteristics. There were, of course, some differences across different offers (*e.g.* 256 kbps versus 512 kbps). To allow for these differences in the level of service the approach then adopted was to weight the price by the combined downstream and upstream capacity made available. Given the changes which have occurred in the leading countries since then, this approach may no longer be fruitful. The reason for this is that the leading offers in some countries, including some baseline offers in those countries, are now so far in advance of even the premium offers in other countries that they are hardly comparable. The point has been made that some of the offers available between 10 Mbps to 100 Mbps are less expensive than offers in other countries at speeds as low as 128 kbps.

Given the foregoing the following sections compare prices across different levels of service for incumbents and new entrants and then for incumbents against each other. The overall conclusion which can be drawn from this analysis, in terms of widely available services, is that Japan and Korea are significantly ahead of the rest of the OECD in terms of having the lowest prices and highest performance available. These two countries are followed by Canada and the United States where prices are low and levels of baseline performance exceed most other countries and are increasing. In Europe, prices are generally higher and baseline and premium services set at lower performance levels. The leading European country in terms of baseline offers is Belgium. In terms of higher speed services Sweden is emerging as the European pace setter.

There was no special reason for choosing the categories of capacity; 10 Mbps to 100 Mbps, 2 Mbps to 10 Mbps, 1 Mbps to 2 Mbps and below 1 Mbps. They were chosen as a simple way to categorise and compare offers at similar levels of advertised performance.

### *Offers from 10 Mbps to 100 Mbps (Annex Table 1)*

There are several platforms that offer advertised speeds higher than 10 Mbps to small business and residential users. Although a number of caveats apply the lowest prices in this category are for fixed wireless networks operating in rural areas. Some of the caveats are that these systems are operated by relatively small start up wireless Internet service providers (WISPs) that have only recently commenced service or are in the process of launching service. In addition some fixed wireless systems have data transfer allowances per month, for their baseline offers, whereas the other platforms, in this category, all have unlimited data transfer. Accordingly, the prices for the fixed wireless operator are not directly comparable with the other services in this category. Gulf Islands Wireless Networks of 11 Mbps for USD 23 per month including one Gigabyte of data transfer per month is one of the leaders among WISPs. It is, however, necessary to remember that such offers are often for small start-up WISPs in rural areas and therefore not directly comparable in terms of scale to much larger networks. On the other hand the initial pricing, if it proves to be sustainable, represents a radical shift in not only the price of broadband but its provision in rural areas.

The next least expensive platform in this category proved to be Yahoo!BB's 12 Mbps DSL service offering unlimited data transfer for USD 23 per month. For an extra USD 2 per month a user could alternatively elect to take the 26 Mbps service with unlimited data transfer. In terms of ISPs serving large number of users (Yahoo!BB has over three million subscribers) these prices are the lowest in the OECD.

The highest advertised speeds are for fibre to the home networks in Japan. The advertised speeds range from 70 Mbps to 100 Mbps. It is necessary to remember that some of the fibre-to-the-home (FTTH) services are shared connections whereas others with higher prices are individual connections. The least expensive service is KDDI's FTTH/Ethernet LAN service for apartment buildings operating up to 100 Mbps. The price for KDDI's service is USD 25 per month. The lowest price for individual FTTH connections in Japan starts with USEN's offer at USD 50 per month.

Not surprisingly Korea has some of the offers with the best price performance ratios. Both Hanaro and Thrunet offer DSL and cable modem services at 10 Mbps for just over USD 30 and Hanaro has a 20 Mbps service at USD 41 per month. In Europe the price performance leader is Bostream's 26 Mbps service in Sweden for USD 48 per month. Italy's Fastweb, Sweden's Bredbandsbolaget, and Finland's Oulun puhelin are others with 10 Mbps offers. KT in Korea and NTT in Japan were the only incumbents to have offers above 10 Mbps although TeliaSonera has proposed a service that would qualify. This reflects the level of competition for broadband access in the Japanese, Korean and Swedish markets. In terms of price performance ratio these are the markets other OECD countries will look to when of benchmarking against the leading countries. The average price in this category, with 26 different offers, was USD 49 per month.

#### *Offers from 2 Mbps to less than 10 Mbps (Annex Table 2)*

The least expensive offers in this category also proved to be from small, fixed wireless operators. Australia's Alpha Link Wireless, a small start-up WISP in the city of Melbourne, has a 2 Mbps offer for USD 20 per month including 10 Gigabytes of data transfer per month. In Canada, PRiS, a small WISP in a rural area, offers a 2.5 Mbps service for USD 22 per month with 1 Gigabyte of data transfer. Once again the point that needs to be reiterated is that these operators are serving a relatively small number of customers compared to operators of fixed network platforms. Notwithstanding this the pricing is also propitious for the future of fixed wireless broadband in rural and urban areas.

The best price performance ratios for fixed networks in this category are undoubtedly in Japan and Korea. Yahoo!BB's 8 Mbps service for USD 22 per month is the market leader. In Korea, both KT and Hanaro have 8 Mbps offers for around USD 33 per month. In North America the best price performance ratios available were from cable companies. In Canada, Cogeco has a 3 Mbps service for USD 30 per month and a 5 Mbps service for USD 50 per month. In Europe, Belgium had some of the leading offers ranging from 3 Mbps to 4 Mbps for between USD 40 and USD 45.

One caveat to note is the offers with low data transfer allowances such as Telecom New Zealand's 2 Mbps service with a 500 Megabyte transfer allowance. To compare this service with unlimited offers or offers with much higher allowances it would be necessary to make appropriate provision for the metered charge.

There are a much larger number of incumbents with services in this category and services aimed at small to medium-sized businesses. Significantly the range of pricing is much larger and the average price much higher than the previous category. One reason for this is that a number of services aimed at business users have low contention ratios. All DSL services share a certain amount of bandwidth between subscribers.<sup>2</sup> The ratio to which the available bandwidth is shared between users is called the 'contention ratio'. Services targeted at residential users are less expensive, but have a higher contention ratio. This means that the available network capacity is shared between a greater numbers of users. Business services have a lower contention ratio, which will provide a more consistent level of performance. A 50 to 1 contention ration means the bandwidth may be shared with up to 50 other subscribers, whereas a 10 to 1 contention ration means the bandwidth may be shared with no more than 10 other subscribers and so forth. Some business services have a 1 to 1 contention ratio. That being said pricing also reflects, of course,

the level of competition in different markets for both residential and business customers. In this category the average price was USD 157 from 95 offers.

### ***Offers from 1 Mbps to less than 2 Mbps (Annex Table 3)***

In this category there were 109 offers with an average price of USD 89. While there are some offers aimed at business users it seems remarkable that the average price is much higher than in the 10 to 100 Mbps category. In terms of the unlimited data transfer offers the least expensive offers were in Korea, Canada, and the United States. Hanaro Telecom has a 1 Mbps service for USD 25 per month and KT a 1.5 Mbps service for USD 25 per month. Bell Canada's 1 Mbps service was priced at USD 27 per month and Verizon's service at USD 29 per month.

In Europe, Suomi Communications 1 Mbps service to apartments at USD 28 per month and 9Telecom's service in France at USD 31 represented the lowest prices. TeliaStofa and Primacom have lower baseline prices but their service was metered placing them in a different class of service.

### ***Offers under 1 Mbps (Annex Table 4)***

The majority of operators outside of Korea and Japan have baseline offers below 1 Mbps. For this document some 245 offers were considered with an average price of USD 56. Once again it is striking that this price is higher, on average, than the 10 to 100 Mbps category. The lowest prices for unlimited offers above 250 kbps are in France for Noos Cable's 640 kbps, when taken with cable television service, for USD 22 per month. The lowest price for unlimited DSL above 250 kbps was Slovak Telecom's 384 kbps offer for USD 22 per month.

### **Benchmarking incumbent telecommunication carriers**

There are several ways of comparing broadband access from incumbent telecommunication carriers. One method is to rank the incumbents by the capacity on offer irrespective of price (Annex Table 5). Using this approach NTT, with its FTTH networks is a clear leader. NTT is also the incumbent with the highest DSL service on offer at 24 Mbps. The incumbent carriers with the next highest offers are KT in Korea (8 Mbps), Verizon in the United States (7.1 Mbps), Elisa in Finland (4 Mbps), and Bell Canada and Belgacom with 3 Mbps. Although using its cable network, TDC the Danish incumbent has a 4 Mbps cable modem service.

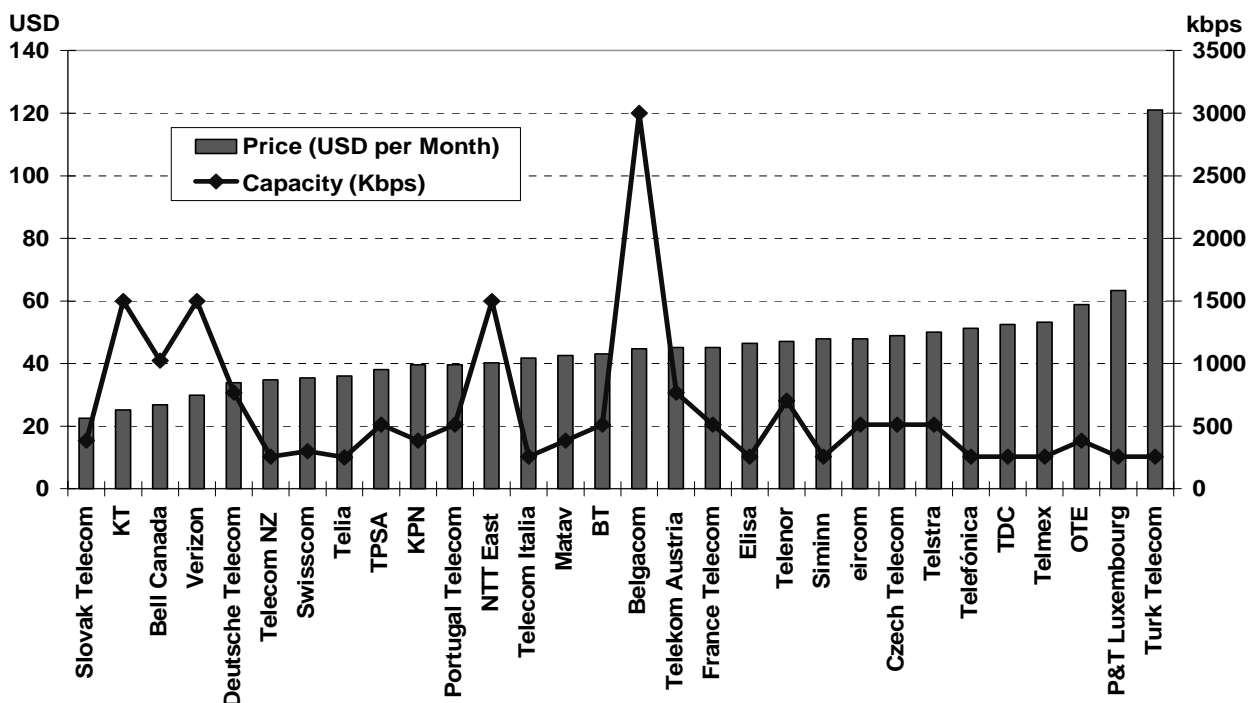
The second approach is to compare the price for all the offers with unlimited data transfer irrespective of capacity (Annex Table 6). Here the lowest monthly prices are those for Slovak Telecom (USD 22 for 384 kbps), KT (USD 25 for 1.5 Mbps), Bell Canada, (USD 26 for 1 Mbps), and Verizon (USD 29 for 1.5 Mbps). SBC also has offers below USD 30 but they may increase in price after the first 12 months. The best price performance ratio in this category is probably KT's 8 Mbps offer for USD 34.

In terms of offers from incumbents with a limited monthly data allowance, at speeds above 250 kbps, Telus in Canada has the least expensive offer at USD 27 per month for a 1.5 Mbps service and 6 Gigabytes (Annex Table 7). In respect to these offers it is also necessary to look at the price per Megabyte for additional data transfer in the event that users exceed their monthly allowance. For DSL the highest prices per Megabyte are in Australia and New Zealand. In both countries the baseline DSL offers from incumbents include 500 Megabytes with additional Megabytes being charged at more than USD 0.10. The next highest per Megabyte price from an incumbent is Telekom Austria at USD 0.079 and TDC at USD 0.075. The lowest per megabyte price is Belgacom's USD 0.001.

Comparing the baseline offers of the incumbents is not a simple task. First it is necessary to define baseline. For the purpose of this comparison (Figure 3) only offers above 250 kbps were considered. The second element was allowance for data transfer. In this case only offers which included at least 1 Gigabyte were included. The results show that of the incumbent operators, Slovak Telecom, KT (Korea), Bell Canada, and Verizon (United States) had the lowest prices given the criteria set. Although Deutsche Telekom and Telecom New Zealand had the next lowest prices this is only the case if users stayed within their data allowance of 1 Gigabyte. These two companies, along with Telekom Austria, Telenor and Telstra all had 1 Gigabyte limits. In the other cases providers had much higher data transfer allowances or unlimited offers. If users exceed their data allowance the price can be considerably increased for carriers with data caps.

In terms of the best price and performance ratios among incumbents there were five clear leaders. Three have already been mentioned (KT, Bell Canada, and Verizon) but the offers of NTT (East) and Belgacom also stand out in terms of the advertised service level. Given the low level of pricing from new entrants in Japan NTT's baseline price is slightly surprising. As in other countries less expensive and higher performance offers are readily available from other operators. Moreover for an extra dollar NTT users could elect service with much higher performance ranging from 8 Mbps to 24 Mbps. Accordingly users would possibly only elect NTT's 1.5 Mbps service where higher speed offers were not available from either NTT or other less expensive operators. Over all, taking into account all aspects of service such as price and performance levels it might be concluded that Korea, Canada, the United States, Japan and Belgium had the most competitive markets based on the incumbent's prices. While it is true that other countries have incumbents with lower baseline prices than NTT (East) and Belgacom, these services have either data transfer allowances aimed at relatively low users (*e.g.* Telecom New Zealand and Deutsche Telekom) or relatively slow speeds compared to Belgacom and NTT.

Figure 3. Baseline DSL Access Prices from Incumbents, October 2003



Notes: The prices shown are for baseline offers above 250 kbps and 1 Gigabyte or higher data transfer allowance. Telecom New Zealand, Deutsche Telekom, Telekom Austria, Telenor and Telstra prices all include 1 Gigabyte with additional usage incurring extra charges. Other offers are unlimited or include higher data transfer allowances.

Source: OECD.

## A note on methodology

For this document a range of service providers is shown including offers from the incumbent telecommunication carrier as well as independent ISPs and alternative infrastructure providers. The main focus is on access at rates higher than 256 kbps but some information on lower speed services is included where relevant to the development of pricing in that country. All offers needed to have always-on capabilities. This does not mean that a user will necessarily always have their connection open but the pricing structure needed to accommodate this capability (*i.e.* unmetered offers or offers metered by data transfer rather than online time). All prices cited in the text are expressed in United States dollars using exchange rates, but purchasing power parity equivalents are also available in the tables. Exchange rates and purchasing power parity data used in this document are shown in Annex Table 8. Applicable taxes such as value added tax (VAT) are included in the prices. The data collected directly from operators are for offers aimed at residential and small business users as of October 2003. If there have been major shifts in pricing announced, prior to the end of February 2004, these are mentioned in the text associated with the country concerned, where possible, but not included in the tables.

When collecting the data it is assumed that a user is a customer of the service provider. In other words the prices shown for services such as DSL and cable modem assume that a user also takes telephony or cable television from that provider. This generally enables the least expensive price to be selected. In addition many providers offer less expensive prices if a customer is willing to sign a contract to take service for a specified duration. The prices selected are for contracts up to a maximum of two years. It is assumed that customers will purchase their own modem and other equipment such that equipment rental is only included if that choice is not available to customers. The price of initial connection is shown, where applicable, for reference, but is not included as part of the monthly fee. In virtually all cases incumbent operators have uniform prices across the country. For example some cable companies in the United States vary their pricing depending on location. Alternative providers may only cover limited geographical areas and have very small population coverage compared to the leading companies. In those countries where there is more than one incumbent the prices selected are for the largest city, with any additional companies, in other locations, being shown by way of example. That being said some prices for alternative operators specialising in urban or rural areas are also included. These operators are included by way of example and their population or geographic coverage may be very limited compared to the major DSL and cable modem operators. The operators selected, in all OECD countries, have a combined market share of more than 60% of the total number of broadband subscribers (Appendix 9). The availability of broadband access in each OECD country, via DSL and cable modem, is shown in the OECD Report "*The Development of Broadband Access in Rural and Remote Areas*"<sup>5</sup>.

There are several interesting questions related to broadband price and performance for which data were unavailable:

- The effect of taxes on broadband service pricing is not explored. It is sometimes difficult to get such information unless it is directly related to the user such as in Austria. The tax rate applied for all OECD countries apart from the United States is the applicable VAT. The United States situation is more complex as there are tax moratoriums for Internet access in some States but not in others. For the United States taxes included in the advertised price are included.
- There is a range of quality of service issues which are not addressed. It is possible that advertised and actual performance differ, for reasons of distance or contention ratio, as previously discussed, but no data on this are available.

- There may be differences in advertised prices and the actual prices consumers pay. The data used in all cases are the advertised prices and it is believed that this is in fact the price paid by residential users in most OECD countries.

There are also possible refinements to the data which are not available. For example, it is not possible to map coverage by class of service. It is assumed that the baseline offers would all be available where service is available and cover the majority of subscribers.

## **Review of broadband pricing by country**

### ***Australia***

In Australia broadband pricing reflects a market in transition from one without substantial competition to one with increasing levels of competition. The initial broadband offers in Australia were typified by relatively expensive threshold prices and low download caps (*e.g.* formerly 250 Megabytes before metered charges were applied). Set against a background of unmetered dial-up services the initial broadband pricing led to a slow take-up of broadband access despite Australia being among the earliest countries to introduce cable modem services. In this context, it is important to note that, the experience in other countries shows that unmetered dial-up does not necessarily hold back the take-up of broadband if unmetered broadband is available (*e.g.* Canada and Korea). There has, however, been some user resistance to shifting from unmetered dial-up to broadband with relatively low data transfer allowances (*e.g.* Australia and New Zealand).

The incumbent operator Telstra has traditionally been a firm advocate of the efficiency and equity of using a metered approach to broadband pricing. Telstra's position was that 'average cost pricing' can lead to cross subsidies to high bandwidth users at the expense of entry level users. Telstra says that a significant proportion of subscribers, on its baseline offer, exceed an overall total monthly charge that is twice the basic charge. From Telstra's perspective this pricing approach is soundly based on "a user pays" model. From a user's perspective there may, however, be several drawbacks. One is the complexity of metered pricing. Users pay twice the baseline price would be very much better off on the next pricing tier. That they do not choose to change to the next pricing tier appears to indicate that such pricing structures are not well understood by some users. The most important factor for policy makers is whether the market is sufficiently competitive to apply discipline to whatever pricing structures are put in place and to enable a range of pricing options for users.

While the user pays principle is a sound one the uncertainty, or complexity, associated with metered pricing, compared to relatively simple dial-up pricing in Australia, appears to have contributed to slower growth. One way other providers in Australia are dealing with this issue is to apply a so-called 'throttle' to the speed of the connection once a user reaches their download allowance. Optus, a cable modem service provider in Australia limits users to 28 kbps once they have reached 100% of their monthly data allowance (Table 1). While this system provides pricing certainty for users the drawback is that the speed limit cannot be reversed, and additional data cannot be purchased for the remainder of a month.

One further drawback of the relatively low download caps in Australia is that they may negate one of the main benefits of shifting from dial-up to broadband. While metered pricing, using data transfer, tends to work well enough with some broadband applications, such as the always-on capability for e-mail or faster downloads of Web pages, it may deter users from adopting broadband for the use of applications such as streaming-media. That metered pricing, at current prices, is not suited to streaming media, such as video replays of sporting events, is reflected by Telstra not metering some of their own broadband content and services. If metered pricing were applied to a football match viewed over a broadband connection, one match per month would exceed Telstra's baseline data allowance. An alternative approach, increasingly

adopted by other ISPs in Australia, is to raise the data allowance for each tier of pricing. This approach also reflects the increasing competition in the Australian market.

While the initial take-up of broadband in Australia has been relatively slow, the pace has accelerated as the Australian market has become increasingly competitive and data transfer allowances increased. Optus, a carrier created during Australia's duopoly between 1992 and 1997, is the second largest provider of broadband access. Optus pricing has tended to be comparable with Telstra albeit at slightly lower prices and higher download allowances. One more significant competitive outcome is that Optus does not set a specified capacity limit on its cable modem service. In response, Telstra has uncapped the capacity for its cable modem offer so that while the speed of DSL is limited to a specified pricing tier, the limit for the cable modem service is only the performance of the network. It is also notable that the Telstra price for cable modem is lower than the comparable DSL service, reflecting the higher level of competition in those areas where the Optus network is available.

While competition between Telstra and Optus appears to be increasing the major change in the Australian market has been brought about by regulated access, for independent ISPs, to Telstra's PSTN local loops. The independent ISP iiNet provides one example of an ISP using Telstra's wholesale product to provide lower prices with significantly higher data allowances. This pricing is fairly typical of ISPs using Telstra's local loops as the wholesale pricing of local access is not metered. As a result independent ISPs added nearly twice as many DSL subscribers as did Telstra in the second quarter of 2003.<sup>4</sup>

Increasing competition is also evident from new entrants using fixed wireless platforms. To date this has been mainly in urban areas but as in other countries should expand to rural areas. By way of example Alpha Wireless, a wireless ISP (WISP) based in Melbourne, offers a 2 Mbps symmetrical service for USD 20 per month with a 10 Gigabyte download limit. The downside of fixed wireless is that it is currently available only in limited areas. Experience shows that it takes time for new entrants to roll out alternative infrastructure even when it is wireless infrastructure. Alpha Wireless also has a higher set-up fee than DSL or cable modem service. On the other hand the ongoing price and advertised performance are significantly better than for current offers for DSL or cable modem service in the Australian market. Indeed fixed wireless operator's pricing is among the most competitive in the OECD for services up to 2 Mbps. In October 2003, Telstra announced it would make a 2 Mbps symmetrical service available to business users.<sup>5</sup>

Overall the Australian market is heading in the right direction for growth. A transition is being made to an increasingly competitive market and this is reflected in falling prices and, as would be expected in a competitive market, a wider variety of pricing options for users. Experience suggests that, over time, the forces already in play in the Australian market will continue to improve the broadband pricing available. This will almost certainly be the case if independent ISPs continue to increase their market share, such that Telstra and Optus are forced to improve their price performance ratios. In the period between the collection of data, and February 2004, Telstra undertook extensive price restructuring including substantial reductions in price and the introduction of an unlimited offer.<sup>6</sup>

**Table 1. Broadband prices in Australia, October 2003**

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
<b>Incumbent</b>										
Telstra - Big Pond	ADSL	256/64	256/64	39.02	44.46	500	0.10	0.12	83.96	95.68
Telstra - Big Pond	ADSL	512/128	512/128	50.08	57.07	1 000	0.10	0.11	83.96	95.68
Telstra - Big Pond	ADSL	1 500/256	1 500/256	117.12	133.47	5 000	0.08	0.09	83.96	95.68
Telstra - Big Pond	Cable Modem	500MB Residential	Uncapped/128	35.76	40.76	500	0.10	0.12	123.01	162.36
Telstra - Big Pond	Satellite 1 way	1 way Giga Sat	400/56.6 (a)	60.49	68.94	3 000	0.17	0.20	142.47	295.93
Telstra - Big Pond	Satellite 2 way	2 way Blast Off	256	94.37	107.55	300	0.12	0.14	259.68	295.93
<b>Independent ISP Access using Incumbent Local Loops</b>										
iiNet	ADSL	blink 256 Lite	256/64	32.51	37.05	2 000	72kbps Cap	72kbps Cap	64.43	73.43
iiNet	ADSL	blink 256	256/64	39.02	44.46	5 000	72kbps Cap	72kbps Cap	64.43	99.00
iiNet	ADSL	blink 512	512/128	52.03	59.30	16 000	72kbps Cap	72kbps Cap	64.43	99.00
iiNet	ADSL	blink 1 500	1 500/256	97.59	111.22	22 000	72kbps Cap	72kbps Cap	64.43	99.00
<b>Alternative Infrastructure</b>										
Optus	Cable Modem	Lite 550MB (Choice 4)	Unspecified	35.76	40.76	550	28kbps Cap	28kbps Cap	129.52	147.60
Optus	Cable Modem	Standard 3GB (Choice 4)	Unspecified	45.53	51.88	3 000	28kbps Cap	28kbps Cap	129.52	147.60
Alpha Link Wireless	Fixed Wireless	Plan 1	2 048	20.01	22.81	10 000	0.06	0.07	214.77	244.76
Alpha Link Wireless	Fixed Wireless	Plan 2	2 048	26.85	30.59	13 500	0.06	0.07	214.77	244.76
Alpha Link Wireless	Fixed Wireless	Plan 3	2 048	41.16	46.91	20 500	0.06	0.07	214.77	244.76

Note: (a) Dial-up connection is used for uploading.

Source: OECD.

### **Austria**

Telekom Austria has one of the most diverse ranges of prices for DSL services in the OECD. Subscribers to Telekom's DSL can select to pay by time, data transfer or unmetered options. The services aimed at residential users are not differentiated by speed. Accordingly, while the prices vary the capacity of the connection is set at 768 kbps downstream and 128 kbps upstream (Table 2). Telekom makes the same capacity available at the wholesale level so that resellers of the DSL service, such as Tiscali and Inode, also offer retail services at the same speed.

Telekom Austria's baseline DSL product includes 500 Megabytes for USD 34 per month. Users could also opt for time-based DSL service that included 30 hours, with the same connection speed, for USD 40 per month. Under this option additional time is charged by the minute at peak and off-peak rates. Telekom Austria's unmetered offer was USD 68 per month. Telekom Austria also has a range of asymmetrical and symmetrical DSL service up to 2 Mbps available aimed at professional or business users.<sup>7</sup>

At end June 2003, Telekom Austria supplied DSL service to 214 900 connections. Some 81% of these connections were retail and 19% wholesale. This balance had changed from 84% retail and 16% wholesale in June 2002. The change in market share is most likely due to resellers offering packages that are more attractive than those of the incumbent. Inode, for example, offers a retail DSL service for USD 28 per



month with a one Gigabyte data allowance. Tiscali's offer for the same package has a higher baseline price but a lower charge for additional data transfer.

Telekom Austria's wholesale price meters the data transferred by ISP subscribers. This is in contrast, for example, to Telstra's wholesale local loop access offer where data is not metered. In addition it is necessary to note that each byte, upstream and downstream, is counted toward the overall charge for all ISPs using the wholesale offer and for Telekom Austria's own retail offers. Independent ISPs in Austria also use unbundled local loops to offer DSL services. ISPs such as Inode, using this method of access, offer higher speed DSL access up to 2 Mbps.

UPC operates the largest cable television network in Austria and was the largest provider of retail broadband access in June 2003. At that time UPC had 191 000 subscribers. One of the reasons that cable had been growing faster than DSL in Austria was that UPC's baseline and premium offers had higher speeds than Telekom Austria's DSL service. Accordingly, during 2003, Telekom Austria raised their baseline DSL offer from 512/64 kbps to 768/128 kbps by way of a competitive response. The other advantage cable modem service still has over DSL, for some users, is that it provides the least expensive unmetered broadband access in Austria.

One further feature of broadband pricing is worthy of note. The accompanying law to the 2003 Austrian Government budget, contained a provision that the costs of a subscriber's first broadband Internet access (installation and monthly rental) per year could be claimed as tax deduction. The offer is limited to a maximum total of USD 580 and is available from May 2003 to December 2004. Interestingly the offer only applies to 'always-on connections' such that the DSL offer which is time based does not qualify.

**Table 2. Broadband prices in Austria, October 2003**

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
<b>Incumbent</b>										
Telekom Austria	ADSL	AonSpeed 500MB	768/128	33.84	32.83	500	0.08	0.08	49.26	47.78
Telekom Austria	ADSL	AonSpeed 1GB	768/128	45.16	43.81	1 000	0.08	0.08	49.26	47.78
Telekom Austria	ADSL	AonSpeed Freetime	768/128	67.80	65.77	Unlimited	0.00	0.00	49.26	47.78
<b>Independent ISP Access using Incumbent Local Loops</b>										
Tiscali	ADSL	Tiscali ADSL private	768/128	40.74	39.51	1 000	0.06	0.05	0.00	0.00
Inode	ADSL	adsl starter	768/128	28.18	27.34	1 000	0.07	0.07	49.28	47.80
Inode	ADSL	adsl small	768/128	37.35	36.23	2 500	0.08	0.07	49.28	47.80
Inode	ADSL	xdsl@home	1 024/256	55.46	53.80	15 000/Unlimited (a)	0.00	0.00	89.42	86.74
Inode	ADSL	xdsl@home	2 048/256	100.74	97.72	20 000/Unlimited (a)	0.00	0.00	89.42	86.74
<b>Alternative Infrastructure</b>										
UPC Telekabel	Cable Modem	Chello (plus One Classic)	600/128	48.67	47.21	Unlimited	0.00	0.00		
UPC Telekabel	Cable Modem	Chello (plus One Plus)	1 024/128	71.31	69.17	Unlimited	0.00	0.00	112.05	108.70

Note: (a) Unlimited at off-peak time between 9 p.m.-7 a.m.

Source: OECD.

## Belgium

Driven by strong competition between DSL and cable modem providers, Belgium has among the highest availability of broadband access in the OECD. Strong competition is also reflected in the high baseline speeds on offer for both DSL and cable modem service. Belgacom, the incumbent telecommunication carrier provides a DSL service at 3 Mbps to 98% of the company's subscriber lines. The price for this service is just over USD 45 per month (Table 3). This is the highest baseline capacity offer by an incumbent operator in Europe.

There are a number of independent ISPs reselling Belgacom's DSL service. Tiscali offers the same level of service as Belgacom but at the lower price of USD 40 per month. Scarlet's pricing is comparable with Belgacom but with higher capacity connections (*i.e.* 3.3 Mbps downstream and 384 Mbps upstream compared to 3 Mbps and 128 Mbps respectively).

Although not as high as in Asia, Belgium is a leader in Europe in terms of the baseline speeds that are available from the incumbent operator and consequently so are the connections of independent ISPs, where they resell Belgacom's wholesale offer. It is true that some independent ISPs provide higher speed DSL services in other countries, such as Bostream in Sweden, but they tend to be in more limited geographical regions.

**Table 3. Broadband prices in Belgium, October 2003**

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
<b>Incumbent</b>										
Belgacom	ADSL	ADSL Skynet Go	3 000/128	44.75	42.40	10 000	0.001(a)	0.001(a)	78.10	73.99
Belgacom	ADSL	ADSL Skynet Plus	3 000/196	61.58	58.35	15 000	0.001(a)	0.001(a)	78.10	73.99
<b>Independent ISP Access using Incumbent Local Loops</b>										
Tiscali	ADSL		3 000/128	39.62	37.53	10 000			0.00	0.00
Scarlet	ADSL		3 300/384	44.70	42.35	10 000			0.00	0.00
<b>Alternative Infrastructure</b>										
Telenet	Cable Modem		4 000/128	47.48	44.98	10 000			45.27	42.89
UPC Belgium	Cable Modem	Chello Classic	1 024/128	51.91	49.18	Unlimited	0.000	0.000	56.54	53.56
UPC Belgium	Cable Modem	Chello Plus	1 536/128	62.20	58.93	Unlimited	0.000	0.000	56.54	53.56
Coditel	Cable Modem	Coditel.net	4 000/128	40.75	38.60	15 000	0.001(b)	0.001(b)	84.89	80.43

Notes:

(a) Belgacom offers a packaged additional data transfer allowance of 5 Gigabytes for USD 5.66.

(b) Coditel automatically charges USD 9.05 for an additional package of 10 Gigabytes over the monthly allowance.

Source: OECD.

The reason for Belgium's leading performance in Europe is clearly related to the competition applied by cable modem services. Belgium has amongst the highest penetration of cable television service and these networks were rapidly upgraded to provide cable modem service. To attract subscribers the cable companies launched high speed broadband connections. Telenet, for example, offers a 4 Mbps downstream connection for just over USD 47 per month. This level of service forced the DSL providers to increase the performance of their baseline offers. Although there are caps on data transfer, at 10 Gigabytes these are relatively generous in comparison with other OECD countries with a similar pricing structure. The rate for

additional Gigabytes is also relatively inexpensive at USD 5.66 per 5 Gigabytes (*i.e.* 0.001 per Megabyte). More importantly there is a wide choice such that cable companies such as UPC provide an unlimited service for users preferring that pricing model. The connection speed for that offer is at 1 Mbps which is still relatively high compared to baseline offers in other European countries. Overall the level of pricing in Belgium appears to be amongst the most competitive in the OECD with DSL prices heading toward USD 40 for 3 Mbps access together with a range of pricing options.

### **Canada**

Competition between cable and DSL has been the primary driver responsible for Canada having the second highest broadband access penetration in the OECD. This competition is reflected in several respects. Canadian companies were among the first to launch broadband services, prices are relatively low and baseline broadband speeds are relatively high.

One of the least expensive baseline offers from a major Canadian telecommunication carrier is the 1.5 Mbps service, provided by Telus, at just under USD 27 per month (Table 4). This offer includes 6 Gigabytes of data transfer. Alternatively, Bell Canada offers a DSL service at 1 Mbps for USD 34 per month which is an unlimited offer. For the same price, a Telus user could also select a 2.5 Mbps service with 10 Gigabytes of data transfer. The offers by the two largest carriers have differences in capacity, data transfer and price. Part of the pricing difference results from Bell Canada including a modem rental in the monthly price whereas the Telus customers can purchase their own modem.

One of the best offers from a cable company is for Cogeco's 3 Mbps service at just under USD 31 per month with 15 Gigabytes of data transfer. Roger's baseline broadband cable offer, which provides unlimited service, is more comparable to that for Bell Canada's 1 Mbps DSL service, albeit at the higher speed of 1.5 Mbps. Canada also has a very strong emerging wireless ISP (WISP) sector particularly in rural areas. The prices shown are for a small number of WISPs serving urban and small communities in rural areas with fixed wireless infrastructure. While some of these offers have relatively low caps for data transfer, compared with DSL and cable in Canada, they do provide relatively high speed access at low prices. Gulf Islands Wireless, for example, provides broadband access up to 11 Mbps for USD 23 per month with a 1 Gigabyte download cap. For a similar price PRiS provides a symmetrical 2.5 Mbps service with a 1 Gigabyte guideline limit. The latter policy states that PRiS may, at its discretion, with adequate warning, impose a charge on data transfer in excess of 1 Gigabyte per month. This cost is currently USD 7 per Gigabyte (*i.e.* USD 0.07 per Megabyte) for each Gigabyte in excess of 6 Gigabytes per month.

The lowest price in Canada for DSL or cable modem service is only at 128 kbps. The price of this service is comparable to those for dial-up. The reasons for the existence of this speed are themselves an outcome of competition. Services at 128 kbps were introduced by cable companies to entice customers, who were not willing to pay significantly higher amounts for broadband Internet access or were looking to make a saving by giving up the need for a second residential line, away from dial-up ISPs. The situation has come about because cable companies in Canada, for the most part, do not offer telephony services. In other countries, where cable companies offer telephony they generally also offer dial-up services, they have either not offered 128 kbps or not offered the service at prices comparable to dial-up. The reason being, of course, that it would otherwise cannibalise their revenue from dial-up and second lines.

Faced with competition from the cable companies for their dial-up customers, some of the Canadian telecommunication carriers have responded with 128 kbps at prices close to those for dial-up. Indeed, a customer giving up a second line and dial-up ISP, in favour of a 128kbps DSL service would make a considerable saving. By way of contrast, in those few other countries where 128 kbps DSL or cable services are on offer, they tend to be priced significantly higher than dial-up.

**Table 4. Broadband prices in Canada, October 2003**

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
<b>Incumbent</b>										
Bell Canada	ADSL	DSL Basic	128/64	22.97	27.02	2 000			19.18	22.56
Bell Canada	ADSL	High Speed	1 024/320	26.81	31.53	Unlimited	0.00	0.00	0.00	0.00
Bell Canada	ADSL	High Speed Ultra	3 072/640	45.98	54.09	Unlimited	0.00	0.00	19.18	22.56
Telus	ADSL	High speed Internet	1 500/512	26.81	31.53	6 000			0.00	0.00
Telus	ADSL	Enhanced high speed Internet	2 500/640	34.48	40.56	10 000			0.00	0.00
<b>Independent ISP Access using Incumbent Local Loops</b>										
DSL.ca	ADSL	1.2mb Home User	1200	30.64	36.05	Unlimited	0.00	0.00	0.00	0.00
<b>Alternative Infrastructure</b>										
Rogers	Cable Modem	Hi-Speed Internet Lite	128/64	22.97	27.02	Unlimited	0.00	0.00	61.36	72.18
Rogers	Cable Modem	Hi-Speed Internet	1 500/192	34.48	40.56	Unlimited	0.00	0.00	61.36	72.18
Cogeco	Cable Modem	Hi Speed Internet Standard	3 000/400	30.64	36.05	15 000			0.00	0.00
Cogeco	Cable Modem	Hi Speed Internet Pro	5 000/640	49.82	58.60	30 000			0.00	0.00
Canopy	Fixed Wireless	Home and Small Office 101	2 500/1 000	38.31	45.07	11 000	0.12	0.14	0.00	0.00
Gulf Islands Wireless Networks	Fixed Wireless	GI Lite	11 000	23.00	27.06	1 000	0.12	0.14	0.00	0.00
Gulf Islands Wireless Networks	Fixed Wireless	GI Lite	11 000	30.67	36.08	2 000	0.12	0.14	0.00	0.00
PRiS	Fixed Wireless	Option B	2 500/2 500	21.51	25.30	1 000 to 6 000	0.07	0.08	189.96	223.46
PRiS	Fixed Wireless	Option A	2 500/2 500	28.67	33.73	1 000 to 6 000	0.07	0.08	107.53	126.49

Source: OECD.

**Czech Republic**

Cesky Telecom (CT), the incumbent operator, launched DSL services in the first quarter of 2003. As in a number of countries the initial prices were relatively high but the Czech market was also characterised by relatively low connection speeds. The initial speeds on offer were a baseline service at 192 kbps downstream and 64 Kbps upstream and a premium service at 320 kbps downstream and 128 kbps upstream. The Czech Telecommunication Office (CTU), based on benchmarking, determined that the rates charged by CT and independent ISPs, using CT's wholesale offer, were much higher than the baseline DSL prices in other European countries.<sup>8</sup> The Ministry of Informatics also called on CT to either boost the speed of DSL connections or cut connection prices.

In September 2003, CT increased their baseline offer from 192/64 kbps to 512/128 kbps.<sup>9</sup> Their premium service was increased from 320/128 kbps to 1 024/256 kbps. The prices for the service were held constant during this change at USD 49 and USD 85 respectively (Table 5). The cap on transferred data was set at 10 Gigabytes for the basic service and 20 Gigabytes for the premium service. By September 2003, some 21 independent ISPs offered DSL services in the Czech Republic. The independent ISPs buy the service from CT at a wholesale price of USD 34 per month. One of these ISPs, Tiscali, offers an unlimited baseline DSL service for USD 47 per month.

As at September 2003, the cable modem offers of the leading cable company in the Czech Republic still matched the connection speeds of the original CT DSL services. However, in response to the new CT DSL offers, UPC launched new cable modem Internet access services at the download speeds of 256 kbps, 512 kbps and 768 kbps in October 2003. UPC's 512 kbps offer is priced at USD 59 per month. There are also several fixed wireless providers in the Czech market but, to date, their services are mainly aimed at business users. Satellite service was available from Tiscali but prices were not available on their Web site.

Overall the incumbent's pricing in the Czech Republic is comparable with equivalent incumbents in several European countries. However competition is relatively new to the Czech market so the expectation would be that prices will decline in 2004. This should help to address the high cost that currently applies for Czech users, when the prices are considered in terms of purchasing power parities.

**Table 5. Broadband prices in the Czech Republic, October 2003**

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
<b>Incumbent</b>										
Czech Telecom	ADSL	IOL Broadband 192/64 (a)	192/64	48.98	94.84	Unlimited	0	0	35.94	69.60
Czech Telecom	ADSL	IOL Broadband 320/128 (a)	320/128	85.28	165.15	Unlimited	0	0	35.94	69.60
Czech Telecom	ADSL	IOL Broadband 512/128 (b)	512/128	48.98	94.84	10 000	0.0014	0.0028	35.94	69.60
Czech Telecom	ADSL	IOL Broadband 1024/256 (b)	1 024/256	85.28	165.15	20 000	0.0014	0.0028	35.94	69.60
<b>Independent ISP Access using Incumbent Local Loops</b>										
Tiscali	ADSL	TISCALI ADSL 192/64 (a)	192/64	47.16	91.33	Unlimited	0	0	54.10	104.76
Tiscali	ADSL	TISCALI ADSL 320/128 (a)	320/128	79.84	154.60	Unlimited	0	0	54.10	104.76
Tiscali	ADSL	TISCALI ADSL PRIMA (b)	512/128	47.16	91.33	Unlimited	0	0	54.10	104.76
Tiscali	ADSL	TISCALI ADSL PRIMA PLUS (b)	1 024/256	79.84	154.60	Unlimited	0	0	54.10	104.76
<b>Alternative Infrastructure</b>										
UPC	Cable Modem	Mistral Home (c)	128/96	37.34	72.32	Unlimited	0	0	0.00	0.00
UPC	Cable Modem	Mistral Speed (c)	320/96	51.17	99.10	Unlimited	0	0	0.00	0.00
UPC	Cable Modem	Chello Classic (d)	256/96	43.39	84.03	Unlimited	0	0	51.87	100.44
UPC	Cable Modem	Chello Plus (d)	512/128	59.47	115.17	Unlimited	0	0	51.87	100.44
UPC	Cable Modem	Chello Professional (d)	768/256	160.68	311.16	Unlimited	0	0	51.87	100.44
TELE2	Fixed Wireless		192	63.54	123.04	Unlimited	0	0	107.10	207.41
TELE2	Fixed Wireless		256	143.41	277.71	Unlimited	0	0	107.10	207.41
TELE2	Fixed Wireless		384	216.02	418.33	Unlimited	0	0	107.10	207.41

Notes:

- (a) Service was provided until 31 December 2003.
- (b) Service has been provided since 19 September 2003.
- (c) New customers were not accepted after 1 October 2003. Subscribers have been transferred to the Chello services.
- (d) Services have been available since 1 October 2003.

Source: OECD.

## Denmark

Denmark has a variety of broadband platforms and pricing packages available. TDC, the incumbent telecommunication carrier offers both DSL and cable modem services. In respect to DSL, TDC offers both metered and unmetered broadband access. The lowest price for an entry level service is USD 20.85 for a metered service (Table 6). Under this pricing option users pay USD 0.07 per Megabyte of data transfer. The cross over point, with the baseline unmetered DSL service occurs at 422 Megabytes. In other words a user transferring more than 422 Megabytes in any given month would be better off electing for the

unmetered service costing USD 52 per month. Both forms of pricing have their respective advantages, albeit the cross over point contains a relatively low amount of data and the price for unlimited access at 256 kbps at USD 52 per month is much higher than the OECD average. In December 2003 TDC announced that the company would change the DSL offerings for both residential and business customers by 1 January 2004. Residential customers would only be offered downstream speeds of 512 kbps and 2 048 kbps, respectively, whereas business customers, as a new feature, would be offered downstream speeds of 4 and 8 Mbps. The downstream categories 256 kbps and 1 024 kbps would no longer be offered for residential costumers. Existing customers with a 256 kbps connection would automatically be upgraded to 512 kbps and customers with a 1 024 kbps connection will be upgraded to 2 048 kbps. TDC would at the same time lower the prices on 512 and 2 048 kbps services

TDC's baseline cable modem service, at USD 36 per month for an unlimited 256 kbps service, is much less expensive than their DSL service. It is relatively unusual for a telecommunication carrier offering both services to make one far less expensive than the other. Where this occurs it is usually the result of greater competition for one platform than the other. The cable market in Denmark is for the most part made up of regional networks which do not overlap (*i.e.* in some areas TDC owns both readily available platforms). There is, however, a degree of competition as in some regions housing associations with their own local access networks can choose an upstream cable provider. The other large cable network is owned by TeliaSonera (Telia Stofa). Telia Stofa has one entry level service for USD 7.50. However this option only includes 50 Megabytes with each additional Megabyte costing USD 0.15. The cross over point with Telia Stofa's baseline unmetered service occurs at just 250 Megabytes. Telia Stofa's metered option is aimed at users with a very low usage levels who want to replace dial-up.

A range of other offers are available in the Danish market. Some independent ISPs, such as Cybercity, using unbundled local loops, offer much higher speed DSL services than TDC. Cybercity has DSL offers ranging up to 8 Mbps. The availability of DSL services, higher than 2 Mbps through independent ISPs, occurred for the first time in 2003. However, the prices are relatively high (*e.g.* USD 455 for 8 Mbps) and aimed at business users as a possible replacement for local leased lines. Sonofon offers a fixed wireless broadband service but this is also aimed mainly at business users. Ethernet LAN broadband access services are also available (Box 1).

Overall the pricing structures in Denmark have produced mixed results. On the one hand Denmark has among the highest penetration for broadband access in Europe. On the other hand individual DSL baseline services are either relatively low speed or expensive for the level of service on offer. This is particularly the case in respect to metered service options, if they are used for anything more than as a simple replacement for dial-up. For a user wanting to replace dial-up with an always on e-mail service, limited Web browsing at higher speeds and almost no use of applications requiring higher levels of data transfer the metered pricing structures available have obvious advantages and are low cost alternatives. For users wanting to use applications requiring higher amounts of data transfer and requiring greater connection speeds, Danish prices are relatively expensive. The contrast to pricing in Belgium, where there is strong competition between DSL and cable, is worth noting. Belgium matches the Danish take-up of broadband but baseline speeds of 3 Mbps are on offer for prices that are comparable or less than Danish users pay for unmetered services at 256 kbps.

Table 6-1. Broadband prices in Denmark, October 2003

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
<b>Incumbent</b>										
TDC	ADSL		256/128	20.85	16.60	0	0.07	0.06	36.75	29.27
TDC	ADSL		256/128	52.49	41.81	Unlimited	0.00	0.00	36.75	29.27
TDC	ADSL		512/128	65.24	51.96	Unlimited	0.00	0.00	36.75	29.27
TDC	ADSL		1 024/256	80.24	63.91	Unlimited	0.00	0.00	36.75	29.27
TDC	ADSL		2 048/512	117.74	93.77	Unlimited	0.00	0.00	36.75	29.27
TDC Kable TV	Cable Modem		256/64	35.85	28.55	Unlimited	0.00	0.00	104.24	83.02
TDC Kable TV	Cable Modem		512/128	50.84	40.50	Unlimited	0.00	0.00	104.24	83.02
TDC Kable TV	Cable Modem		1 024/128	65.84	52.44	Unlimited	0.00	0.00	104.24	83.02
TDC Kable TV	Cable Modem		1 024/256	82.34	65.58	Unlimited	0.00	0.00	104.24	83.02
TDC Kable TV	Cable Modem		2 048/128	80.84	64.39	Unlimited	0.00	0.00	104.24	83.02
TDC Kable TV	Cable Modem		2 048/512	112.34	89.47	Unlimited	0.00	0.00	104.24	83.02
TDC Kable TV	Cable Modem		4 096/256	125.84	100.22	Unlimited	0.00	0.00	104.24	83.02
<b>Independent ISP Access using Incumbent Local Loops</b>										
Tiscali	ADSL	256/256	256/256	44.25	35.24	Unlimited	0.00	0.00	0.00	0.00
Tiscali	ADSL	512/128	512/128	64.49	51.37	Unlimited	0.00	0.00	0.00	0.00
Tiscali	ADSL	512/512	512/512	86.24	68.69	Unlimited	0.00	0.00	0.00	0.00
Tiscali	ADSL	1 024/512	1 024/512	101.99	81.23	Unlimited	0.00	0.00	0.00	0.00
Tiscali	ADSL	2 048/512	2 048/512	112.49	89.59	Unlimited	0.00	0.00	0.00	0.00
Cybercity	ADSL	384/384	384/384	59.39	47.30	Unlimited	0.00	0.00	0.00	0.00
Cybercity	ADSL	512/512	512/512	71.39	56.86	Unlimited	0.00	0.00	0.00	0.00
Cybercity	ADSL	1 024/256	1 024/256	71.39	56.86	Unlimited	0.00	0.00	0.00	0.00
Cybercity	ADSL	4 000/768	4 096/768	227.97	181.57	Unlimited	0.00	0.00	0.00	0.00
Cybercity	ADSL	8 000/768	8 192/768	455.95	363.14	Unlimited	0.00	0.00	0.00	0.00
<b>Alternative Infrastructure</b>										
Telia Stofa	Cable Modem	FlatRate 256/128	256/128	44.85	35.72	Unlimited	0.00	0.00	37.35	29.74
Telia Stofa	Cable Modem	FlatRate 512/128	512/128	63.74	50.77	Unlimited	0.00	0.00	37.35	29.74
Telia Stofa	Cable Modem	FlexRate A (a)	1 024/128	7.50	5.97	50	0.15	0.12	37.35	29.74
Telia Stofa	Cable Modem	FlexRate B (a)	1 024/128	45.00	35.84	5 000	0.015	0.012	37.35	29.74
SONOFON	Fixed Wireless	SONOFON Bredband	512/512	65.43	52.11	Unlimited	0.01	0.01	118.79	94.61
SONOFON	Fixed Wireless	SONOFON Bredband	1 024/512	79.34	63.19	Unlimited	0.00	0.00	118.79	94.61
SONOFON	Fixed Wireless	SONOFON Bredband	2 048/512	119.84	95.44	Unlimited	0.00	0.00	118.79	94.61
SONOFON	Fixed Wireless	SONOFON Bredband PRO	2 048/1024	449.95	358.37	Unlimited	0.00	0.00	118.79	94.61

**Table 6-1. Broadband prices in Denmark, October 2003  
(cont'd)**

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
SONOFON	Fixed Wireless	SONOFON Bredband PRO	4 096/2 048	806.16	642.07	Unlimited	0.00	0.00	118.79	94.61
Redspot	Fixed Wireless	Redspot@Home Basis	128/128	7.35	5.85	Unlimited	0.00	0.00	89.24	71.08
Redspot	Fixed Wireless	Redspot@Home Basis	256/128	29.85	23.77	Unlimited	0.00	0.00	89.24	71.08
Redspot	Fixed Wireless	Redspot@Home Full	512/256	37.35	29.74	Unlimited	0.00	0.00	89.24	71.08
Redspot	Fixed Wireless	Redspot@Home Full	1 024/384	59.84	47.66	Unlimited	0.00	0.00	89.24	71.08
Redspot	Fixed Wireless	Redspot@Home Full	1 536/384	67.34	53.64	Unlimited	0.00	0.00	89.24	71.08
Redspot	Fixed Wireless	Redspot@Home Full	2 048/512	74.84	59.61	Unlimited	0.00	0.00	89.24	71.08
NVE	FTTH	FTH Internet	2 000	59.24	47.18	Unlimited	0.00	0.00	749.92	597.28
NVE	FTTH	FTH Internet	10 000	104.24	83.02	Unlimited	0.00	0.00	749.92	597.28

Note: (a) In cases where users use data transfer up to 300 MB per month, FlexRate A is applied. In cases where users use more than 300 MB per month, FlexRate B is applied.

Source: OECD.

#### **Box.1 Access prices for Ethernet LAN connections in building associations**

Denmark also has a range of prices for users living in apartments (Table 6.1). An increasing number of Danish households in building associations (multi-tenant units) are sharing broadband connections through a local access network (Ethernet LAN). Currently more than 35 000 households in multi-tenant units share a broadband connection (primarily using optical fibre, Fixed Wireless Access (FWA) and ADSL/SHDSL) through in-house wiring.

The majority of the LANs are owned by building associations. Billing and technical support are also handled by building associations, in many cases independently of the ISP that supports the broadband connection to buildings. Speeds typically range from a base level of ADSL and cable modem services of 256 to 512 kbps up to 2 to 10 Mbps. The monthly payment for a shared broadband connection in a building association varies – largely dependant on the size of a building association. Building associations often work together to achieve a “critical mass” and lower access prices with service providers.

The access prices for Ethernet LAN connections in building associations are often significantly lower compared to individual ADSL subscriptions via fixed PSTN lines or cable modem services via CATV.



**Table 6-2. Some example of prices for Ethernet LAN connections in building associations in Denmark, October 2003**

Company	Access Type	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
			in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Dansk Bredbånd	Fibre/LAN	10 000/10 000	44.25	35.24	Unlimited	0.00	0.00	74.24(a)	59.13
Bryggenet	Fixed Wireless/LAN	512/384	9.75	7.76	Unlimited	0.00	0.00	18.75	14.93
Bryggenet	Fixed Wireless/LAN	2 000/2 000	20.25	16.13	Unlimited	0.00	0.00	18.75	14.93
Brøndby Strand Net	Fibre/LAN	512/512	10.50	8.36	Unlimited	0.00	0.00	37.50	29.86

Source: OECD.

### *Finland*

The most striking feature of the Finnish market for broadband access is the shared access model which has emerged in high density urban areas. The movement was started by small ISPs or owners of apartment buildings purchasing a high speed broadband connection and then sharing the connection among users in that building via a local area network. This phenomenon may have developed in Finland because connections to individual dwellings are relatively expensive. Accordingly, to understand this development and the prices users actually pay, a brief background explanation is necessary.

Finland has a number of incumbent telecommunication carriers that historically served different regions of the country. The two largest incumbents are Elisa and TeliaSonera. Following liberalisation all players have been, of course, free to enter each others markets. Elisa's traditional region included Helsinki and surrounding areas. In September 2003, Elisa's baseline price to serve an individual dwelling via DSL was USD 55 per month (Table 7). One distinctive feature of this offer was that the upstream and downstream capabilities were both set at 512 kbps. TeliaSonera, whose traditional area included rural regions, had a similar price but for a symmetrical service running at 256 kbps. Higher capacity offers were available from both these carriers albeit at significantly higher prices.

At first glance the price and performance ratios available in Finland suggest that the market is not very competitive. This is unusual as the Finnish telecommunications market is generally viewed as being one that is highly competitive and generally has low prices. In fact the market in Finland is more competitive than it seems if the shared access model is taken into consideration. As noted, the model was introduced by small ISPs purchasing relatively expensive DSL connections and then sharing these connections among the people living in that building. At first this was resisted by the incumbent telecommunication carriers but as these services became popular, and regulators deemed them legal, they introduced their own versions of shared services. For example, whereas an individual user might pay USD 54 for a 256 kbps connection a building might acquire a 2 Mbps connection for USD 46. Users in that building then share the 2 Mbps connection, and only pay part of the total monthly price.

In most cases the prices shown for Finland are for buildings. By way of example, one shared access model is shown with the prices and speeds available to individual users. Auria is the case in point. Here six Auria users share a 1 Mbps connection. While the actual speeds would vary, for the sake of example, they each receive an average speed of 171 kbps and pay less than USD 8 per month.

In summary, the market in Finland can be said to be split into two different segments. For users in high density areas willing to share high speed connections extremely low prices are available. On the other hand, prices are relatively high for individual dwellings. Indeed, there may be resistance by the carriers to lower overall prices to connect a building if that connection is then shared. In these instances carriers are

forced by competition to offer their own service tailored to apartment buildings rather than see someone else offer that service.

The pricing model that has emerged in Finland raises a number of questions. One possibility is that the availability of shared connections for apartment buildings will hasten an already evident trend in Finland for users to give up their individual fixed PSTN line in favour of a mobile phone. In other countries the requirement to keep an individual line to enable DSL acts against that trend. A further question is whether increased competition will emerge to serve individual dwellings where users currently pay relatively high prices. The development of Wireless LANs will, of course, make it feasible for individual dwellings in reasonably close proximity to share DSL connections.

**Table 7. Broadband prices in Finland, October 2003**

Company	Access Type	Plan	Speed (kbps) for a building	Speed (kbps) for a user	Monthly Charge for a building		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
					in USD	In USD PPP		in USD	in USD PPP	in USD	in USD PPP
<b>Incumbent</b>											
TeliaSonera	ADSL		N/A (a)	256/256	54.33	48.56	Unlimited	0.00	0.00	146.01	130.50
TeliaSonera	ADSL		N/A (a)	512/512	77.78	69.52	Unlimited	0.00	0.00	146.01	130.50
TeliaSonera	ADSL		N/A (a)	1 024/512	126.01	112.62	Unlimited	0.00	0.00	146.01	130.50
TeliaSonera	ADSL		N/A (a)	2 048/512	173.34	154.93	Unlimited	0.00	0.00	146.01	130.50
TeliaSonera	ADSL	shared apartment access	2048	256	46.41	41.48	Unlimited	0.00	0.00	28.30	25.29
TeliaSonera	ADSL	shared apartment access	2048	512	55.46	49.57	Unlimited	0.00	0.00	28.30	25.29
Elisa	ADSL		N/A (a)	512/512	55.46	49.57	Unlimited	0.00	0.00	142.61	127.46
Elisa	ADSL		N/A (a)	1 024/384	84.89	75.87	Unlimited	0.00	0.00	142.61	127.46
Elisa	ADSL		N/A (a)	2 048/512	135.82	121.39	Unlimited	0.00	0.00	142.61	127.46
Elisa	ADSL		N/A (a)	4 096/512	441.43	394.52	Unlimited	0.00	0.00	142.61	127.46
Elisa	ADSL	shared apartment access	1024	256	46.41	41.48	Unlimited	0.00	0.00	56.59	50.58
<b>Independent ISP Access using Incumbent Local Loops</b>											
Saunalahti	ADSL		N/A (a)	512/512	55.46	49.57	Unlimited	0.00	0.00	181.10	161.85
Saunalahti	ADSL		N/A (a)	1 024/512	64.52	57.66	Unlimited	0.00	0.00	181.10	161.85
Saunalahti	ADSL		N/A (a)	2 048/512	109.79	98.12	Unlimited	0.00	0.00	181.10	161.85
Saunalahti	ADSL		N/A (a)	4 096/512	226.37	202.32	Unlimited	0.00	0.00	181.10	161.85
Auria	ADSL	shared apartment access	1024 (b)	171(b)	7.55(b)	6.74(b)	Unlimited	0.00	0.00	56.59	50.58
Helsingin Samtele	ADSL	shared apartment access	2048	1 024	47.54	42.49	Unlimited	0.00	0.00	0.00	0.00
Oulun puhelin	ADSL	shared apartment access	10 000-100 000	10 000	45.16	40.36	Unlimited	0.00	0.00	90.44	80.83
Suomi Communications	ADSL	shared apartment access	60000	1 024	28.30	25.29	Unlimited	0.00	0.00	141.48	126.45
<b>Alternative Infrastructure</b>											
HTV	Cable Modem	welho 525	N/A (a)	525/200	55.46	49.57	Unlimited	0.00	0.00	56.59	50.58

Notes:

(a) Not Applicable.

(b) This shared apartment access is shared by six users.

Source: OECD.

## *France*

By September 2003, broadband access prices in France were considerably reduced from those that existed a year previously. This was the result of increasing competition on two fronts. In those regions of France where independent cable companies operate, increasingly competitive prices began to emerge for cable modem service. In Paris, for example, Noos launched a range of very inexpensive broadband services. If taken together, for example, with cable television a user could receive a 640 kbps downstream service for USD 23 per month (Table 8). The standalone price for the same service, if taken without cable television was USD 34 per month.

As in Canada, France's cable companies did not have a very large pre-existing share of the dial-up market. To reach that segment of the market wanting an always-on replacement for dial-up, albeit at sub-broadband speeds, Noos launched a USD 11 (with cable television) or USD 23 (without cable television) service at 160 kbps. At the same time, a number of independent ISPs began reselling France Telecom's wholesale DSL offer at lower prices and at different speeds. Tiscali for, example, launched a sub-broadband offer of 128 kbps, for USD 23, aimed at the same segment of the market Noos was endeavouring to reach.

A number of other independent ISPs chose to launch offers that were either at the same speed as those of the incumbent but at a dramatically lower price or charge similar prices but increase the level of service being offered. Free, an independent French ISP, launched a 512 kbps offer for USD 34 per month. This was at a time when the incumbent operator, France Telecom, charged USD 51 for the same service. By way of contrast, Tiscali offered at 1 Mbps service but at a price closer to that for France Telecom's 512 kbps service. Competition was also emerging from new entrants in the broader telecommunications market. One such company, 9Telecom, offers DSL access at 512 kbps for USD 26 or 1 Mbps for USD 31 if taken as a bundle with telephony.

France Telecom has adopted a range of measures aimed at responding to the pricing initiatives of independent providers. A sub-broadband offer of 128 kbps was placed into the market for USD 34 per month. Price reductions were also made available to the 512 kbps and 1 Mbps service for new and existing users if they were prepared to commit to long term contracts. New customers needed to commit for two years to receive the discount. Existing customers, of more than one year duration, were required to commit for a further 12 months. In addition France Telecom offered reduced rates for the first four months of service. If customers did not commit to longer term contracts prices were held the same.

Even at the reduced rates there was a considerable difference between the prices of the incumbent and those of independent ISPs. While there is generally a difference between incumbents and competitors, it would appear that France Telecom's brand recognition or quality of service (albeit connection speeds which are higher for some independent offers) commands a larger margin in the French market than in most other countries. Between the period when the original data were collected and February 2004, France Telecom responded to competition by substantially lowering its prices. Alternative operators also substantially lowered prices and raised advertised performance levels. Some of the most inexpensive offers introduced in France, in February 2004, included those of 9Telecom. 9Telecom reduced the price for its 512 kbps service by 35% and introduced a 2 Mbps service for less than the previous price of the 512 kbps service.<sup>10</sup> Since October 2003, France Telecom has reduced the monthly charges of its ADSL offers. For example, the monthly charges with a two year contract were reduced by about 27% for the 128 kbps offer, about 34% for the 512 kbps offer and about 53% for the 1 028 kbps offer. The 1 024 kbps offer with a two year contract is priced at USD 39.90.

Table 8. Broadband prices in France, October 2003

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
<b>Incumbent</b>										
France Telecom	ADSL	eXtense 128	128	33.96	31.83	Unlimited	0.00	0.00	0.00	0.00
France Telecom	ADSL	eXtense fidélité (24 month commitment)	512/128	45.16	42.33	Unlimited	0.00	0.00	0.00	0.00
France Telecom	ADSL	eXtense 512	512/128	51.41	48.19	Unlimited	0.00	0.00	0.00	0.00
France Telecom	ADSL	eXtense fidélité (24 month commitment)	1 024/128	84.78	79.47	Unlimited	0.00	0.00	0.00	0.00
France Telecom	ADSL	eXtense 1024	1 024/128	90.55	84.88	Unlimited	0.00	0.00	0.00	0.00
<b>Independent ISP Access using Incumbent Local Loops</b>										
Tiscali	ADSL	ADSL Original 128k	128/64	22.64	21.22	Unlimited	0.00	0.00	112.05	105.04
Tiscali	ADSL	ADSL Maximal 1024k	1 024/128	45.27	42.44	Unlimited	0.00	0.00	112.05	105.04
Free	ADSL	Access Unlimited	512/128	33.94	31.82	Unlimited	0.00	0.00	0.00	0.00
9Telecom	ADSL	High Speed 512 (with Telephony Subscription)	512/128	26.03	24.40	Unlimited	0.00	0.00	0.00	0.00
9Telecom	ADSL	High Speed 1024 (with Telephony Subscription)	1 024/256	30.56	28.65	Unlimited	0.00	0.00	0.00	0.00
<b>Alternative Infrastructure</b>										
Noos	Cable Modem	Noosnet + 160k with Cable TV	160	11.21	10.50	Unlimited	0.00	0.00	33.84	31.72
Noos	Cable Modem	Noosnet + 640k with Cable TV	640	22.52	21.11	Unlimited	0.00	0.00	33.84	31.72
Noos	Cable Modem	Noosnet + 1280k with Cable TV	1 280	45.16	42.33	Unlimited	0.00	0.00	33.84	31.72
Noos	Cable Modem	Noosnet + 160k without Cable TV	160	22.52	21.11	Unlimited	0.00	0.00	33.84	31.72
Noos	Cable Modem	Noosnet + 640k without Cable TV	640	33.84	31.72	Unlimited	0.00	0.00	33.84	31.72
Noos	Cable Modem	Noosnet + 1280k without Cable TV	1 280	56.48	52.94	Unlimited	0.00	0.00	33.84	31.72

Source: OECD.

## Germany

The largest provider of DSL in Germany is Deutsche Telekom, the incumbent operator. Deutsche Telekom sells DSL connections (brand name T-DSL) and subscriptions from its own ISP (T-Online) as separate products. Prices for the DSL service are bundled together with the price applicable to a subscriber's line (*i.e.* the various tariff options for basic access lines or ISDN). The price for T-DSL can be derived by subtracting the applicable monthly line rental from the total charge for a DSL enabled line. Once a customer has T-DSL they then need to choose one of T-Online's tariff options or an independent ISP's Internet access service. In both cases they will be billed for the T-DSL product on their telephone account.

DSL tariffs in Germany have undergone significant changes in recent years. One reason for this was that during an investigation by the regulator on whether the price for T-DSL was anti-competitive, Deutsche Telekom raised the price for T-DSL. Further changes have occurred to the pricing as a result of the introduction of higher capacity services with different pricing structures. Deutsche Telekom's baseline offer for a 768 kbps service, with 1 Gigabyte per month of data transfer, is priced at USD 34 per month (Table 9). The same service with a flat rate tariff is just under USD 57. Deutsche Telekom's premium offer is for a 1.5 Mbps service. Under this option a customer can choose the service with 5 Gigabytes of data transfer for USD 62 per month or a flat rate for USD 147 per month. Satellite service is available everywhere in Germany, also including in areas where DSL is not provided. This service uses the PSTN for the upstream connection. Consumers pay the narrow-band ISP charge of their chosen ISP. Where the satellite link is used for downstream charges are additional to those for the ISP.

Table 9. Broadband prices in Germany, October 2003

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional cost per Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
<b>Incumbent</b>										
Deutsche Telecom	ADSL	T-Online dsl 1000 MB	768/128	33.89(a)	31.65(a)	1 000	0.02	0.02	0.00	0.00
Deutsche Telecom	ADSL	T-Online dsl flat	768/128	56.53(a)	52.80(a)	Unlimited	0.00	0.00	0.00	0.00
Deutsche Telecom	ADSL	T-Online dsl 5000 MB with T-DSL 1500	1 536/192	62.17(b)	58.08(b)	5000	0.02	0.02	0.00	0.00
Deutsche Telecom	ADSL	T-Online dsl flat 1500 (with T-DSL 1500)	1 536/192	147.06(b)	137.37(b)	Unlimited	0.00	0.00	0.00	0.00
Deutsche Telecom	Satellite	T-DSL via satellite basic with T-Online dsl 1000MB	768	33.89(c)	31.65(c)	500(d)	0.057(e)	0.052(e)	112.05	104.67
Deutsche Telecom	Satellite	T-DSL via satellite basic with T-Online dsl 5000MB	768	50.87(c)	47.51(c)	500(d)	0.057(e)	0.052(e)	112.05	104.67
Deutsche Telecom	Satellite	T-DSL via satellite basic with T-Online surftime 30	768	39.50	36.90	500(d)	0.057(e)	0.052(e)	112.05	104.67
Deutsche Telecom	Satellite	T-DSL via satellite pro with T-Online surftime 60	768	76.85	71.79	Unlimited(f)	0.00	0.00	112.05	104.67
<b>Independent ISP Access using Incumbent Local Loops (f)</b>										
Arcor	ADSL	Arcor-DSL flatrate 768	768/128	39.50	36.90	Unlimited	0.000	0.000	56.54	52.81
Arcor	ADSL	Arcor-DSL 768 volume 500	768/128	16.86	15.75	500	0.014	0.013	56.54	52.81
Arcor	ADSL	Arcor-DSL 768 volume 2000	768/128	22.52	21.04	2 000	0.014	0.013	56.54	52.81
QSC	ADSL	q-dsl home 2300	2 300/256	44.14	41.23	1 000	0.015	0.014	66.78	62.38
QSC	ADSL	q-DSL home	1 024/256	56.48	52.76	Unlimited	0.000	0.000	179.97	168.10
QSC	SDSL	q-DSL Max	2 300/2 300	112.05	104.67	1 000	0.019	0.018	0.00	0.00
<b>Alternative Infrastructure</b>										
PrimaCom	Cable Modem	free	1 024/256	0.00	0.00	0	0.10	0.10	0.00	0.00
PrimaCom	Cable Modem	start	128/64	11.26	10.52	500	0.02	0.02	0.00	0.00
PrimaCom	Cable Modem	easy	256/128	27.73	25.90	1 500	0.02	0.02	0.00	0.00
PrimaCom	Cable Modem	pro	1 024/256	44.14	41.23	Unlimited	0.00	0.00	0.00	0.00

Source: OECD.

Notes:

- (a) T-DSL charge of EUR 19.99 is added to ISP charges respectively.  
(b) T-DSL 1 500 charge of EUR 29.98 is added to ISP charges respectively.  
(c) T-Online dsl 1 000MB and 5 000MB were selected as internet connection options. Additional telecommunications charges will be added for uplink.  
(d) This monthly allowance is by T-DSL via Satellite. An additional monthly allowance of 1 000MB and 5 000MB by ISP (T-Online) is applied respectively.  
(e) An additional EUR 0.0159 per MB will be charged over the monthly allowance in each internet connection option.  
(f) This unlimited monthly allowance is by T-DSL via satellite.  
(g) There are also about 40 regional providers (e.g. city carrier) offering various DSL products based on incumbent local loops.

Independent ISPs such as Tiscali offer customers of T-DSL an alternative Internet access service. To make the pricing comparable with ISPs in other countries both the DSL and ISP charges are shown in the total that a customer would pay. Tiscali has several options including services that are metered by time, metered by data transfer and unmetered services. The ones considered here are those metered by data transfer and the unmetered options as they are comparable to the 'always-on' offers for other operators in Germany and in other countries. The volume option has as its base price the charge for T-DSL. Users are then charged USD 0.013 for each Megabyte downloaded. If, for example, a user downloaded 500 Megabytes in a month this additional charge to the base price would be USD 6.73 for an overall monthly charge of just over USD 29. Alternatively, a user might elect to pay just over USD 28 for the service which included 500 Megabytes in the base price. Tiscali also had a flat rate available for USD 41 per month for the 768 kbps service.

An alternative model is used by QSC. Instead of reselling T-DSL, QSC uses a combination of its own network facilities and unbundled local loops to provide its DSL service. Accordingly, QSC offers higher capacity services than available from T-Online or other ISPs reselling T-DSL. QSC also sells symmetrical digital subscriber line services (SDSL). QSC's price for a 1 Mbps unmetered service was USD 56 per month. Alternatively, a customer could choose a 2.3 Mbps service with one Gigabyte of data transfer for USD 44 per month. The symmetrical service at 2.3 Mbps was priced at USD 112 per month.

Cable modem services are available in some parts of Germany but to date have a very low take-up rate. Primacom is one of the larger cable television companies offering cable modem service. Primacom offers a range of options designed to compete against dial-up service and other broadband offers. One of the services aimed at replacing dial-up has a 1 Mbps downstream capacity with no fixed charge. Instead users pay USD 0.10 for each Megabyte downloaded. There is also a relatively inexpensive sub-broadband offer at 128 Kbps. Primacom also offers a 256 kbps service with 1.5 Gigabytes of data transfer for USD 28 per month and a faster unmetered service for USD 44 per month.

### *Greece*

In May 2003, the incumbent telecommunication provider OTE announced its first pricing plans for DSL services. Following two years of trials OTE then launched what it termed a 'commercial trial', in June 2003. At that stage service was only available in limited areas of the country.

In September 2003, OTE's baseline DSL service was priced at just under USD 59 per month for a 384 kbps downstream connection (Table 10). Higher speed services at 512 kbps and 1 Mbps were respectively priced at USD 100 and USD 194 per month. OTE's largest competitor is FORTHnet. In July 2003, FORTHnet launched its DSL service in limited areas. FORTHnet's baseline service at 256 kbps is priced at USD 49 per month. The company also has a 384 kbps offer which is priced at a similar level to OTE's service at the same speed. FORTHnet's higher speed services at 512 kbps and 1 Mbps were at a lower price than the incumbent but still relatively expensive compared to similar offers in other OECD countries.

FORTHnet and other ISPs resell OTE's wholesale DSL offer. Customers of FORTHnet can purchase DSL service as a bundled package (*i.e.* OTE's DSL line and FORTHnet's ISP). By way of contrast, several other ISPs ask their customers to purchase DSL separately from OTE and charge them only for the ISP service. A customer using this option would pay around USD 31 per month to OTE and a separate charge to the ISP of their choice.

**Table 10. Broadband prices in Greece, October 2003**

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
<b>Incumbent</b>										
OTEnet	ADSL	OnDSL HOME 384	384/128	58.88	72.37	Unlimited	0.00	0.00	0.00	0.00
OTEnet	ADSL	OnDSL HOME 512	512/128	100.17	123.13	Unlimited	0.00	0.00	0.00	0.00
OTEnet	ADSL	OnDSL HOME 1024	1 024/256	193.66	238.04	Unlimited	0.00	0.00	0.00	0.00
<b>Independent ISP Access using Incumbent Local Loops</b>										
FORTHnet	ADSL		256/128	48.53	59.65	Unlimited	0.00	0.00	0.00	0.00
FORTHnet	ADSL		384/128	57.53	70.71	Unlimited	0.00	0.00	0.00	0.00
FORTHnet	ADSL		512/128	88.15	108.35	Unlimited	0.00	0.00	0.00	0.00
FORTHnet	ADSL		1 024/128	171.62	210.95	Unlimited	0.00	0.00	0.00	0.00

Source: OECD.

## Hungary

Matav is the largest incumbent operator in Hungary and Vivendi's Invitel is a smaller regional incumbent. Both operators offer DSL access at 384 kbps, with unlimited data transfer, for the same price of just under USD 43 per month (Table 11). Invitel's 512 kbps offer is slightly less expensive than for Matav's equivalent service at 512 kbps.

Elender, an independent ISP, offers a range of DSL services from 384 kbps to 1.5 Mbps. For the baseline services Elender's prices are similar to those of the incumbents. Elender's 768 kbps service is priced at USD 107 per month and their 1.5 Mbps at USD 322 per month.

UPC operates the largest independent network providing broadband access in Hungary. UPC's cable modem service at 512 kbps with unlimited data transfer is priced at USD 47 per month. This price is comparable to the service offered by Invitel. UPC's cable modem service offering 768 kbps is, however, considerably less expensive than comparable DSL offers.

**Table 11. Broadband prices in Hungary, October 2003**

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
<b>Incumbent</b>										
Matav Axelero	ADSL	ADSL Hobbi	384/64	42.58	84.69	Unlimited	0.00	0.00	128.59	255.79
Matav Axelero	ADSL	ADSL OTTHON	512/128	51.18	101.80	Unlimited	0.00	0.00	128.59	255.79
Vivendi (Invitel)	ADSL	V-net ADSL residential 384	384/64	42.58	84.69	Unlimited	0.00	0.00	64.08	127.47
Vivendi (Invitel)	ADSL	V-net ADSL residential 512	512/128	47.31	94.10	Unlimited	0.00	0.00	85.58	170.24
<b>Independent ISP Access using Incumbent Local Loops</b>										
Elender	ADSL	eDSL Expressz 384	384/64	42.47	84.48	Unlimited	0.00	0.00	0.00	0.00
Elender	ADSL	eDSL Expressz 512	512/128	53.22	105.87	Unlimited	0.00	0.00	0.00	0.00
Elender	ADSL	eDSL Irodai 768	768/128	106.98	212.80	Unlimited	0.00	0.00	0.00	0.00
Elender	ADSL	eDSL Üzleti 1500	1 500/368	322.02	640.54	Unlimited	0.00	0.00	0.00	0.00
<b>Alternative Infrastructure</b>										
UPC - Chello	Cable Modem	Chello Classic	512/128	46.88	93.25	15000			0.00	0.00
UPC - Chello	Cable Modem	Chello Plus	768/256	68.77	136.79	20000			16.77	33.36

Source: OECD.

## Iceland

The most distinctive characteristic of broadband pricing in Iceland is the different treatment of domestic and international data transfer. Icelandic pricing packages for broadband access contain unmetered domestic traffic exchange. In other words if a user downloads content from a server located in Iceland or sends an e-mail to another Icelandic resident of this data transfer is included in a fixed monthly price. By way of contrast only a specific amount of international traffic is included each month in the fixed price. The reason for this model of pricing has been attributed to a lack of international cable capacity and a new international undersea cable is planned to address the current shortage.<sup>11</sup>

The incumbent operator in Iceland is Siminn (Iceland Telecom). Siminn's baseline broadband is priced at USD 48 for a 256 kbps connection (Table 12). This option includes unlimited domestic data transfer and an allowance of 100 Megabytes of international traffic. Additional international data transfer is priced at USD 0.03 per Megabyte. Siminn's 1.5 Mbps service is priced at USD 60 per month and a 2 Mbps service is available at USD 103 per month.

Siminn's largest competitor is Og vodafone (formerly Islandssimi). Og vodafone provides DSL services using both its own local loop infrastructure and by reselling Siminn's local loops. Og vodafone's baseline service starts at 512 kbps for USD 47 per month including unlimited domestic data transfer and 100 Megabytes of international traffic. Og vodafone also has a 1 Mbps offer for the same price.

**Table 12. Broadband prices in Iceland, October 2003**

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per International Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
<b>Incumbent</b>										
Siminn (Iceland Telecom)	ADSL	ADSL 256	256/128	47.91	40.45	Unlimited Domestic (100 International)	0.03	0.03	75.25	63.54
Siminn (Iceland Telecom)	ADSL	ADSL 256	256/128	72.75	61.42	Unlimited Domestic (1 000 International)	0.03	0.03	75.25	63.54
Siminn (Iceland Telecom)	ADSL	ADSL 1500	1 536/256	60.45	51.04	Unlimited Domestic (100 International)	0.03	0.03	75.25	63.54
Siminn (Iceland Telecom)	ADSL	ADSL 1500	1 536/256	85.29	72.01	Unlimited Domestic (1 000 International)	0.03	0.03	75.25	63.54
Siminn (Iceland Telecom)	ADSL	ADSL 2000	2 048/512	102.60	86.62	Unlimited Domestic (100 International)	0.03	0.03	75.25	63.54
Siminn (Iceland Telecom)	ADSL	ADSL 2000	2 048/512	127.43	107.59	Unlimited Domestic (1 000 International)	0.03	0.03	75.25	63.54
<b>Independent ISP Access using Incumbent Local Loops (c)</b>										
og vodafone	ADSL	ADSL II	512/256	47.03	39.71	Unlimited Domestic (100 International)	0.03	0.03	0.00	0.00
og vodafone	ADSL	ADSL II	512/256	71.49	60.36	Unlimited Domestic (1 000 International)	0.03	0.03	0.00	0.00
og vodafone	ADSL	ADSL IV	1 024/512	47.03	39.71	Unlimited Domestic (100 International)	0.03	0.03	0.00	0.00
og vodafone	ADSL	ADSL IV	1 024/512	71.49	60.36	Unlimited Domestic (1 000 International)	0.03	0.03	0.00	0.00

**Notes:**

(a) Users can choose options on monthly allowance of data transfer from 100 Mbytes, 500 Mbytes, 1 Gigabyte, 2 Gigabytes, 3 Gigabytes, 4 Gigabytes, 5 Gigabytes.

(b) Users can choose options on monthly allowance of data transfer from 100 MBytes, 500 MBytes, 1 Gigabyte.

(c) Og vodafone has its own infrastructure as well as reselling Siminn's local loops.

Source: OECD.



## *Ireland*

Eircom, the incumbent telecommunication carrier in Ireland, launched DSL service in 2002. The initial prices were extremely expensive and take-up of the service low. In April 2003, eircom reduced the price of its baseline service to USD 62 per month (Table 13). This rate includes 4 Gigabytes of data transfer with each additional Megabytes being priced at USD 0.041. In October 2003, eircom began offering residential customers a free connection, free modem and one month's free rental, in return for signing a 12 month contract. The initial period of this promotion was three months and then extended to the end of February 2004.

One aspect that sets eircom's DSL offers apart from most other incumbents in other countries is that only one speed is aimed at the residential market. While this occurs in a small number of other countries it is generally the case that the uniform speed is set at a relatively high rate (*e.g.* Belgacom's 3 Mbps service). At 512 kbps eircom's service is not the lowest speed available from incumbents but other operators tend to have a range of speeds available. In February 2004, eircom announced that it would reduce its broadband wholesale price by over 25% from March 2004 and introduce a range of broadband products starting at USD 45.

For services aimed at small and medium-sized enterprises eircom does not differentiate the service by capacity but by the amount of data transfer included and various connection options (*e.g.* additional ports for i-stream multi). Eircom are also running a second promotion aimed at small and medium-sized businesses (SMEs).<sup>12</sup> To qualify a customer must have an eircom technician install a broadband connection. The price of this installation is just under USD 226 whereas a residential customer, using the same product, under the promotion, could receive a free connection. The benefit for the business user is a monthly price that is 22% lower than that of the residential customer.

A number of fixed wireless broadband providers have emerged in the Irish market and most have begun by targeting services to business users. One example is Amocom which provides symmetrical higher capacity services than the incumbent. Another is Irish Broadband which also provides some symmetrical services and with lower prices than the incumbent. In both cases the fixed wireless service providers offer unlimited access for all home and business offers. The drawback with the fixed wireless providers is that their coverage areas are much less than eircom with initial deployments targeting areas with larger numbers of SMEs. This has contributed to eircom facing greater competition to serve SMEs than at present in residential markets. Since the second half of 2003 this is starting to change as the fixed wireless broadband providers expand their coverage and introduce prices aimed at residential users.

In those areas where cable modem service is available residential users have a choice of a higher capacity service at a lower price than the incumbent's baseline service. NTL for example offers a 600 kbps service with unmetered data transfer for just under USD 45 per month. NTL also has a sub-broadband offer at 150 kbps. After eircom, ISPs, such as EsatBT, reselling the incumbents wholesale DSL service had the greatest coverage for residential users. EsatBT differentiates its service by offering higher download caps at slightly lower fixed prices than the incumbent. For customers exceeding the 4 Gigabyte download cap, EsatBT's price could be considerably less expensive.

**Table 13. Broadband prices in Ireland, October 2003**

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
<b>Incumbent</b>										
eircom	ADSL	eircom i-stream starter (residential)	512/128	61.63	53.72	4000	0.041	0.036	0.00	0.00
eircom	ADSL	eircom i-stream starter (business)	512/128	47.93	41.78	4000	0.041	0.036	225.98	196.98
eircom	ADSL	eircom i-stream solo	512/128	121.89	106.25	6000	0.041	0.036	225.98	196.98
eircom	ADSL	eircom i-stream multi	512/128	190.37	165.94	10000	0.041	0.036	225.98	196.98
eircom	ADSL	eircom i-stream enhanced	512/128	231.45	201.75	Unlimited	0.000	0.000	225.98	196.98
<b>Independent ISP Access using Incumbent Local Loops</b>										
Esat BT	ADSL	IOL Broadband	512	56.02	48.83	8000	0.034	0.030	101.87	88.80
<b>Alternative Infrastructure</b>										
NTL	Cable Modem	Always-On 150	150	33.96	29.60	Unlimited	0.000	0.000	73.57	64.13
NTL	Cable Modem	Always-On 600	600/150	45.27	39.46	Unlimited	0.000	0.000	73.57	64.13
amocom	Fixed Wireless	Home	512/512	68.60	59.80	Unlimited	0.000	0.000	362.93	316.36
amocom	Fixed Wireless	Business 3	1 024/1 024	272.54	237.57	Unlimited	0.000	0.000	362.93	316.36
Irish Broadband	Fixed Wireless	Ripwave Home	512/128	33.96	29.60	Unlimited	0.000	0.000	135.82	118.39
Irish Broadband	Fixed Wireless	Breeze Home	512/512	39.62	34.53	Unlimited	0.000	0.000	168.65	147.01
Irish Broadband	Fixed Wireless	Breeze Home	512/512	54.78	47.75	Unlimited	0.000	0.000	168.65	147.01

Source: OECD.

### Italy

Telecom Italia, the incumbent operator in Italy, has two different pricing structures available to users. There are three offers including unlimited data transfer at 256 kbps, 640 kbps and 1.2 Mbps. The baseline service at 256 kbps is priced at USD 42 per month (Table 14-1). The 1 Mbps service is priced at USD 74 per month.

Telecom Italia and independent ISPs also have offers that are metered, based on time, rather than being metered by data transfer or being unmetered. These offers are shown separately because unlike the other two pricing structures, metered offers by time are not aimed at an 'always-on' service (Table 14-2). Telecom Italia's 'Alice Time' has a base price of USD 15 per month. Users are subsequently charged USD 0.02 per minute of online time. Alternatively a user can pre-purchase 20 hours for a base price of USD 28 per month.

Tiscali, an independent ISP, also has two offers based on time. One of these includes no fixed charge and a metered charge of USD 0.04 per minute of online time. Like Telecom Italia Tiscali also has offers with unlimited data transfer for users preferring an always-on connection. Two of these offers contain unlimited data transfer and a third meters data transfer. The metered offer has a fixed price of USD 16 and USD 0.06 for each Megabyte of data transfer.

Fastweb operates the largest independent broadband network in Italy. Fastweb uses fibre optic and Ethernet LANs to offer services to business and residential customers. Fastweb also sells DSL using the incumbent's local loops. Fastweb has three services operating at speeds up to a maximum of 10 Mbps and higher speeds are available to business users. The pricing for the three 10 Mbps options is not easily compared to other operators. The reason for this is that Fastweb bundles telephone service, including video communications to other Fastweb users, with the overall price for broadband access. One of the telephony services includes unlimited calls to all fixed network users in Italy and the other unlimited calls to other Fastweb users.

Fastweb's service includes a 10 Mbps service, with unlimited data transfer, telephony and video communication for USD 96 per month. Fastweb also has two other offers based on time. The baseline offer, for the metered service, starts at a base price of USD 34 per month. As with the unmetered offer this price includes telephony and video communication. An additional price of USD 0.08 per minute is applied to Internet access and unmetered calls are available to other Fastweb users.

For USD 76 per month a user can opt for the service which includes 20 hours of access to the public Internet (*i.e.* Fastweb's own Internet content is unmetered) and unmetered telephony to all fixed network users in Italy. By way of example the equivalent of a telephone line rental has been deducted from the range of Fastweb tariffs as well as the overall tariff. The price of these offers still includes an element of unmetered telephony which can not be deducted.

**Table 14-1. Broadband prices in Italy, October 2003**

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
<b>Incumbent</b>										
Telecom Italia	ADSL	Alice Time Flat	256/128	41.82	46.27	Unlimited	0.00	0.00	175.21	193.86
Telecom Italia	ADSL	Alice 640	640/128	56.54	62.55	Unlimited	0.00	0.00	175.21	193.86
Telecom Italia	ADSL	Alice Mega	1 200/256	73.51	81.34	Unlimited	0.00	0.00	213.24	235.93
<b>Independent ISP Access using Incumbent Local Loops</b>										
Tiscali	ADSL	Mega	256	14.66	16.22	0	0.06	0.06	175.43	194.09
Tiscali	ADSL	Sempre Light	256	41.82	46.27	Unlimited	0.00	0.00	175.43	194.09
Tiscali	ADSL	Sempre Top	640	53.14	58.80	Unlimited	0.00	0.00	175.43	194.09
<b>Alternative Infrastructure</b>										
FastWeb	Fibre/LAN	Internet Senza Limiti (a)	10 000	96.21	106.45	Unlimited	0.00	0.00	107.53	118.97
FastWeb	Fibre/LAN	Internet Senza Limiti (a) (b)	10 000	79.37	87.81	Unlimited	0.00	0.00	107.53	118.97

Notes:

(a) This plan includes telephone, video communication and access to FastWeb TV services.

(b) The basic line rental charge of USD 16.84, using Telecom Italia's charge by way of example, is subtracted from the monthly charge.

Source: OECD.

**Table 14-2. Broadband prices in Italy (Offers metered by time), October 2003**

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Hours Included (per month)	Additional Cost per minute		Installation charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Telecom Italia	ADSL	Alice Time	256/128	14.66	16.22	0	0.02	0.02	175.21	193.86
Telecom Italia	ADSL	20 ore	256/128	28.24	31.24	20	0.03	0.03	175.21	193.86
Tiscali	ADSL	Senza Canone	256	0.00	0.00	0	0.04	0.04	54.33	60.11
Tiscali	ADSL	Giorni	256	28.24	31.24	10(c)	0.57(c)	0.63(c)	175.43	194.09
Tiscali	ADSL	Ore	256	28.24	31.24	20	0.03	0.03	175.43	194.09
FastWeb	Fibre/LAN	Internet Senza Limiti (d)	10 000	33.96	37.57	0	0.08	0.09	107.53	118.97
FastWeb	Fibre/LAN	Internet Senza Limiti (d) (e)	10 000	17.11	18.93	0	0.08	0.09	107.53	118.97
FastWeb	Fibre/LAN	Internet Senza Limiti (d)	10 000	75.83	83.90	20	0.00	0.00	107.53	118.97
FastWeb	Fibre/LAN	Internet Senza Limiti (d) (e)	10 000	58.99	65.27	20	0.00	0.00	107.53	118.97

Notes:

(c) Usage of 20 minutes per day (10 hours per month) is allowed and an additional EUR 0.5 is charged for usage over the day allowance.

(d) These plans include telephone, video communication and access to FastWeb TV services.

(e) The basic line rental charge of USD 16.84, using Telecom Italia's charge by way of example, is subtracted from the monthly charge.

Source: OECD.

## *Japan*

Japan has been one of the fastest growing broadband markets in the OECD since the final quarter of 2001. This is due to policies aimed to promote competition, such as rules for unbundling and co-location of subscriber lines. Additional competition has come from local IP networks and operators using fibre-optic access networks. The surge in growth, from that time on, can be attributed to the entry of 'Yahoo!BB'. Not only were 'Yahoo!BB' prices much lower than those previously available but the baseline offers were for much higher levels of capacity. In September 2003, an 8 Mbps downstream connection was available from 'Yahoo!BB' for USD 22 per month (Table 15). For a few dollars more a user could also choose a 12 Mbps or even a 26 Mbps connection. In January 2004, 'Yahoo!BB' started to offer a 45 Mbps DSL service with a monthly charge of USD 26 as a response to the 40 Mbps DSL services offered by NTT and other ISPs.

Prior to the entry of 'Yahoo!BB!', a typical DSL or cable modem connection in Japan cost more than USD 50 per month for 1.5 Mbps. Following the competition generated by 'Yahoo!BB', using regulated access via NTT's local loops, other providers have been forced to raise the level of baseline performance and cut their prices. Although NTT, the incumbent operator, still had a 1.5 Mbps DSL offer, the pricing is almost exactly the same as the 8 Mbps, 12 Mbps, 24 Mbps and 40 Mbps options. All were available for just over USD 40 per month. The 40 Mbps option started in November 2003. To make a distinction between the different levels of performance, in February 2004, NTT reduced the monthly charge for the 1.5 Mbps DSL offer by 30% for the first year of subscription<sup>13</sup>. J-Com the leading cable television network provider also offers broadband access for around USD 40 per month. In terms of purchasing power parity, NTT and J-Com's pricing for 8 Mbps to 26 Mbps is just over USD 33 per month.

In Japan, DSL pricing is very inexpensive and some of the highest speeds available in the OECD are on offer. As exceptional as the leading price and performance ratios are, it is in the field of fibre-to-the-home that Japan is almost unique in the OECD. A number of other countries do, of course, have commercial FTTH networks. However, none of these deployments currently match the price and performance ratios available in Japan. Usen, for example, has deployed its own FTTH network and offers shared and dedicated connections up to 100 Mbps for between USD 35 and USD 50 per month. Accordingly NTT East and NTT West not only face strong competition from VDSL offers up to 26 Mbps but also FTTH offers up to 100 Mbps.

KDDI also provide fibre connections to apartment buildings. KDDI's Hikari Plus VDSL service provides up to 51 Mbps connection using fibre-to-the-building and VDSL over the telephone connection to each apartment. An alternative KDDI service uses fibre-to-the-building and Ethernet for the final connection. The prices for both these services are based on an apartment building with 20 subscribers.

Overall Japan has among the lowest priced broadband access in the OECD and the highest performance available for those prices. Set against this background it is worth looking at the choices available to users and the respective take-up rates. DSL is clearly the platform of choice for most Japanese users with more than 9 million subscribers at the end of September 2003. This is not surprising with offers ranging from USD 22 for 8 Mbps to USD 25 for 26 Mbps. On the other hand a significant increase in the number of users electing FTTH could be observed by the middle of 2003. Between July 2002 and July 2003, the number of FTTH subscribers increased from 85 000 to 531 000 and at that stage was growing by more than 70 000 subscribers per month. While VDSL provides users with the most economical high performance service there appears to be an emerging market for the premium performance available over fibre networks.

Table 15. Broadband prices in Japan, October 2003

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP		
<b>Incumbent</b>										
NTT East	ADSL	1.5M type	1 500/512	40.25	32.81	Unlimited	0	0	34.05	27.76
NTT East	ADSL	8M type	8 000/1024	40.69	33.17	Unlimited	0	0	34.05	27.76
NTT East	ADSL	More (12M type)	12 000/1024	41.13	33.53	Unlimited	0	0	34.05	27.76
NTT East	ADSL	More II (24M type)	24 000/1024	41.57	33.89	Unlimited	0	0	34.05	27.76
NTT East	FTTH	Shared connection for apartments (B FLET'S for apartments Type II)	100 000	52.45	42.76	Unlimited	0	0	105.26	85.80
NTT East	FTTH	Shared connection for stand alone dwellings (B FLET'S New family type)	100 000	67.05	54.66	Unlimited	0	0	239.70	195.40
NTT East	FTTH	Line dedicated to single connection (B FLET'S Basic type)	100 000	158.33	129.07	Unlimited	0	0	239.70	195.40
<b>Independent ISP Access using Incumbent Local Loops</b>										
Yahoo BB	ADSL	Yahoo BB 8M	8 000/900	21.65	17.65	Unlimited	0	0	34.05	27.76
Yahoo BB	ADSL	Yahoo BB 12M	12 000/1024	23.42	19.09	Unlimited	0	0	34.05	27.76
Yahoo BB	ADSL	Yahoo BB 26M	26 000/1024	25.19	20.54	Unlimited	0	0	34.05	27.76
eAccess	ADSL	ADSL PlusQ(40M)	40 000/1024	38.46	31.35	Unlimited	0	0	26.98	21.99
<b>Alternative Infrastructure</b>										
J-Com	Cable Modem	J-Com Net	8 000/2 048	42.25	34.44	Unlimited	0	0	113.72	92.71
USEN	FTTH	For stand alone dwellings (Broad Gate 01 Type E)	100 000	50.42	41.10	Unlimited	0	0	291.89	237.95
USEN	FTTH	For apartments (Broad Gate 01 Type E)	100 000	35.38	28.84	Unlimited	0	0	159.21	129.79
KDDI	Fibre/VDSL	Hikari Plus VDSL Type (c)	70 000/30 000	28.02(d)	22.84(d)	Unlimited	0	0	185.75	151.42
KDDI	Fibre/Ether-net LAN (b)	Hikari Plus Ethernet Type (c)	100 000	24.62(d)	20.07(d)	Unlimited	0	0	167.17	136.28

Source: OECD.

## Notes:

- (a) KDDI uses Fibre-to-the-building. The telephone line in the building is used for each household in the building.  
(b) KDDI uses Fibre-to-the-building. Ethernet LAN in the building, if it is already installed, is used for each household in the building.  
(c) Charges for these plans are only applied if 16 or more contracts are expected to be signed by the residents in the same building.  
(d) These monthly charges are applied if users subscribe to KDDI's package plan with their telephony service called Hikari Plus Phone.

**Korea**

As might be expected in the country with the leading broadband penetration, Korea has some of the most attractive DSL and cable modem pricing in the OECD. Not only are Korea's prices relatively low but the advertised speeds across a range of broadband access are among the highest for DSL and cable modem service. Baseline speeds begin at 1 Mbps to 2 Mbps and premium offers range from 8 Mbps to 20 Mbps. This means that Korea has one of the best price performance ratios in the OECD.

The three largest providers of broadband Internet access in Korea are KT, Hanaro and Thrunet. KT, formerly called Korea Telecom, is the incumbent telecommunication operator. KT's baseline DSL service starts at 1.5 Mbps for USD 25 per month with unlimited data transfer (Table 16). Alternatively a user could opt for the 8Mbps service for USD 33 per month or the 13 Mbps service for USD 42 per month.

Hanaro Telecom is the second largest provider of broadband access in Korea. Hanaro provides both DSL and cable modem services. Hanaro's baseline DSL service is priced at just under USD 25 for a 1 Mbps service with unlimited data transfer. Hanaro's 8 Mbps service is priced at a similar level to KT's service at the same speed. On the other hand, while priced at a similar level, Hanaro's premium VDSL service at 20 Mbps has a higher advertised speed than KT's premium offer at 13 Mbps.

Thrunet also offers DSL and cable modem services. Thrunet's baseline DSL service, at 2 Mbps with unlimited data transfer, is priced at USD 26 per month. Thrunet's high speed cable modem service, at 10 Mbps with unlimited data transfer, is priced at USD 35 per month.

**Table 16. Broadband prices in Korea, October 2003**

Company	Access Type	Plan	Speed (kbps)	Monthly Charge in USD		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
<b>Incumbent</b>										
Korea Telecom	DSL	Megapass Light	1500	25.21	40.57	Unlimited	0.00	0.00	28.01	45.07
Korea Telecom	DSL	Megapass Premium	8000	33.61	54.09	Unlimited	0.00	0.00	28.01	45.07
Korea Telecom	DSL	Megapass Special	13 000	42.01	67.61	Unlimited	0.00	0.00	28.01	45.07
<b>Independent ISP Access using Incumbent Local Loops</b>										
Hanaro Telecom	DSL	V LITE	1 024	24.83	39.96	Unlimited	0.00	0.00	28.01	45.07
Hanaro Telecom	DSL	V PRO	8 000	33.35	53.67	Unlimited	0.00	0.00	28.01	45.07
Hanaro Telecom	DSL	V Dream	20 000	41.25	66.38	Unlimited	0.00	0.00	28.01	45.07
Thrunet	DSL	Multiplus Lite	2 000	26.14	42.07	Unlimited	0.00	0.00	33.61	54.09
Thrunet	DSL	<i>Multiplus Saver (b)</i>	10 000	31.74	51.08	Unlimited	0.00	0.00	33.61	54.09
<b>Alternative Infrastructure</b>										
Hanaro Telecom	CATV	CATV LITE	1 024	24.83	39.96	Unlimited	0.00	0.00	28.01	45.07
Hanaro Telecom	CATV	CATV PRO	10 000	30.16	48.53	Unlimited	0.00	0.00	28.01	45.07
Thrunet	CATV	Multiplus Cable	10 000	35.48	57.09	Unlimited	0.00	0.00	33.61	54.09

Notes:

(a) The prices for KT and Hanaro Telecom are based on a two-year contract.

(b) This is a discounted option for subscribers who agree to receive e-mail messages advertising Thrunet.

Source: OECD.

### ***Luxembourg***

Broadband access is relatively expensive in Luxembourg compared to surrounding countries in terms of the price and performance ratios available. P&T Luxembourg, the incumbent telecommunication carrier, offers both DSL and cable modem services. The baseline DSL offer is a 256 kbps service including 1 Gigabyte data transfer for just under USD 44 per month (Table 17). The metered price for additional Megabytes is relatively low compared to other incumbents using this pricing structure. Should a user exceed the 1 Gigabyte cap additional Megabytes are priced at only USD 0.003. In other words an additional Gigabyte would only cost USD 3.40 per month. The same speed (256 kbps) with a 10 Gigabyte data transfer allowance was priced at USD 63 per month. P&T's cable modem service with unlimited data transfer at the same speed (256 kbps) is priced at USD 69 per month. P&T has some higher speeds available with DSL. The 1 Mbps service is priced at USD 137 per month including 25 Gigabytes of data transfer.

Independent ISPs such as Tiscali offer higher speed services with unlimited data transfer at similar prices to P&T. The independently owned Coditel, a cable network, offers cable modem services in Luxembourg's largest city. Coditel's baseline service starts at 512 kbps for USD 50 including 10 Gigabytes of data transfer. This service is nearly half the cost of the equivalent speed DSL services. Coditel's metered rate for users exceeding their data transfer allowance is just USD 0.001 per Megabyte. In other words an additional 10 Gigabytes would cost only USD 10.40 per month.

### ***Mexico***

Telmex, the incumbent operator in Mexico, offers three levels of DSL service. The baseline Telmex offer is for a 256 kbps service priced at USD 53 per month (Table 18). The incumbent's 512 kbps service is priced at USD 96 per month. A 2 Mbps service is also available at USD 480 per month. In those areas where alternative infrastructure is available users can get around a 13% reduction on speeds ranging from 256 kbps to 512 kbps. One of the largest cable modem providers in Mexico is Megacable. In 2003, Megacable's "Megared" service had an offer for a 512 kbps cable modem service priced at USD 41 per month. In Mexico City, Cablevision offers a 256 kbps cable modem service for USD 46 per month. MVS charges the same price for its fixed wireless service at 256 kbps. The same level of reduction is available for both MVS and Cablevision's 512 kbps services.

No form of unbundling or line sharing has been introduced in Mexico so there were no independent ISP offers for DSL. The main impact of this would appear to be the relatively high prices a business user would need to pay for a 2 Mbps DSL connection. For residential users the price and performance ratio for Mexico places the offers available with the more expensive countries in the OECD area.

Table 17. Broadband prices in Luxembourg, October 2003

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
<b>Incumbent</b>										
P&T	ADSL	SpeedSurf-JUNIOR	256/64	43.63	40.44	1 000	0.003	0.003	62.25	57.69
P&T	ADSL	SpeedSurf-START	256/64	63.33	58.69	10 000	0.003	0.003	62.25	57.69
P&T	ADSL	SpeedSurf-RUN	512/128	90.49	83.86	15 000	0.003	0.003	62.25	57.69
P&T	ADSL	SpeedSurf-EXPRESS	1 024/192	137.71	127.62	25 000	0.003	0.003	62.25	57.69
P&T	Cable Modem	TV-Surf	256/64	69.60	64.50	Unlimited	0.000	0.000	17.54	16.26
<b>Independent ISP Access using Incumbent Local Loops</b>										
Tiscali	ADSL	ADSL ORIGINAL	384/64	66.38	61.52	Unlimited	0.000	0.000	391.79	363.08
Tiscali	ADSL	ADSL OPTIMAL	512/128	91.11	84.44	Unlimited	0.000	0.000	391.79	363.08
Tiscali	ADSL	ADSL EXPRESS	1 536/192	139.28	129.07	Unlimited	0.000	0.000	391.79	363.08
<b>Alternative Infrastructure</b>										
Coditel	Cable Modem	coditel.net	512/128	50.93	47.20	10 000	0.001	0.001	146.01	135.31
Coditel	Cable Modem	coditel.net pro	1 024/256	75.83	70.28	20 000	0.001	0.001	146.01	135.31

Source: OECD.



Table 18. Broadband prices in Mexico, October 2003

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
<b>Incumbent</b>										
Telmex	ADSL		256/128	53.23	87.45	Unlimited	0.00	0.00	319.89	525.57
Telmex	ADSL		512/256	95.89	157.55	Unlimited	0.00	0.00	319.89	525.57
Telmex	ADSL		2 048/512	479.89	788.44	Unlimited	0.00	0.00	319.89	525.57
<b>Independent ISP Access using Incumbent Local Loops</b>										
<b>Alternative Infrastructure</b>										
Megacable	Cable Modem	Megared	512	41.74	68.58	Unlimited	0.00	0.00	18.46 (a)	30.33 (a)
Cablevision	Cable Modem	CableLink 128 (b)	128	53.33	87.62	Unlimited	0.00	0.00	18.55	30.48
Cablevision	Cable Modem	CableLink Kilo	256	46.28	76.04	Unlimited	0.00	0.00	58.43	96.01
Cablevision	Cable Modem	CableLink Mega	384	70.40	115.66	Unlimited	0.00	0.00	58.43	96.01
Cablevision	Cable Modem	CableLink Giga	512	83.48	137.15	Unlimited	0.00	0.00	58.43	96.01
Cablevision	Cable Modem	CableLink Terra	768	100.17	164.58	Unlimited	0.00	0.00	58.43	96.01
MVS	Fixed Wireless	MACH1	128	32.37	53.18	Unlimited	0.00	0.00	0.00	0.00
MVS	Fixed Wireless	MACH2	256	46.28	76.04	Unlimited	0.00	0.00	0.00	0.00
MVS	Fixed Wireless	MACH3	384	64.83	106.52	Unlimited	0.00	0.00	0.00	0.00
MVS	Fixed Wireless	MACH4	512	83.39	137.00	Unlimited	0.00	0.00	0.00	0.00

Notes:

(a) For customers who already have television service.

(b) Basic cable TV service is included.

Source: OECD.

### *Netherlands*

The Netherlands is one of the OECD countries where the number of cable modem subscribers is greater than the number of DSL subscribers. Although the Dutch cable companies have not been as aggressive with their price and performance ratios as cable companies in Belgium, they have nevertheless been market leaders. In response KPN, the incumbent telecommunication carrier, and a growing number of ISPs reselling KPN's local loops significantly reduced the prices for DSL and made higher speed offers available in 2003.

In August 2003, Zon, the ISP owned by Versatel, launched a very competitive ADSL service which is priced at USD 17 per month for the first 12 months at the speed of 256/64 kbps with 250 Megabytes data transfer allowance (Table 19). Another good example of the increasingly competitive offers by ISPs is Tiscali's 384/96 kbps DSL service with USD 23 per month with 1 Gigabyte data transfer allowance. Wanadoo's 384/96 kbps DSL offer is also priced at USD 23 per month for the first six months. In order to respond to these offers, Zon increased its baseline speed from 256/64 kbps to 384/128 kbps in October 2003. Therefore, Zon's 384/128 kbps DSL service is also now priced at USD 17 per month for the first 12 months.

KPN, the largest DSL provider, reacted by raising its DSL service speeds. In November 2003, KPN increased its DSL Internet access speed from 256/64 kbps to 384/96 kbps for ADSL Lite, from 768/128 kbps to 1 024/160 kbps for ADSL Basic and from 1 536/256 kbps to 2 048/320 kbps for ADSL Extra. However, monthly charges have not changed from USD 40 for ADSL Lite, USD 59 ADSL Basic and USD 100 for ADSL Extra with Planet, one of the ISPs owned by KPN. It should be noted here that KPN provides DSL service but Internet access services are provided by each ISP. Prices for the DSL services of KPN are only the recommended prices published by KPN and these prices vary with the ISP chosen by subscribers. KPN charges a monthly ADSL line rental fee of USD 23 for 384 kbps, USD 32 for 1 024 kbps and USD 38 for 2 048 kbps and these fees are directly charged to subscribers by the incumbent.

Even though KPN has the largest share in the DSL market, other ISPs which are not owned by KPN have lower monthly charges when the same types of options are compared. Zon provides DSL services under two different networks. One is under Versatel networks and the other is under KPN networks. Following the increase by KPN of their DSL speeds, Zon now has six different options between 384/96 kbps and 2 048/320 kbps. Apart from its option at USD 17 per month for 384/128 kbps DSL service, Zon's 'Breedband Family' offers 768/128 kbps with Versatel networks for a monthly fee of USD 33 together with a subscription of Zon telephony service. This is lower than a monthly charge for Zon Breedband Lite with the speed of 384/96 kbps using KPN's network.

Tiscali, another independent ISP, has much lower monthly charges. Tiscali ADSL Surf with the same speed as the Zon Breedband Family is offered with a monthly charge of USD 28, albeit with a monthly data allowance of 2 Gigabytes. Tiscali ADSL Live! at the speed of 3 Mbps for download with a monthly allowance of 20 Gigabytes is priced at just USD 57 per month, which is lower than the monthly charge of Planet's 1 Mbps option.

One of the fastest DSL Internet access services is provided by Cistron. Cistron offers DSL Internet services at the download speed of 1 024 kbps, 2 048 kbps and 8 192 kbps. Cistron's 8 192 kbps DSL connection is priced at USD 89 per month with a monthly allowance of 100 Gigabytes for data transfer.

As the Netherlands has the largest number of cable modem subscribers in Europe, Dutch cable companies offer a range of broadband Internet access services. UPC, which has the largest cable networks in the Netherlands, offers three different options for Internet services. UPC's fastest Internet access service of Chello plus has 3 Mbps for download with a monthly charge of USD 84 with unlimited data transfer.

Essent Kábelcom's @home Breedband has a download speed of 2.5 Mbps with a monthly charge of USD 54 and unlimited data transfer.

**Table 19. Broadband prices in the Netherlands, October 2003**

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
<b>Incumbent</b>										
KPN	ADSL	ADSL Lite	384/96	39.56 (a)	36.68 (a)	N/A (b)	N/A (b)	N/A (b)	84.83 (a)	78.67 (a)
KPN	ADSL	ADSL Basic	1 024/160	58.86 (a)	54.58 (a)	N/A (b)	N/A (b)	N/A (b)	84.83 (a)	78.67 (a)
KPN	ADSL	ADSL Extra	2 048/320	99.60 (a)	92.37 (a)	N/A (b)	N/A (b)	N/A (b)	84.83 (a)	78.67 (a)
Planet	ADSL	ADSL standard	384/96	39.50	36.63	1000	0.01	0.01	84.83	78.67
Planet	ADSL	ADSL comfort	1 024/160	59.14	54.84	Unlimited	0.00	0.00	84.83	78.67
Planet	ADSL	ADSL advanced	2 048/320	99.77	92.53	Unlimited	0.00	0.00	84.83	78.67
Het Net	ADSL	ADSL Vooldeel Surfen	384/96	28.24 (c)	26.19	250	0.01	0.01	84.83	78.67
Het Net	ADSL	ADSL Surfen sur Het Net	384/96	37.29	34.59	1500	0.01	0.01	84.83	78.67
<b>Independent ISP Access using Incumbent Local Loops</b>										
Zon	ADSL	<i>Zon Breedband Budget (d)</i>	384/128	22.58 (f)	20.94	250	0.01	0.01	0.00	0.00
Zon	ADSL	<i>Zon Breedband Lite (e)</i>	384/96	33.90	31.44	Unlimited	0.00	0.00	84.83	78.67
Zon	ADSL	<i>Zon Breedband Family (d)</i>	768/128	32.82	30.44	Unlimited	0.00	0.00	0.00	0.00
Zon	ADSL	<i>Zon Breedband Basic (e)</i>	1 024/160	50.88	47.18	Unlimited	0.00	0.00	84.83	78.67
Zon	ADSL	<i>Zon Breedband Plus (d)</i>	1 536/256	61.12	56.68	Unlimited	0.00	0.00	0.00	0.00
Zon	ADSL	<i>Zon Breedband Extra (e)</i>	2 048/320	94.93	88.03	Unlimited	0.00	0.00	84.83	78.67
Tiscali	ADSL	Tiscali ADSL Start	384/128	22.58	20.94	1 000	0.01	0.01	0.00	0.00
Tiscali	ADSL	Tiscali ADSL Surf	768/128	28.24	26.19	2 000	0.01	0.01	0.00	0.00
Tiscali	ADSL	Tiscali ADSL Family	2 048/256	45.22	41.93	20 000	0.01	0.01	0.00	0.00
Tiscali	ADSL	Tiscali ADSL Live!	3 072/512	56.54	52.43	20 000	0.01	0.01	0.00	0.00
Cistron	ADSL	1024	1 024/512	55.46	51.43	20 000			0.00	0.00
Cistron	ADSL	2048	2048/512	66.78	61.93	35 000			0.00	0.00
Cistron	ADSL	Maxx	8 192/1 024	89.42	82.92	100 000			0.00	0.00
<b>Alternative Infrastructure</b>										
UPC	Cable Modem	Chello Light	300/64	35.60	33.01	1 000			67.86	62.93
UPC	Cable Modem	Chello Classic	1 500/128	52.18	48.39	Unlimited	0.00	0.00	67.86	62.93
UPC	Cable Modem	Chello Plus	3 000/384	83.81	77.73	Unlimited	0.00	0.00	67.86	62.93
Essent Kábelcom	Cable Modem	@home Basic	312	33.90	31.44	Unlimited	0.00	0.00	0.00	0.00
Essent Kábelcom	Cable Modem	@home Breedband	2 560	54.27	50.33	Unlimited	0.00	0.00	0.00	0.00

Notes:

(a) These prices are suggested prices by KPN. Actual charges will vary with ISPs.

(b) Not applicable. The monthly allowance will vary with ISPs.

(c) USD 20.32 per month for the first 12 months.

(d) The service is provided under Versatel networks.

(e) The service is provided under KPN networks.

(f) USD 16.92 per month for the first 12 months.

Source: OECD.

### *New Zealand*

Broadband access pricing in New Zealand underwent significant changes in the latter part of 2003. The changes followed two developments. The first was the New Zealand Commerce Commission's draft recommendation, on 18 September 2003, to go ahead with unbundling the local loop. Although the decision was later overturned Telecom New Zealand, the incumbent operator, announced price cuts to its broadband services on 19 September 2003.<sup>14</sup> The second development to impact on pricing at this time, was the increasing number of new fixed wireless broadband offers in the market including some being made available for the first time.

DSL service in New Zealand is organised around Telecom New Zealand's wholesale service. Telecom's baseline DSL service was JetStream Starter, a 128 kbps service but with higher performance than some of Telecom's own services (e.g. 2 Mbps for game playing). Originally an unmetered service, JetStream Starter has a 5 Gygabyte cap on international data transfer before metered charges apply. As with all Telecom's DSL products other ISPs resell the wholesale service JetStream Starter service with only the ISP part of the service rebranded.

Telecom's baseline DSL products underwent significant change in September 2003. The new range starts with a baseline service at 256 kbps including 500 Megabytes of data transfer for just under USD 30 per month (Table 20). Alternatively, a user could also opt for a 2 Mbps service for USD 34 with 500 Megabytes of data transfer included. Should users exceed their monthly allowance an additional USD 0.12 is charged per Megabyte. ISPs which resell Telecom's DSL product charge similar prices. iHug, for example, has exactly the same prices as Telecom for the same range of offers. iHug's 256 kbps service is shown by way of example.

TelstraClear has differentiated its prices for the resale of DSL, but its services are aimed at business users. TelstraClear, the largest rival to Telecom has welcomed the unbundling decision, and plans to improve its services to business users via this platform. TelstraClear also owns a cable network in some parts of New Zealand but it does not have wide coverage so its competitive impact has been limited. For those users willing to take a bundle of services, cable modem service at 256 kbps is available for USD 30 per month.

Walker Wireless has one of the largest fixed wireless broadband networks in New Zealand. The company's Whoosh service offers a 256 kbps option for USD 38 per month with unlimited data transfer. Wired Country is another fixed wireless provider operating mainly in rural areas. Independent ISPs market Wired Country's service. The prices shown are for one of these ISPs – The Packing Shed. One caveat needs to be noted in relation to the prices shown for The Packing Shed. In September 2003, Wired Country announced that residential and business customers on a 128 Kbps service would be upgraded to 1 Mbps at no extra charge, and those buying a 2 Mbps service will see an increase of up to 10 Mbps.<sup>15</sup> Speeds of up to 100 Mbps will even be available for those customers buying a 10 Mbps service. Wired Country said the upgrade would be available via all ISPs reselling the service and available to customers until at least the end of March 2004. While there was no indication at the time of writing as to whether the promotion would continue beyond that time that tends to be the case with offers of this type.

Overall pricing in New Zealand is becoming more competitive. The increasing availability of independent platforms and the decision to introduce unbundling, although later overturned, have had an impact on broadband pricing. This is evident in both the level of pricing and the increasing variety of prices. Should the Wired Country promotion be extended New Zealand's fixed wireless pricing, although unexceptional at the standard speeds, would significantly lift that country's price performance ratios. In February 2004, Telecom New Zealand announced a substantial restructuring of broadband access pricing including price reductions and their first unlimited offer for a 256 kbps service.<sup>16</sup>

Table 20. Broadband prices in New Zealand, October 2003

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
<b>Incumbent</b>										
Telecom NZ (Xtra)	ADSL	JetStream Starter	128/128	37.75	43.83	5 000(a)	0.06	0.07	0.00	0.00
Telecom NZ (Xtra)	ADSL	JetStream Home 500	256	29.06	33.73	500	0.12	0.14	0.00	0.00
Telecom NZ (Xtra)	ADSL	JetStream Home 1000	256	34.87	40.48	1 000	0.12	0.14	0.00	0.00
Telecom NZ (Xtra)	ADSL	JetStream Home 2000	256	40.69	47.24	2 000	0.12	0.14	0.00	0.00
Telecom NZ (Xtra)	ADSL	JetStream Home 500 Full Speed	2 048/250	34.32	39.84	500	0.12	0.14	0.00	0.00
Telecom NZ (Xtra)	ADSL	JetStream Home 1000 Full Speed	2 048/250	45.95	53.35	1 000	0.12	0.14	0.00	0.00
<b>Independent ISP Access using Incumbent Local Loops</b>										
ihug	ADSL	JetStream Home - 500MB	256	29.06	33.73	500	0.12	0.14	57.59	66.86
TelstraClear	ADSL	256K	256	64.79	75.21	Unlimited	0.00	0.00	81.80	94.97
TelstraClear	ADSL	1000	2 048	130.23	151.19	1 000	0.12	0.14	0.00(d)	0.00(d)
TelstraClear	ADSL	2500	2 048	195.67	227.16	2 500	0.12	0.14	0.00(d)	0.00(d)
TelstraClear	ADSL	Flat Rate	2 048	326.55	379.10	Unlimited	0.00	0.00	0.00(d)	0.00(d)
<b>Alternative Infrastructure</b>										
TelstraClear	Cable Modem	Paradise High Speed Starter	256/128	30.22(b)	35.08(b)	10000(c)	0.12(c)	0.14(c)	0.00(d)	0.00(d)
TelstraClear	Cable Modem	Paradise High Speed Express	2 048/256	47.67(b)	55.34(b)	1000(c)	0.12(c)	0.14(c)	0.00(d)	0.00(d)
Walker Wireless	Fixed Wireless		256	37.78	43.86	Unlimited	0.00	0.00	0.00	0.00
Wired Country (provided by The Packing Shed)	Fixed Wireless	PS Radio Home 1 000/128	128(e)	26.18	30.39	1 000	0.06	0.07	71.99	83.57
Wired Country (provided by The Packing Shed)	Fixed Wireless	PS Radio Home 5 000/128	128(e)	37.81	43.90	5 000	0.06	0.07	71.99	83.57
Wired Country (provided by The Packing Shed)	Fixed Wireless	PS Radio Home 1 000/256	256(e)	37.81	43.90	1 000	0.06	0.07	71.99	83.57
Wired Country (provided by The Packing Shed)	Fixed Wireless	PS Radio Home 5 000/256	256(e)	55.26	64.15	5 000	0.06	0.07	71.99	83.57

**Notes:**

(a) Monthly allowance of 5 000MB for international traffic. There is no limit on domestic traffic.

(b) Package plans of Triple Service which includes phone and TV services are used.

(c) For international traffic.

(d) Installation charges will be free with a contract of more than 24 months.

(e) Higher speeds available during special offer until March 2004.

Source: OECD.

**Norway**

Telenor, the incumbent operator in Norway, has a baseline offer of a 704 kbps DSL service, with 1 Gigabyte of data transfer for USD 47 per month (Table 21). The same speed with 10 Gigabytes is priced at USD 60 per month. Telenor's 1 Mbps DSL service is priced at USD 74 per month with a data transfer allowance of 30 Gigabytes. The same speed with unlimited data transfer is priced at USD 101 per month.

Telenor also owns a cable television network and provides a cable modem service. The baseline cable modem service is priced at USD 47 per month but at 512 kbps compared to 704 kbps for the baseline DSL service. Unlike the DSL offers, however, all Telenor's cable modem services are unmetered with unlimited data transfer. The highest speed cable modem service available from Telenor is 2 Mbps, with unlimited data transfer, for USD 141 per month.

Independent ISPs all offer unlimited data transfer in their range of offers. Tele2 has one of the least expensive baseline offers with its 704 kbps service being priced at USD 43 per month. Nextgentel distinguishes itself by offering some of the highest speeds available in Norway. Nextgentel's highest asymmetrical offer is set at 4 Mbps for USD 175 per month. Nextgentel also has high speed symmetrical DSL offers available with the 2.3 Mbps service being priced at USD 202 per month.

UPC operates the largest independent cable network in Norway. UPC's baseline offer is set at USD 51 per month for unlimited data transfer. UPC's 1 Mbps service is priced at USD 67 per month. A number of fixed wireless Internet service providers (WISPs) have emerged in Norway. INO serves small communities in rural areas. A fixed wireless connection shared between three users operating at speeds between 300 kbps and 1.2 Mbps is priced at USD 40 per month.

**Table 21. Broadband prices in Norway, October 2003**

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
<b>Incumbent</b>										
Telenor	ADSL	Online ADSL	704/128	47.05	38.43	1G			172.57	140.94
Telenor	ADSL	Online ADSL oppgradert	704/128	60.53	49.44	10G			172.57	140.94
Telenor	ADSL	Online ADSL Ekstra	1 024/256	74.02	60.45	30G			172.57	140.94
Telenor	ADSL	Online ADSL Ekstra-oppgradert	1 024/256	100.98	82.47	Unlimited	0.00	0.00	172.57	140.94
Telenor Avidi	Cable Modem	Online Midi	512/128	46.78	38.21	Unlimited	0.00	0.00	93.70	76.52
Telenor Avidi	Cable Modem	Online Maxi	1 024/256	73.75	60.23	Unlimited	0.00	0.00	93.70	76.52
Telenor Avidi	Cable Modem	Online Mega	2 048/256	141.16	115.28	Unlimited	0.00	0.00	93.70	76.52
<b>Independent ISP Access using Incumbent Local Loops</b>										
NextGenTel	ADSL	Alpha 704	704/128	50.96	41.62	Unlimited	0.00	0.00	134.55	109.89
NextGenTel	ADSL	Alpha 1024	1 024/256	70.78	57.81	Unlimited	0.00	0.00	134.55	109.89
NextGenTel	ADSL	Bravo 850	850/384	53.66	43.82	Unlimited	0.00	0.00	134.55	109.89
NextGenTel	ADSL	Charlie 1350	1 350/512	73.88	60.34	Unlimited	0.00	0.00	134.55	109.89
NextGenTel	ADSL	Delta 2000	2 000/640	100.85	82.36	Unlimited	0.00	0.00	134.55	109.89
NextGenTel	ADSL	Delta 3000	3 000/704	114.33	93.37	Unlimited	0.00	0.00	134.55	109.89
NextGenTel	ADSL	Echo	8032/864	175.00	142.92	Unlimited	0.00	0.00	134.55	109.89
NextGenTel	SHDSL	SHDSL Charlie	1 160/1 160	134.55	109.89	Unlimited	0.00	0.00	134.55	109.89
NextGenTel	SHDSL	SHDSL Delta	2 312/2 312	201.96	164.94	Unlimited	0.00	0.00	134.55	109.89
Tele2	ADSL	Medium	704/128	42.87	35.01	Unlimited	0.00	0.00	134.15	109.56
Tele2	ADSL	Large	1 024/128	67.14	54.83	Unlimited	0.00	0.00	134.15	109.56
Tiscali	ADSL	Xtra	704/128	44.36	36.23	Unlimited	0.00	0.00	66.74	54.50
Tiscali	ADSL	Plus	1 024/256	71.32	58.25	Unlimited	0.00	0.00	66.74	54.50
Tiscali	ADSL	Ultra	2 048/256	111.77	91.28	Unlimited	0.00	0.00	66.74	54.50
<b>Alternative Infrastructure</b>										
UPC Norge	Cable Modem	Chello Classic	512/128	51.10	41.73	Unlimited	0.00	0.00	39.77	32.48
UPC Norge	Cable Modem	Chello Plus	1 024/256	67.28	54.94	Unlimited	0.00	0.00	39.77	32.48
Tiscali	Satellite		400/100	249.15	203.48	Unlimited	0.00	0.00	2501.99	2043.37
INO	Fixed Wireless	INO Internett Privat	300-1 200	100.31	81.92	Unlimited	0.00	0.00	269.37	219.99
INO	Fixed Wireless	INO Internett Privat 1 nado (a)	300-1 200	66.06	53.95	Unlimited	0.00	0.00	134.69	110.00
INO	Fixed Wireless	INO Internett Privat 2 naboar (b)	300-1 200	47.19	38.54	Unlimited	0.00	0.00	134.69	110.00
INO	Fixed Wireless	INO Internett Privat min 3 naboar (c)	300-1 200	40.31	32.92	Unlimited	0.00	0.00	134.69	110.00

Notes: (a) Shared with two users.

(b) Shared with three users.

(c) Shared with more than four users.

Source: OECD.

## Poland

TPSA, the incumbent telecommunication carrier, launched its residential DSL service 'Neostrada' in 2001. Neostrada's 512 kbps DSL service is priced at USD 38 per month with unlimited data transfer (Table 22). TPSA also provides faster ADSL service for business users. The company's 1 Mbps DSL service is priced at USD 123 per month with unlimited data transfer. Netia, the second largest provider of fixed-line telecommunications services in Poland, had not yet launched residential DSL service at the time of writing but Netia provides SDSL service for business users called BDI. One comparable option at 512 kbps is priced at USD 281 per month with unlimited data transfer. Dialog is the third largest local exchange carrier. Dialog has a 1 Mbps service with unlimited data transfer for USD 40 per month. This is a similar price to TPSA's baseline service but with twice the capacity.

Although the number of cable modem users is smaller than that of DSL, Poland's cable operators offer competitive options for broadband Internet access. For example, UPC the largest cable operator, offers a 512 kbps cable modem service priced at USD 38 per month with unlimited data transfer, which is the same monthly charge as TPSA's Neostrada at the same speed. A faster option at 768 kbps is priced at USD 51 per month with unlimited data transfer.

Aster City Cable is another large cable operator in Warsaw and it provides cable modem Internet access service at 512 kbps, 1 024 kbps and 2 048 kbps. The 512 kbps cable modem Internet access is priced at USD 30 per month with unlimited data transfer and the 2 Mbps service is priced at USD 145 per month with unlimited data transfer.

**Table 22. Broadband prices in Poland, October 2003**

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
<b>Incumbent</b>										
TPSA	ADSL	Neostrada	512/128	38.09	79.18	Unlimited	0.00	0.00	51.13	106.28
TPSA	ADSL	DSL 512	512/128	68.11	141.59	Unlimited	0.00	0.00	218.55	454.33
TPSA	ADSL	DSL 1	1 024/256	122.81	255.31	Unlimited	0.00	0.00	218.55	454.33
Netia	SDSL	BDI Standard	128	124.75	259.33	Unlimited	0.00	0.00	224.55	466.80
Netia	SDSL	BDI Standard	256	187.12	389.00	Unlimited	0.00	0.00	224.55	466.80
Netia	SDSL	BDI Standard	512	280.68	583.50	Unlimited	0.00	0.00	224.55	466.80
Netia	SDSL	BDI Standard	1 024	374.24	778.00	Unlimited	0.00	0.00	224.55	466.80
Netia	SDSL	BDI Pro	2 048	997.98	2 074.68	Unlimited	0.00	0.00	623.74	1 296.67
Dialog	ADSL		1 024/256	39.66	84.80	Unlimited	0.00	0.00	106.47	227.66
Dialog	ADSL		2 048/512	66.28	141.72	Unlimited	0.00	0.00	106.47	227.66
<b>Alternative Infrastructure</b>										
UPC	Cable Modem	Chello Classic	512/128	38.09	79.18	Unlimited	0.00	0.00	76.43	158.90
UPC	Cable Modem	Chello Plus	768/128	50.87	105.75	Unlimited	0.00	0.00	50.87	105.75
Aster City	Cable Modem	TwójDom	512/64	30.42	63.23	Unlimited	0.00	0.00	134.21	279.00
Aster City	Cable Modem	TwójŚwiat	1 024/256	45.76	95.12	Unlimited	0.00	0.00	134.21	279.00
Aster City	Cable Modem	TwojaFirma	2 048/512	145.45	302.38	Unlimited	0.00	0.00	134.21	279.00

Source: OECD.

### *Portugal*

Portugal Telecom (PT), the incumbent telecommunication carrier, offers both DSL and cable modem services. The charge for PT's baseline DSL service is just under USD 40 per month for a 512 kbps service (Table 23). This option includes 20 Gigabytes of domestic data transfer and 2 Gigabytes of international data transfer. Portugal is one of three OECD countries, the others being Iceland and New Zealand, where there is a distinction between domestic and international data transfer in terms of pricing. PT's data thresholds before metered pricing is applied are much higher than the other two countries. PT's premium offer for residential customers is also set at 512 kbps but has unmetered domestic data transfer and a higher cap on international traffic before metering applies. PT's DSL offers to business users are made via Telepac. PT's cable modem offers to residential customers are made via its TV Cabo network.

Cabovisão is an independent cable television and communications network provider. Cabovisão's cable modem offers range from an inexpensive sub-broadband offer aimed at substituting for dial-up service, through to a 1 Mbps service. The 128 kbps service is priced at USD 22 per month with a 256 kbps offer at USD 29 per month. Cabovisão's 512 kbps service is priced at a similar level to PT's service at the same speed but has a lower data transfer threshold. In contrast to PT there are no differences between domestic and international traffic but Cabovisão places different caps on downstream and upstream data transfer.



Table 23. Broadband prices in Portugal, October 2003

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
<b>Incumbent</b>										
Portugal Telecom (sapo)	ADSL	SAPO ADSL.PT	512/128	39.60	52.03	20 000/2 000 (a)	0.017(b)	0.022(b)	56.59	74.34
Portugal Telecom (sapo)	ADSL	SAPO ADSL.PT Pro	512/128	50.92	66.89	Unlimited/4 000 (a)	0.017(b)	0.022(b)	56.59	74.34
Portugal Telecom (Telepac)	ADSL		512/128	51.18	67.24	40 000/4 000 (a)	0.017(b)	0.022(b)	101.02	132.70
Portugal Telecom (Telepac)	ADSL		768/128	91.59	120.32	Unlimited/8 000 (a)	0.017(c)	0.022(c)	101.02	132.70
Portugal Telecom (Telepac)	ADSL		1 024/256	142.77	187.55	Unlimited/12 000 (a)	0.017(c)	0.022(c)	101.02	132.70
Portugal Telecom (TV Cabo)	Cable Modem	Speed On (d)	640	39.62	52.04	20 000/1 000 (a)	0.034(e)	0.045(e)	142.73	187.50
<b>Independent ISP Access using Incumbent Local Loops</b>										
Novis	ADSL	Novis Net ADSL Light	512/128	42.38	55.67	4 000	0.033	0.043	66.21	86.98
Novis	ADSL	Novis Net ADSL 512	512/128	63.57	83.50	8 000	0.033	0.043	66.21	86.98
Novis	ADSL	Novis Net ADSL 1024	1 024/256	169.51	222.67	20 000	0.033	0.043	66.21	86.98
<b>Alternative Infrastructure</b>										
Cabovisão	Cable Modem	POP128K	128	21.51	28.25	3 000/1 000 (f)	0.020(g)	0.026(g)	113.19	148.69
Cabovisão	Cable Modem	POP256K	256	29.43	38.66	5 000/1 500 (f)	0.020(g)	0.026(g)	113.19	148.69
Cabovisão	Cable Modem	POP512K	512	40.75	53.53	8 000/2 000 (f)	0.020(g)	0.026(g)	113.19	148.69
Cabovisão	Cable Modem	MEGA	1 024	91.61	120.35	10 000/5 000 (f)	0.020(g)	0.026(g)	113.19	148.69

**Notes:**

(a) Monthly allowance of national data transfer/international data transfer.

(b) This charge is for international data transfer. PT charges EUR 1.5 per 100 MB for additional international data transfer and EUR 0.1 per 100 MB for additional national data transfer over monthly allowance.

(c) This charge is for international data transfer.

(d) TV Cabo offers another pay per minute plan called "Speed Use". This plan charges EUR 0.62 per 30 minutes and the same monthly allowance and additional charges for data transfer as the plan Speed On will be applied.

(e) This charge is for international data transfer. TV Cabo charges EUR 3.04 per 100 MB for additional international data transfer and EUR 0.25 per 100MB for additional national data transfer over monthly allowance.

(f) Download/Upload.

(g) This additional charge is for download. EUR 2.75 per 100 MB will be charged for additional upload.

Source: OECD.

### *Slovak Republic*

The first broadband Internet access service in the Slovak Republic was made available by the cable operator UPC Kabeltel. UPC Kabeltel launched its commercial broadband Internet service in Bratislava in April 2003. UPC Kabeltel's cable modem Internet service operates at two different download speeds, 512 kbps and 768 kbps. The 512 kbps service is priced at USD 45 per month with unlimited data transfer and the 768 kbps service is priced at USD 64 per month with unlimited data transfer (Table 24).

Slovak Telecom, one of the last incumbents to introduce DSL services in the OECD, launched its DSL service in June 2003 in Bratislava and seven other cities. At launch, three different options in speed at 384 kbps, 768 kbps and 2 Mbps were offered with a monthly line rental charge of USD 56, USD 108 and USD 318 respectively. However, in October 2003, Slovak Telecom lowered its DSL monthly line rental charges, pricing 768 kbps and 1.5 Mbps at USD 35 and USD 57 respectively.

Slovak Telecom provides DSL services with a variety of options. But an unmetered option is only available at the download speed of 384 kbps with a monthly charge of USD 23 with the contention ratio of 1.40 and USD 38 with the contention ratio of 1.20. For Slovak Telecom's 768 kbps and 1 536 kbps DSL services, users must choose monthly data transfer allowance options among 1 Megabyte, 3.5 Megabytes, 8 Megabytes and 15 Megabytes. The cost to users is USD 47 at the speed of 768 kbps with a 1 Megabyte monthly data transfer allowance and USD 69 at the speed of 1 536 kbps with a 1 Megabyte data transfer allowance.

Independent ISPs offer DSL services with the same speed category as Slovak Telecom. For example, Nextra offers unmetered 384 kbps DSL service with the monthly charge of USD 32. EuroWeb's 384 kbps unmetered DSL service is priced at USD 28. As with Slovak Telecom's DSL service, users must choose options of a monthly data transfer allowance for 768 kbps and 1 536 kbps DSL services. Table 24 shows some examples of Nextra offers and 1 536 kbps DSL service, with a 1 Megabyte monthly data transfer allowance priced at USD 68.

### *Spain*

Telefonica is the incumbent telecommunication carrier in Spain. Telefonica's baseline broadband access offer is a 256 kbps connection with unlimited data transfer for USD 51 per month (Table 25). Telefonica's 512 kbps service, with unlimited data transfer, is priced at USD 98 per month. Telefonica's ISP (Terra) has similarly priced offers. Independent ISPs such as Wanadoo and Tiscali, that resell Telefonica's wholesale DSL service tend to have similarly priced services. They do, however, have some variations. Wanadoo offer a 128 kbps service for USD 43 per month. Tiscali offers a 256 kbps service metered by data transfer for a fixed price of USD 22 per month in addition to USD 0.03 per Megabyte downloaded. This option would be more economical for users up to the transfer of 833 Megabytes per month.

Spain's two largest cable networks, Auna and ONO, provide less expensive options than equivalent DSL offers. ONO, for example, has a 300 kbps service for USD 43 per month. Auna's service at 300 kbps is priced at USD 39 per month.

Overall, broadband access prices available in Spain are relatively expensive in terms of the price and performance ratio. The sub-broadband offers at 128 kbps and 150 kbps appear particularly expensive when compared to offers at similar speeds in other countries. Higher speed services such as 2 Mbps are available but prices are over USD 180 per month.

Table 24. Broadband prices in the Slovak Republic, October 2003

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
<b>Incumbent</b>										
Slovak Telecom	ADSL	DSL FLAT Basic (a)(b)	384/64	22.56	53.03	Unlimited	0.000	0.000	142.54	335.11
Slovak Telecom	ADSL	DSL FLAT Standard (a)(b)	384/64	37.77	88.79	Unlimited	0.000	0.000	142.54	335.11
Slovak Telecom	ADSL	ST DSL 768 with DSL DATA 1000(b)(c)	768/128	47.24	111.06	1 000	0.013	0.031	142.54	335.11
Slovak Telecom	ADSL	ST DSL 768 with DSL DATA 15000 (b)(c)	768/128	95.39	224.27	15 000	0.005	0.013	142.54	335.11
Slovak Telecom	ADSL	ST DSL 1500 with DSL DATA 1000 (b)(c)	1 536/256	69.42	163.20	1 000	0.013	0.031	142.54	335.11
Slovak Telecom	ADSL	ST DSL 1500 with DSL DATA 15000 (b)(c)	1 536/256	117.57	276.41	15 000	0.005	0.013	142.54	335.11
<b>Independent ISP Access using Incumbent Local Loops</b>										
Nextra	ADSL	Nextra ADSLink Basic	384/64	31.65	74.41	Unlimited	0.000	0.000	0.00	0.00
Nextra	ADSL	Nextra ADSLink Optimal 1	1 536/256	67.55	158.80	1 000	0.019	0.045	126.70	297.87
Nextra	ADSL	Nextra ADSLink Optimal 20	1 536/256	149.92	352.46	20 000	0.003	0.007	126.70	297.87
EuroWeb	ADSL	ADSL EW Flat	384/64	28.20	66.29	Unlimited	0.000	0.000	0.00	0.00
<b>Alternative Infrastructure</b>										
UPC Chello	Cable Modem	Chello classic	512/128	45.23	106.34	Unlimited	0.000	0.000	53.22	125.12
UPC Chello	Cable Modem	Chello plus	768/256	63.87	150.16	Unlimited	0.000	0.000	53.22	125.12

Notes:

(a) DSL FLAT Basic has the contention ratio of 1:40, whereas DSL FLAT Standard has that of 1:20.

(b) Monthly charges with two-year contracts are used.

(c) Slovak Telecom has other options with a monthly data allowance of 3.5 Megabytes and 8 Megabytes.

Source: OECD.

Table 25. Broadband prices in Spain, October 2003

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
<b>Incumbent</b>										
Telefónica	ADSL	Línea ADSL 256	256/128	51.30	57.94	Unlimited	0.00	0.00	50.02	56.50
Telefónica	ADSL	Línea ADSL 512	512/128	98.45	111.20	Unlimited	0.00	0.00	50.02	56.50
Telefónica	ADSL	Línea ADSL 1Mbps	1024	157.56	177.96	Unlimited	0.00	0.00	50.02	56.50
Telefónica	ADSL	Línea ADS: 2Mbps	2 048/300	197.69	223.29	Unlimited	0.00	0.00	50.02	56.50
Terra	ADSL	ADSL Plus	256/128	55.20	62.35	Unlimited	0.00	0.00	50.02	56.50
Terra	ADSL	ADSL a tu medida	512/128	98.45	111.20	Unlimited	0.00	0.00	101.32	114.44
Terra	ADSL	ADSL a tu medida	2 048/300	197.69	223.29	Unlimited	0.00	0.00	101.32	114.44
<b>Independent ISP Access using Incumbent Local Loops</b>										
Wanadoo	ADSL	ADSL Start	128/128	43.20	48.79	Unlimited	0.00	0.00	0.00	0.00
Wanadoo	ADSL	ADSL Speed	256/128	51.21	57.84	Unlimited	0.00	0.00	0.00	0.00
Wanadoo	ADSL	ADSL Expert	512/128	91.84	103.74	Unlimited	0.00	0.00	0.00	0.00
Wanadoo	ADSL	ADSL Professional	2 048/300	183.75	207.55	Unlimited	0.00	0.00	0.00	0.00
Tiscali	ADSL	QDSL Libre	256/128	22.25	25.14	0	0.03	0.04	0.00	0.00
Tiscali	ADSL	ADSL TOP 256	256/128	48.51	54.80	Unlimited	0.00	0.00	0.00	0.00
Tiscali	ADSL	ADSL TOP 512	512/128	89.22	100.77	Unlimited	0.00	0.00	0.00	0.00
Tiscali	ADSL	ADSL TOP 2M	2 048/300	181.12	204.58	Unlimited	0.00	0.00	0.00	0.00
<b>Alternative Infrastructure</b>										
ONO	Cable Modem	150 kbps SIN LÍMITE	150	35.32(a)	39.89(a)	Unlimited	0.00	0.00	60.26	68.07
ONO	Cable Modem	300 kbps SIN LÍMITE	300	43.20(a)	48.79(a)	Unlimited	0.00	0.00	60.26	68.07
ONO	Cable Modem	1024 kbps SIN LÍMITE	1 024	104.91(b)	118.49(b)	Unlimited	0.00	0.00	60.26	68.07
AUNA	Cable Modem	Net 128	128	34.14	38.56	Unlimited	0.00	0.00	78.91	89.13
AUNA	Cable Modem	Net 300	300	39.39	44.49	Unlimited	0.00	0.00	78.91	89.13
AUNA	Cable Modem	Net 600	600	91.91	103.81	Unlimited	0.00	0.00	78.91	89.13

Notes:

(a) These monthly charges are applied with a package plan of either ONO 2 000D, ONO 4 000D or ONO 6 000D.

(b) With a package plan of ONO 6 000D, it costs an additional USD 45.95 (USD PPP 51.90) to have 1 024Kbps SIN LÍMITE Internet access.

Source: OECD.

## *Sweden*

Sweden was an early leader in the take-up of broadband networks having the third highest penetration in the OECD by June 2001. Two years later, in June 2003, Sweden had the seventh highest penetration of broadband access in the OECD. The early take-up of broadband coincided with Sweden having among the lowest broadband access prices in the OECD in 2001. Prices subsequently rose at a time when they were generally falling in other countries. Accordingly, while broadband growth continued apace in Sweden a number of other countries overtook that country. In the second half of 2003, however, there are signs that Sweden is returning to being a leader in terms of price and performance ratios.

The main driver in Sweden's early success with broadband access was arguably the same as in Japan and Korea. In all three countries a new entrant began offering high speed access at relatively low prices which in turn made the incumbent's own offers far more competitive. In Sweden the new entrant which first shook up the market was Bredbandsbolaget (B2). B2 began by offering broadband access (10 Mbps) to apartment buildings, using Ethernet LANs, at the then least expensive price for broadband access in the OECD. In response TeliaSonera, the incumbent operator, also offered relatively inexpensive broadband access compared to operators in other countries. As the market developed Telia began to differentiate their prices for apartment buildings and individual dwellings which were not served by B2.

Over time both TeliaSonera and B2 raised their prices. TeliaSonera said price rises were necessary to cover the cost of expanding DSL access to areas not covered by their initial deployments. B2 also raised its prices as the company looked for a greater return on invested capital. Even then, for those users in urban areas who could take B2's service the company's broadband price performance ratio was still amongst the best in the OECD. More recently the Swedish market is again showing signs of leading competitive development in Europe. One factor in this has been TeliaSonera's divestiture of its cable company (ComHem) which created an additional platform for competition. This divestiture was a requirement of the merger between Telia and Sonera. ComHem's baseline cable modem services ranging from 250 kbps to 2 Mbps are now significantly less expensive than TeliaSonera's prices (Table 26).

ISPs have emerged using unbundled local loops to offer broadband access. The most striking offer is that of Bostream which offers a VDSL service up to 26 Mbps for USD 48 per month. One caveat applies to Bostream's pricing structure. To receive the Bostream VDSL service a customer needs to be within 300 metres of an exchange. For the same tariff a customer within one kilometre can receive a 13 Mbps service. For users of this service beyond one kilometre the same price purchases a service up to 8 Mbps. Bostream's offer is leading to some interesting developments in the Swedish market. In its initial response to B2, TeliaSonera offered relatively low prices by the standards of that time but did not seek to offer exceptional broadband access speeds in response to B2's 10 Mbps service. This was possibly because B2 had a relatively limited coverage available as an Ethernet LAN provider. By way of contrast TeliaSonera's apparent response to Bostream's VDSL offer was to launch a new range of higher speed broadband access offers.

In November 2003, Telia launched new high-speed broadband services for customers.<sup>17</sup> Approximately 30% of all Swedish households and businesses will be able to order one of the new services. One of the asymmetric DSL services offers speeds up to 8 Mbps for USD 54 per month. The service will be available in a number of major towns and cities in Sweden, as well as in locations where municipal authorities are investing in ADSL technology as part of the Swedish government's broadband initiative. The other service, based on VDSL technology, operates at speeds up to 10 Mbps with a monthly charge of USD 54 and will be offered to customers in Stockholm. Accordingly, Telia reduced the price of Telia Broadband 2000, shown in Table 26, from USD 57 to USD 54 and removed the monthly allowance of data transfer in January 2004.

After being one of the early leaders and then witnessing prices increase, the Swedish market can once again be viewed as increasingly competitive. The divestiture of ComHem has increased competition at the baseline end of the market as the cable company seeks to entice customers away from dial-up. As part of TeliaSonera there was little incentive to compete in this market segment. At the premium end of the market Sweden has returned to being one of the leaders in terms of its broadband access price and performance ratios.

**Table 26. Broadband prices in Sweden, October 2003**

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
<b>Incumbent</b>										
Telia	ADSL	Telia Broadband 250	250/64	36.09	31.05	Unlimited	0.000	0.000	83.90	72.17
Telia	ADSL	Telia Broadband 500	500/400	45.27	38.94	Unlimited	0.000	0.000	83.90	72.17
Telia	ADSL	Telia Broadband 2000	2 048/400	57.34	49.32	10 000	0.003	0.003	83.90	72.17
<b>Independent ISP Access using Incumbent Local Loops</b>										
Tele2	ADSL	Tele2 Bredband ADSL	500/400-500	43.34	37.28	Unlimited	0.000	0.000	71.83	61.78
Glocalnet	ADSL		500	43.34	37.28	Unlimited	0.000	0.000	59.75	51.40
Bostream	ADSL	istream	500	35.97	30.94	Unlimited	0.000	0.000	240.83	207.16
Bostream	ADSL	xstream (ADSL over Ethernet)	2 500/768	54.20	46.62	Unlimited	0.000	0.000	301.18	259.08
Bostream	VDSL	Scream	26 000/26 000	48.04	41.33	Unlimited	0.000	0.000	301.18	259.08
<b>Alternative Infrastructure</b>										
ComHem	Cable Modem	Internet cable 250	250/64	27.16	23.36	Unlimited	0.000	0.000	47.68	41.02
ComHem	Cable Modem	Internet cable 500	512/128	35.61	30.63	Unlimited	0.000	0.000	47.68	41.02
ComHem	Cable Modem	Internet cable 1000	1 024/200	42.25	36.34	Unlimited	0.000	0.000	47.68	41.02
ComHem	Cable Modem	Internet cable 2000	2 048/400	47.68	41.02	Unlimited	0.000	0.000	47.68	41.02
UPC	Cable Modem	Chello classis	640/256	42.13	36.24	Unlimited	0.000	0.000	59.75	51.40
UPC	Cable Modem	Chello plus	1 024/384	48.17	41.43	Unlimited	0.000	0.000	42.13	36.24
Tele2	Cable Modem	Tele2 Bredband Kable	512/128	30.06	25.86	Unlimited	0.000	0.000	71.83	61.78
Bredbandsbolaget	Ethernet LAN	Bredband via bredbandsuttag	10 000	38.63	33.23	Unlimited	0.000	0.000	59.75	51.40
Bredbandsbolaget	DSL	Bredband via teleuttag	10 000	48.17	41.43	Unlimited	0.000	0.000	240.83	207.16

Source: OECD.

### Switzerland

Swisscom, the incumbent operator in Switzerland, starts its baseline DSL offer at USD 35 per month for an unmetered 300 kbps service (Table 27). The premium offer for residential customers is the 600 kbps unmetered service for USD 57 per month. Although the Swiss Government has taken the decision to introduce unbundling this had not occurred by September 2003. Accordingly, all the offers of independent ISPs such as Tiscali and TDC's Sunrise are based on Swisscom's wholesale offer. As such they offer identical levels of service in terms of capacity and closely mirror the prices of Swisscom.

Services aimed at business users, with higher downstream and upstream speeds, have a considerably higher price than the residential services. This difference may reflect the lack of unbundling if independent ISPs base their own offers to business users on Swisscom's wholesale service. Unbundling provides one avenue for ISPs to significantly differentiate their service based on price or level of capacity compared to wholesale offers.

Cablecom is the largest cable company in Switzerland. Cablecom's price for their 300 kbps service is higher than Swisscom's but similar for the 600 kbps service. Both services, however, have higher advertised upstream speeds. Cablecom's higher speed services are significantly less expensive than those for Swisscom but with lower upstream speeds. Cablecom's 1 Mbps service, for example, is half the price (USD 112) of Swisscom's 1 Mbps service (USD 216) but also has half the upstream capacity on offer (*i.e.* 256 kbps instead of 512 kbps). In November 2003, Cablecom upgraded its various service speeds and reduced monthly charges. The 300 kbps offer was upgraded to 500 kbps and then priced at USD 32. The highest download speed on offer was raised to 3 000 kbps with a monthly charge of USD 108.

**Table 27. Broadband prices in Switzerland, October 2003**

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
<b>Incumbent</b>										
Swisscom	ADSL	Broadway ADSL300	300/50	35.47	25.85	Unlimited	0.00	0.00	0.00	0.00
Swisscom	ADSL	Broadway ADSL600	600/100	57.18	41.68	Unlimited	0.00	0.00	0.00	0.00
Swisscom	ADSL	Gateway ADSL	1 024/512	216.43	157.75	Unlimited	0.00	0.00	0.00	0.00
Swisscom	ADSL	Gateway ADSL	2 048/512	317.77	231.61	Unlimited	0.00	0.00	0.00	0.00
<b>Independent ISP Access using Incumbent Local Loops</b>										
TDC Switzerland (Sunrise)	ADSL	ADSL 300	300/50	35.47	25.85	Unlimited	0.00	0.00	0.00	0.00
TDC Switzerland (Sunrise)	ADSL	ADSL 600	600/100	57.18	41.68	Unlimited	0.00	0.00	0.00	0.00
Tiscali	ADSL	Private 300	300/50	34.02	24.80	Unlimited	0.00	0.00	84.69	61.73
Tiscali	ADSL	Private 600	600/100	54.29	39.57	Unlimited	0.00	0.00	84.69	61.73
<b>Alternative Infrastructure</b>										
Cablecom	Cable Modem	highspeed 128	128/64	28.95	21.10	Unlimited	0.00	0.00	0.00	0.00
Cablecom	Cable Modem	highspeed 300	300/100	46.33	33.77	Unlimited	0.00	0.00	0.00	0.00
Cablecom	Cable Modem	highspeed 600	600/200	57.91	42.21	Unlimited	0.00	0.00	0.00	0.00
Cablecom	Cable Modem	highspeed 1 024	1 024/256	112.20	81.78	Unlimited	0.00	0.00	0.00	0.00
Cablecom	Cable Modem	highspeed 2 048	2 048/256	184.58	134.54	Unlimited	0.00	0.00	0.00	0.00

Note:

(a) Monthly charges of Cablecom's cable modem Internet connection include monthly modem rental charge.

Source: OECD.

## Turkey

Turk Telekom, the incumbent telecommunication carrier which has a monopoly over voice transmission services until the beginning of 2004, offers DSL services with five different speed options between 128 kbps and 2 Mbps (Table 28). The baseline DSL offer at 128/32 kbps costs USD 35 per month with unlimited data transfer. Higher speed DSL services are much more expensive than other OECD countries. The 256/64 kbps service is priced at USD 121 per month and the 1 024/256 kbps service costs USD 995 per month. Turk Telekom's 2 Mbps service is priced at USD 1 686 per month. While it still retains its monopoly Turk Telekom's DSL pricing may be aimed at deterring users from giving up leased lines or ISDN in favour of DSL.

As one of the largest cable TV service providers, Ultra Kablo TV offers cable modem services at the speed of 128/32 kbps, 256/64 kbps and 512/128 kbps. Although the monthly charge of USD 51 for the baseline offer at 128/32 kbps is higher than the monthly charge for the baseline offer of Turk Telekom's DSL service, the company's 256/64 kbps and 512/128 kbps cable modem services have a less expensive monthly charge, of USD 84 and USD 147, than Turk Telekom's DSL service.

Among independent ISPs which offer broadband Internet services, Superonline provides DSL and Satellite Internet access. Superonline's DSL service is provided with three different speed options, 128 kbps, 256 kbps, 512 kbps, but the price information was not available at the time of writing. The satellite Internet access service at 512 kbps is priced at USD 56 with a 400 Megabytes monthly data transfer limit and USD 130 with a 1 Gigabyte monthly data transfer limit. Upstream connection is made using the PSTN but the unlimited dial-up connection for upstream connection is included in monthly charges.

Prices in Turkey, particularly for DSL, would be expected to fall considerably as infrastructure competition is introduced in 2004.

**Table 28. Broadband prices in Turkey, October 2003**

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
<b>Incumbent</b>										
Turk Telekom	ADSL		128/32	34.88	70.48	Unlimited	0.00	0.00	12.10	24.45
Turk Telekom	ADSL		256/64	121.01	244.51	Unlimited	0.00	0.00	12.10	24.45
Turk Telekom	ADSL		512/128	370.16	747.91	Unlimited	0.00	0.00	12.10	24.45
Turk Telekom	ADSL		1 024/256	995.16	2 010.73	Unlimited	0.00	0.00	12.10	24.45
Turk Telekom	ADSL		2 048/512	1 686.36	3 407.31	Unlimited	0.00	0.00	12.10	24.45
<b>Alternative Infrastructure</b>										
Ultra Kablo TV	Cable Modem		128/32	50.54	102.12	Unlimited	0.00	0.00	18.63	37.63
Ultra Kablo TV	Cable Modem		256/64	84.00	169.72	Unlimited	0.00	0.00	18.63	37.63
Ultra Kablo TV	Cable Modem		512/128	147.35	297.73	Unlimited	0.00	0.00	18.63	37.63
Superonline	Satellite	<i>Skyrunner Silver (a)</i>	<i>512/56 (b)</i>	56.48	114.13	<i>400 (C)</i>	0.00	0.00	40.93	82.70
Superonline	Satellite	<i>Skyrunner Gold (a)</i>	<i>512/56 (b)</i>	130.16	262.99	<i>1000 (C)</i>	0.00	0.00	40.93	82.70

Notes:

(a) Skyrunner service includes both Internet access and 12 TV channels.

(b) Upload is by dial-up. Unlimited dial up connection is included in the monthly charge.

(c) Skyrunner assures average 512kbps download up to the monthly allowance. Additional data over the monthly allowance will be transferred on a best effort basis.

Source: OECD.

### **United Kingdom**

BT, the incumbent operator in the United Kingdom, has two baseline DSL offers aimed at residential users. The 'Broadband Home' service is BT's so called no frills service which offers basic Internet access, at 512 kbps downstream with unlimited data transfer, for USD 43 per month (Table 29). The baseline product BT co-brands with Yahoo operates at the same speed but has additional features and content. BT's higher speed offers at 1 Mbps and 2 Mbps are aimed at business users.

A range of independent ISPs use BT's wholesale offer or unbundled local loops to offer DSL service. ISPs reselling BT's wholesale service, such as Freeserve, Demon, Pipex and Bulldog, offer broadband access at 512 kbps for between USD 37 and USD 44 per month. For business users Bulldog has a service offering access up to 4 Mbps.

Several ISPs have sought to segment the market with relatively low speeds. Tiscali, for example offers a sub-broadband service at 150 kbps for USD 25 and a 256 kbps service for USD 32. NTL, the United Kingdom's largest cable company, also offers a 150 kbps service at USD 29 per month. On the other hand the cable companies in the United Kingdom offer higher speed broadband access aimed at



residential users. NTL has a 600 kbps offer for USD 39 per month and a 1 Mbps offer for USD 56 per month. Telewest has a 2 Mbps service aimed at residential users for USD 80 per month.

As in a number of other countries the United Kingdom has witnessed the emergence of a growing number of WISPs. FDM Broadband commenced operations in Hungerford, Berkshire at the end of May 2003. The WISP offers symmetrical broadband access at 256 kbps for USD 43 per month.

The United Kingdom is also one of the OECD countries in which commercial broadband access over power lines is available. In August 2003, Scottish and Southern Electric launched a commercial trial of broadband services in Winchester using power line communications technology. A symmetrical 1 Mbps service is available for USD 48 per month. The availability of technologies such as fixed wireless and power-lines adds to the UK government's aim of promoting consumer choice at the retail level through the provision of a variety of technologies and suppliers to stimulate competition and lower prices, as well as broadband market regulation, including local loop unbundling and shared access. For example, over 150 ISPs resell incumbent (BT) DSL services in the United Kingdom. Some 45% of customers have a choice between ADSL and cable modem services.

**Table 29. Broadband prices in the United Kingdom, October 2003**

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
<b>Incumbent</b>										
BT	ADSL	BT Broadband Home	512/256	43.03	40.77	Unlimited	0.00	0.00	0.00	0.00
BT	ADSL	BT Yahoo! Broadband Home	512/256	47.79	45.29	Unlimited	0.00	0.00	0.00	0.00
BT	ADSL	1000PLUS Plug & Go	1024	187.25	177.44	Unlimited	0.00	0.00	0.00	0.00
BT	ADSL	2000PLUS Plug & Go	2048	243.43	230.68	Unlimited	0.00	0.00	0.00	0.00
BT	Satellite	Business Satellite 500/1	512/150	112.33	106.45	Unlimited	0.00	0.00	561.75	532.33
<b>Independent ISP Access using Incumbent Local Loops</b>										
Freeserve	ADSL		512/256	44.61	42.27	Unlimited	0.00	0.00	0.00	0.00
PIPEX	ADSL	Xtreme Solo 500	512/256	37.35	35.40	Unlimited	0.00	0.00	0.00	0.00
Tiscali	ADSL	up to 3x faster	150	25.48	24.15	Unlimited	0.00	0.00	39.84	37.75
Tiscali	ADSL	up to 5x faster	256	31.86	30.19	Unlimited	0.00	0.00	79.68	75.51
Tiscali	ADSL	up to 10x faster	512	43.01	40.76	Unlimited	0.00	0.00	0.00	0.00
Demon	ADSL	Demon Express Solo	512/256	39.82	37.74	Unlimited	0.00	0.00	79.68	75.51
Demon	ADSL	Demon Express Pro	2 048/256	147.93	140.18	Unlimited	0.00	0.00	280.88	266.17
Demon	ADSL	Broadband Business 1000	1 024/256	102.99	97.59	Unlimited	0.00	0.00	93.63	88.72
Demon	ADSL	Broadband Business 2000	2 048/256	129.20	122.44	Unlimited	0.00	0.00	93.63	88.72
Bulldog	ADSL	AllTime 500	512/256	37.43	35.47	Unlimited	0.00	0.00	93.61	88.70
Bulldog	ADSL	AllTime 1000 40:1	1 024/256	46.79	44.34	Unlimited	0.00	0.00	46.79	44.34
Bulldog	ADSL	AllTime 2000	2 048/256	71.14	67.41	Unlimited	0.00	0.00	46.79	44.34
Bulldog	ADSL	PrimeTime 1000 Special	1 024/512/400 (a)	37.43	35.47	Unlimited	0.00	0.00	131.06	124.19
Bulldog	ADSL	PrimeTime 2000	2 048/512/400 (a)	63.65	60.32	Unlimited	0.00	0.00	46.79	44.34
Bulldog	ADSL	PrimeTime 4000	4 096/512/400 (a)	125.43	118.86	Unlimited	0.00	0.00	46.79	44.34
Bulldog	ADSL	BizTime 4000	4 096/256	202.22	191.62	Unlimited	0.00	0.00	46.79	44.34

**Table 29. Broadband prices in the United Kingdom, October 2003  
(cont'd)**

Company	Access Type	Plan	Speed (kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
				in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
<b>Alternative Infrastructure</b>										
NTL	Cable Modem	150K	150	28.67	27.17	Unlimited	0.00	0.00	0.00	0.00
NTL	Cable Modem	600K	600	39.82	37.74	Unlimited	0.00	0.00	0.00	0.00
NTL	Cable Modem	1Mb	1 024	55.76	52.84	Unlimited	0.00	0.00	0.00	0.00
Telewest	Cable Modem	blueyonder broadband	512	39.84(b)	37.75	Unlimited	0.00	0.00	0.00	0.00
Telewest	Cable Modem	blueyonder 1Mb	1 024	55.78(b)	52.86	Unlimited	0.00	0.00	0.00	0.00
Telewest	Cable Modem	blueyonder 2Mb	2 048	79.68(b)	75.51	Unlimited	0.00	0.00	0.00	0.00
FDM Broadband	Fixed Wireless	FDM Access	256/256	42.97	40.72	Unlimited	0.00	0.00	365.14	346.02
FDM Broadband	Fixed Wireless	FDM-Home 512S	512/512	56.08	53.14	Unlimited	0.00	0.00	365.14	346.02
FDM Broadband	Fixed Wireless	FDM-Business 1024S	1 024/1 024	185.38	175.67	Unlimited	0.00	0.00	561.75	532.33
Scottish Hydro Electric	Power Line	1 Mbps	1 024/1 024	47.79	45.29	Unlimited	0.00	0.00	79.68	75.51

Notes:

(a) Downstream from 6pm-8am / Downstream (8am-6pm)/Upstream.

(b) Tariff with other Telewest services.

Source: OECD.

### United States

In 2003 several diverse trends were occurring in the pricing of broadband access in the United States. Incumbent telecommunication carriers, responding to the market lead of cable companies and the emergence of smaller players using fixed wireless broadband in specific markets, implemented a number of significant changes to their pricing structures. The most obvious change was the introduction of reduced prices for DSL services. Other changes included raising or lowering threshold offers to either make these offers more competitive against higher speed cable modem services (*i.e.* raising baseline speeds) or to introduce greater segmentation into the market (*i.e.* lower speed baseline offers). A third trend was to offer bundles of services such as discounts for taking telephony and DSL services together or even free additional WiFi services for subscribers.

The two largest local exchange carriers in the United States are Verizon and SBC. Verizon's traditional service area includes New York where one of the leading competitors is Time Warner Cable. In the second quarter of 2003, Verizon cut its baseline DSL service to USD 34.95 per month (Table 30). However if subscribers also elect to take Verizon's local and long-distance telephony services the price is further reduced to USD 29.95 per month. If a user is within 3.6 kilometres of an exchange the speed of this service is 1.5 Mbps. Beyond that distance, a 768 kbps service is offered to customers which, prior to the changes implemented in 2003, was the baseline speed available to all customers.

SBC also implemented price changes in 2003. One of these was that SBC implemented greater segmentation to its offers aimed at residential customers, including a new baseline offer at 386 kbps for USD 26.95. One caveat, however, needs to be noted. This price is for the first 12 months of service and if no further change is implemented by SBC the price will rise to USD 39.95 in subsequent months. Whether this will in fact occur will depend on market conditions at the time, including the response of other players in the market.

The initial response of some of the leading cable companies to the price reductions implemented by the telecommunication carriers was not to lower prices but to raise the level of service. In October 2003, Comcast announced that it would boost its baseline service from 1.5 Mbps to 3 Mbps for the same price.<sup>18</sup> Cable company offers from the same company can vary across different parts of the United States. The Comcast offer in Table 30 is for a user in Washington DC also taking cable television service from that company. Comcast's standalone cable modem service costs USD 57.95 per month. Time Warner is also increasing its baseline speed to 3 Mbps (albeit 2 Mbps was still shown on the Website for its New York network at the time data were gathered). For this service Time Warner charges USD 45 per month to an existing cable television customer. Comcast and Time Warner are the two largest cable companies in the United States. Cox Cable, the third largest cable modem operator in the United States, offers a 3 Mbps service for USD 39.95 to existing cable television subscribers. As a standalone service Cox offers the same service for USD 49.95.

Accordingly, two very different strategies were being played out in the United States. Telecommunication carriers were lowering prices and following the cable companies by bundling products which offer additional discounts for DSL or additional services (*e.g.* WiFi). By way of contrast the cable companies were holding prices constant but raising the level of service on offer. This raises the question of whether, over time, one of the players will shift towards the other's strategy. The first signs of this seemed to be emerging, in November 2003, with some cable companies offering price reductions for the first year of service (although prices then revert to standard levels).<sup>19</sup> This may support those analysts who have concluded that price sensitivity will receive more attention as broadband becomes a mainstream market. Here it is also necessary to note that a growing number of relatively small WISPs have emerged to place pressure on both the other platforms.

Four examples of WISP pricing are shown for different parts of the United States in urban and rural areas. Amerilinx, for example, offers a baseline fixed wireless service in Las Vegas, with speeds up to 1.5 Mbps, for USD 25 per month. Evertek (Net Broadband) serves rural communities in Northwest Iowa. Clearwire's offer is in Jacksonville, Florida and Wheatland Broadband offers service in rural areas of Southwest Kansas. Accordingly the future pricing of DSL and cable will also have to take into account the price and performance ratios offered by WISPs.

Independent ISPs also offer broadband access services. Covad, for example, offers services aimed at business users with unbundled local loops. Earthlink offers both cable modem and DSL services using access provided by telecommunication carriers or cable companies. Earthlink's DSL service is priced at USD 22 for the first three months followed by USD 49 per month. This price is relatively expensive for a 512 kbps connection compared to the offers of local exchange carriers. Earthlink markets the service by showing a comparison between their dial-up prices (USD 22) plus the cost of a second telecommunication line (USD 27) for a total of USD 49 compared to their price for DSL (USD 49). While this is true (albeit second line prices vary across the United States) users could equally give up a second line with direct subscriptions to a local exchange carrier. This suggests that to remain competitive independent ISPs will either need to develop their own infrastructure (*e.g.* fixed wireless), strike new commercial arrangements with infrastructure providers or offer services and content for which users are willing to pay a higher price. In any event the level of competition increased significantly in 2003 and this was reflected in improving price performance ratios for users in the United States.

It is important to note that some of the companies listed in Table 30 serve different areas and do not therefore always compete against each other. There is, however, increasing competition between operators of different platforms in the same area. In addition satellite service covers most areas. Earthlink, for example, offers broadband access via DirectTV's satellite platform. Earthlink charges USD 69.95 per month for a service delivering up to 500 kbps downstream and 60 kbps upstream. This service is a two

satellite service meaning the PSTN is not required for the uplink. The EarthLink service is available to any user in the continental United States with an unobstructed view of the southern sky.

**Table 30. Broadband prices in the United States, October 2003**

Company	Access Type	Plan	Speed (kbps)	Monthly Charge in USD	Mbytes Included (per month)	Additional Cost per Mbyte in USD	Installation Charge in USD
<b>Incumbent</b>							
Verizon	ADSL	Taken with Telephony	1 500/128 (a)	29.95	Unlimited	0.00	12.95
Verizon	ADSL	Taken without Telephony	1 500/128 (a)	34.95	Unlimited	0.00	12.95
Verizon	ADSL	Business DSL	1 500/128 (a)	59.95	Unlimited	0.00	25.00
Verizon	ADSL	Business DSL	1 500/384	89.95	Unlimited	0.00	25.00
Verizon	ADSL	Business DSL	768/768	129.95	Unlimited	0.00	25.00
Verizon	ADSL	Business DSL	7 100/768	204.95	Unlimited	0.00	25.00
SBC	ADSL	SBC Yahoo (Basic Package)	384/128	26.95 (39.95)	Unlimited	0.00	0.00
SBC	ADSL	SBC Yahoo (Standard Plus Package)	384-1 500/128	26.95 (49.95)	Unlimited	0.00	0.00
SBC	ADSL	SBC Yahoo (Deluxe Package )	768-1 500/128	36.95 (59.95)	Unlimited	0.00	0.00
<b>Independent ISP Access using Incumbent Local Loops</b>							
Covad	ADSL	TeleSoho	1 500/384	69.95	Unlimited	0.00	0.00
Covad	ADSL	TeleSoho	3 000/384	149.95	Unlimited	0.00	0.00
EarthLink	ADSL	HighSpeed DSL	768/128	49.95	Unlimited	0.00	0.00
<b>Alternative Infrastructure</b>							
Time Warner	Cable Modem	Road Runner	2 048/384	44.95	Unlimited	0.00	0.00
Time Warner	Cable Modem	Road Runner (Business Class, RR Pro)	2 048/384	109.95	Unlimited	0.00	0.00
Time Warner	Cable Modem	Road Runner (Business Class, RR Corporate)	3 000/512	299.95	Unlimited	0.00	0.00
Time Warner	Cable Modem	Road Runner (Business Class, RR Premier)	4 096/1 024	799.95	Unlimited	0.00	0.00
Comcast	Cable Modem	High-Speed Internet for Current Comcast Cable Customers	1 500	42.95	Unlimited	0.00	0.00
Cox Cable	Cable Modem	High Speed Internet (Orange County)	3 000/256	39.95	Unlimited	0.00	99.00
Amerilinx	Fixed Wireless	Residential Access Only	1 500/128	24.95	Unlimited	0.00	199.00
Clearwire	Fixed Wireless	Residential	512	49.95	Unlimited	0.00	0.00
Wheatland Broadband	Fixed Wireless		512	37.00	Unlimited	0.00	0.00
Wheatland Broadband	Fixed Wireless		768	57.00	Unlimited	0.00	0.00
Wheatland Broadband	Fixed Wireless		1 024	87.00	Unlimited	0.00	0.00
Everttek	Fixed Wireless	Residential	512	34.95	Unlimited	0.00	0.00
EarthLink	Satellite	EarthLink Satellite, powered by DIRECWAY	500/60	69.95	Unlimited	0.00	599.90

Notes:

(a) Customers will be provisioned at 1.5/128 or 768/128 speeds according to Verizon Online's standard loop qualification guidelines. In general, customers with loop lengths less than 3.6 Kilometers will receive the 1.5Mb/128Kbps service; those above the threshold levels will be provisioned with the 768/128Kbps service.

(b) SBC Yahoo monthly prices are for the first year of service. Prices in brackets show the subsequent monthly price.

(c) EarthLink installation price includes a standard installation fee (USD 249.95) and equipment (USD 395.95).

Source: OECD.

## ANNEX

Annex Table 1. Broadband offers ranked by capacity, offers from 10 Mbps to 100 Mbps, October 2003

Country	Company	Access Type	Plan	Download Speed (Kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Japan	KDDI	Fibre/Ethernet LAN	Hikari Plus Ethernet Type	100000	100000	24.62	20.07	Unlimited	0.000	0.000	167.17	136.28
Japan	USEN	FTTH	For apartments (Broad Gate 01 Type E)	100000	100000	35.38	28.84	Unlimited	0.000	0.000	159.21	129.79
Japan	USEN	FTTH	For stand alone dwellings (Broad Gate 01 Type E)	100000	100000	50.42	41.10	Unlimited	0.000	0.000	291.89	237.95
Japan	NTT East	FTTH	Shared connection for apartments (B FLET'S for apartments Type II)	100000	100000	52.45	42.76	Unlimited	0.000	0.000	105.26	85.80
Japan	NTT East	FTTH	Shared connection for stand alone dwellings (B FLET'S New family type)	100000	100000	67.05	54.66	Unlimited	0.000	0.000	239.70	195.40
Japan	NTT East	FTTH	Line dedicated to single connection (B FLET'S Basic type)	100000	100000	158.33	129.07	Unlimited	0.000	0.000	239.70	195.40
Japan	KDDI	Fibre/VDSL	Hikari Plus VDSL Type	70000	30000	28.02	22.84	Unlimited	0.000	0.000	185.75	151.42
Japan	eAccess	ADSL	ADSL PlusQ(40M)	40000	1024	38.46	31.35	Unlimited	0.000	0.000	26.98	21.99
Japan	Yahoo BB	ADSL	Yahoo BB 26M	26000	1024	25.19	20.54	Unlimited	0.000	0.000	34.05	27.76
Sweden	Bostream	VDSL	Scream	26000	26000	48.04	41.33	Unlimited	0.000	0.000	301.18	259.08
Japan	NTT East	ADSL	More II (24M type)	24000	1024	41.57	33.89	Unlimited	0.000	0.000	34.05	27.76
Korea	Hanaro Telecom	DSL	V Dream	20000		41.25	66.38	Unlimited	0.000	0.000	28.01	45.07
Korea	KT	DSL	Megapass Special	13000		42.01	67.61	Unlimited	0.000	0.000	28.01	45.07
Japan	Yahoo BB	ADSL	Yahoo BB 12M	12000	1024	23.42	19.09	Unlimited	0.000	0.000	34.05	27.76
Japan	NTT East	ADSL	More (12M type)	12000	1024	41.13	33.53	Unlimited	0.000	0.000	34.05	27.76

Annex Table 1. Broadband offers ranked by capacity, offers from 10 Mbps to 100 Mbps, October 2003  
(cont'd)

Country	Company	Access Type	Plan	Download Speed (Kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Canada	Gulf Islands Wireless Networks	Fixed Wireless	GI Lite	11000		23.00	27.06	1000	0.115	0.135	0.00	0.00
Canada	Gulf Islands Wireless Networks	Fixed Wireless	GI Lite	11000		30.67	36.08	2000	0.115	0.135	0.00	0.00
Korea	Hanaro Telecom	Cable Modem	CATV PRO	10000		30.16	48.53	Unlimited	0.000	0.000	28.01	45.07
Korea	Thrunet	DSL	Multiplus Saver	10000		31.74	51.08	Unlimited	0.000	0.000	33.61	54.09
Korea	Thrunet	Cable Modem	Multiplus Cable	10000		35.48	57.09	Unlimited	0.000	0.000	33.61	54.09
Sweden	Bredbandsbolaget	Ethernet LAN	Bredband via bredbandsuttag	10000		38.63	33.23	Unlimited	0.000	0.000	59.75	51.40
Finland	Oulun puhelin	ADSL	shared apartment access	10000		45.16	40.36	Unlimited	0.000	0.000	90.44	80.83
Sweden	Bredbandsbolaget	DSL	Bredband via teleuttag	10000		48.17	41.43	Unlimited	0.000	0.000	240.83	207.16
Italy	FastWeb	Fibre/LAN	Internet Senza Limiti	10000		79.37	87.81	Unlimited	0.000	0.000	107.53	118.97
Italy	FastWeb	Fibre/LAN	Internet Senza Limiti	10000		96.21	106.45	Unlimited	0.000	0.000	107.53	118.97
Denmark	NVE	FTTH	FTH Internet	10000	10000	104.24	83.02	Unlimited	0.000	0.000	749.92	597.28

Source: OECD.

DSTI/ICCP/TISP(2003)8/FINAL  
Annex Table 2. Broadband offers ranked by capacity, offers from 2 Mbps to less than 10 Mbps, October 2003

Country	Company	Access Type	Plan	Download Speed (Kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Netherlands	Cistron	ADSL	Maxx	8192	1024	89.42	82.92	100000		0.00	0.00	0.00
Denmark	Cybercity	ADSL	8000/768	8192	768	455.95	363.14	Unlimited	0.000	0.000	0.00	0.00
Norway	NextGenTel	ADSL	Echo	8032	864	175.00	142.92	Unlimited	0.000	0.000	134.55	109.89
Japan	Yahoo BB	ADSL	Yahoo BB 8M	8000	900	21.65	17.65	Unlimited	0.000	0.000	34.05	27.76
Korea	Hanaro Telecom	DSL	V PRO	8000		33.35	53.67	Unlimited	0.000	0.000	28.01	45.07
Korea	KT	DSL	Megapass Premium	8000		33.61	54.09	Unlimited	0.000	0.000	28.01	45.07
Japan	NTT East	ADSL	8M type	8000	1024	40.69	33.17	Unlimited	0.000	0.000	34.05	27.76
Japan	J-Com	Cable Modem	J-Com Net	8000	2048	42.25	34.44	Unlimited	0.000	0.000	113.72	92.71
United States	Verizon	ADSL	Business DSL	7100	768	204.95	204.95	Unlimited	0.000	0.000	25.00	25.00
Canada	Cogeco	Cable Modem	Hi Speed Internet Pro	5000	640	49.82	58.60	30000	0.000	0.000	0.00	0.00
United Kingdom	Bulldog	ADSL	PrimeTime 4000	4096	512	125.43	118.86	Unlimited	0.000	0.000	46.79	44.34
Denmark	TDC Cable TV	Cable Modem		4096	256	125.84	100.22	Unlimited	0.000	0.000	104.24	83.02
United Kingdom	Bulldog	ADSL	BizTime 4000	4096	256	202.22	191.62	Unlimited	0.000	0.000	46.79	44.34
Finland	Saunalahti	ADSL		4096	512	226.37	202.32	Unlimited	0.000	0.000	181.10	161.85
Denmark	Cybercity	ADSL	4000/768	4096	768	227.97	181.57	Unlimited	0.000	0.000	0.00	0.00
Finland	Elisa	ADSL		4096	512	441.43	394.52	Unlimited	0.000	0.000	142.61	127.46
United States	Time Warner	Cable Modem	Road Runner (Business Class, RR Premier)	4096	1024	799.95	799.95	Unlimited	0.000	0.000	0.00	0.00
Denmark	SONOFON	Fixed Wireless	SONOFON Bredband PRO	4096	2048	806.16	642.07	Unlimited	0.000	0.000	118.79	94.61
Belgium	Coditel	Cable Modem		4000	128	40.75	38.60	15000	0.001	0.001	84.89	80.43
Belgium	Telenet	Cable Modem	Coditel.net	4000	128	47.48	44.98	10000			45.27	42.89
Belgium	Scarlet	ADSL		3300	384	44.70	42.35	10000			0.00	0.00
Canada	Bell Canada	ADSL	High Speed Ultra	3072	640	45.98	54.09	Unlimited	0.000	0.000	19.18	22.56
Netherlands	Tiscali	ADSL	Tiscali ADSL Live!	3072	512	56.54	52.43	20000	0.006	0.005	0.00	0.00
Canada	Cogeco	Cable Modem	Hi-Speed Internet Standard	3000	400	30.64	36.05	15000	0.000	0.000	0.00	0.00
Belgium	Tiscali	ADSL		3000	128	39.62	37.53	10000			0.00	0.00
United States	Cox Cable	Cable Modem	High Speed Internet (Orange County)	3000	256	39.95	39.95	Unlimited	0.000	0.000	99.00	0.00
Belgium	Belgacom	ADSL	ADSL Skynet Go	3000	128	44.75	42.40	10000	0.001	0.001	78.10	73.99
Belgium	Belgacom	ADSL	ADSL Skynet Plus	3000	196	61.58	58.35	15000	0.001	0.001	78.10	73.99

Annex Table 2. Broadband Offers Ranked by Capacity, Offers from 2 Mbps to less than 10 Mbps, October 2003 (cont'd)

Country	Company	Access Type	Plan	Download Speed (Kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Accountant Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Netherlands	UPC	Cable Modem	Chello Plus	3000	384	83.81	77.73	Unlimited	0.000	0.000	67.86	62.93
Switzerland	Cablecom	Cable Modem	highspeed 3000	3000	800	108.58	79.14	Unlimited	0.000	0.000	0.00	0.00
Norway	NextGenTel	ADSL	Delta 3000	3000	704	114.33	93.37	Unlimited	0.000	0.000	134.55	109.89
United States	Covad	ADSL	TeleSoho	3000	384	149.95	149.95	Unlimited	0.000	0.000	0.00	0.00
United States	Time Warner	Cable Modem	Road Runner (Business Class, RR Corporate)	3000	512	299.95	299.95	Unlimited	0.000	0.000	0.00	0.00
Netherlands	Essent Kabelcom	Cable Modem	@home Breedband	2560		54.27	50.33	Unlimited	0.000	0.000	0.00	0.00
Canada	PRIS	Fixed Wireless	Option B	2500	2500	21.51	25.30	1000 to 6000	0.072	0.084	189.96	223.46
Canada	PRIS	Fixed Wireless	Option A	2500	2500	28.67	33.73	1000 to 6000	0.072	0.084	107.53	126.49
Canada	Telus	ADSL	enhanced high speed Internet	2500	640	34.48	40.56	10000	0.000	0.000	0.00	0.00
Canada	Canopy	Fixed Wireless	Home and Small Office 101	2500	1000	38.31	45.07	11000	0.115	0.135	0.00	0.00
Sweden	Bostream	ADSL	xstream (ADSL over Ethernet)	2500	768	54.20	46.62	Unlimited	0.000	0.000	301.18	259.08
Norway	NextGenTel	SHDSL	SHDSL Delta	2312	2312	201.96	164.94	Unlimited	0.000	0.000	134.55	109.89
Germany	QSC	ADSL	q-dsl home 2300	2300	256	44.14	41.23	1000	0.015	0.014	66.78	62.38
Germany	QSC	SDSL	q-DSL Max	2300	2300	112.05	104.67	1000	0.019	0.018	0.00	0.00
Australia	Alpha Link Wireless	Fixed Wireless	Plan 1	2048		20.01	22.81	10000	0.059	0.067	214.77	244.76
Australia	Alpha Link Wireless	Fixed Wireless	Plan 2	2048		26.85	30.59	13500	0.059	0.067	214.77	244.76
New Zealand	Telecom NZ (Xtra)	ADSL	JetStream Home 500 Full Speed	2048	250	34.32	39.84	500	0.116	0.135	0.00	0.00
Australia	Alpha Link Wireless	Fixed Wireless	Plan 3	2048		41.16	46.91	20500	0.059	0.067	214.77	244.76
United States	Time Warner	Cable Modem	Road Runner	2048	384	44.95	44.95	Unlimited	0.000	0.000	0.00	0.00
Netherlands	Tiscali	ADSL	Tiscali ADSL Family	2048	256	45.22	41.93	20000	0.006	0.005	0.00	0.00
New Zealand	Telecom NZ (Xtra)	ADSL	JetStream Home 1000 Full Speed	2048	250	45.95	53.35	1000	0.116	0.135	0.00	0.00
New Zealand	TelstraClear	Cable Modem	Paradise Hish Speed Express	2048	256	47.67	55.34	1000	0.116	0.135	0.00	0.00
Sweden	ComHem	Cable Modem	internet cable 2000	2048	400	47.68	41.02	Unlimited	0.000	0.000	47.68	41.02
Sweden	Telia	ADSL	Telia Broadband 2000	2048	400	57.34	49.32	10000	0.003	0.003	83.90	72.17
United Kingdom	Bulldog	ADSL	PrimeTime 2000	2048	512	63.65	60.32	Unlimited	0.000	0.000	46.79	44.34
Netherlands	Cistron	ADSL	2048	2048	512	66.78	61.93	35000			0.00	0.00
Poland	Dialog	ADSL		2048	512	68.11	141.59	Unlimited	0.000	0.000	109.41	227.45
United Kingdom	Bulldog	ADSL	AllTime 2000	2048	256	71.14	67.41	Unlimited	0.000	0.000	46.79	44.34



DST/ICCP/TISP(2003)8/FINAL  
**Annex Table 2. Broadband offers ranked by capacity, offers from 2 Mbps to less than 10 Mbps, October 2003**  
 (cont'd)

Country	Company	Access Type	Plan	Download Speed (Kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Denmark	Redspot	Fixed Wireless	Redspot@Home Full	2048	512	74.84	59.61	Unlimited	0.000	0.000	89.24	71.08
United Kingdom	Telewest	Cable Modem	blueyonder 2Mb	2048		79.68	75.51	Unlimited	0.000	0.000	0.00	0.00
Denmark	TDC Kable TV	Cable Modem		2048	128	80.84	64.39	Unlimited	0.000	0.000	104.24	83.02
Netherlands	Zon	ADSL	Zon Breedband Extra	2048	320	94.93	88.03	Unlimited	0.000	0.000	84.83	78.67
Netherlands	KPN	ADSL	ADSL Extra	2048	320	99.60	92.37	N/A	N/A	N/A	84.83	78.67
Netherlands	Planet	ADSL	ADSL advanced	2048	320	99.77	92.53	Unlimited	0.000	0.000	84.83	78.67
Austria	Inode	ADSL	xdsl@home	2048	256	100.74	97.72	20000/Unlimited at Off-peak	0.000	0.000	89.42	86.74
Iceland	Siminn (Iceland Telecom)	ADSL	ADSL 2000	2048	512	102.60	86.62	Unlimited Domestic (100 International)	0.031	0.026	75.25	63.54
Finland	Saunalahti	ADSL		2048	512	109.79	98.12	Unlimited	0.000	0.000	181.10	161.85
United States	Time Warner	Cable Modem	Road Runner (Business Class, RR Pro)	2048	384	109.95	109.95	Unlimited	0.000	0.000	0.00	0.00
Norway	Tiscali	ADSL	Ultra	2048	256	111.77	91.28	Unlimited	0.000	0.000	66.74	54.50
Denmark	TDC Kable TV	Cable Modem		2048	512	112.34	89.47	Unlimited	0.000	0.000	104.24	83.02
Denmark	Tiscali	ADSL	2048/512	2048	512	112.49	89.59	Unlimited	0.000	0.000	0.00	0.00
Denmark	TDC	ADSL		2048	512	117.74	93.77	Unlimited	0.000	0.000	36.75	29.27
Denmark	SONOFON	Fixed Wireless	SONOFON Broadband	2048	512	119.84	95.44	Unlimited	0.000	0.000	118.79	94.61
Iceland	Siminn (Iceland Telecom)	ADSL	ADSL 2000	2048	512	127.43	107.59	Unlimited Domestic (1000 International)	0.031	0.026	75.25	63.54
United Kingdom	Demon	ADSL	Broadband Business 2000	2048	256	129.20	122.44	Unlimited	0.000	0.000	93.63	88.72
New Zealand	TelstraClear	ADSL	1000	2048		130.23	151.19	1000	0.118	0.137	0.00	0.00
Finland	Elisa	ADSL		2048	512	135.82	121.39	Unlimited	0.000	0.000	142.61	127.46
Norway	Telenor Avidi	Cable Modem	Online Mega	2048	256	141.16	115.28	Unlimited	0.000	0.000	93.70	76.52
Poland	Aster City	Cable Modem	TwojaFirma	2048	512	145.45	302.38	Unlimited	0.000	0.000	134.21	279.00
United Kingdom	Demon	ADSL	Demon Express Pro	2048	256	147.93	140.18	Unlimited	0.000	0.000	280.88	266.17
Finland	TeliaSonera	ADSL		2048	512	173.34	154.93	Unlimited	0.000	0.000	146.01	130.50
Spain	Tiscali	ADSL	ADSL TOP 2M	2048	300	181.12	204.58	Unlimited	0.000	0.000	0.00	0.00
Spain	Wanadoo	ADSL	ADSL Professional	2048	300	183.75	207.55	Unlimited	0.000	0.000	0.00	0.00
New Zealand	TelstraClear	ADSL	2500	2048		195.67	227.16	2500	0.118	0.137	0.00	0.00
Spain	Telefónica	ADSL	Linea ADS: 2Mbps	2048	300	197.69	223.29	Unlimited	0.000	0.000	50.02	56.50
Spain	Terra	ADSL	ADSL a tu medida	2048	300	197.69	223.29	Unlimited	0.000	0.000	101.32	114.44

Annex Table 2. Broadband offers ranked by capacity, offers from 2 Mbps to less than 10 Mbps, October 2003  
(cont'd)

Country	Company	Access Type	Plan	Download Speed (Kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
United Kingdom	BT	ADSL	2000PLUS Plug & Go	2048		243.43	230.68	Unlimited	0.000	0.000	0.00	0.00
Switzerland	Swisscom	ADSL	Gateway ADSL	2048	512	317.77	231.61	Unlimited	0.000	0.000	0.00	0.00
New Zealand	TelstraClear	ADSL	Flat Rate	2048		326.55	379.10	Unlimited	0.000	0.000	0.00	0.00
Denmark	SONOFON	Fixed Wireless	SONOFON Broadband PRO	2048	1024	449.95	358.37	Unlimited	0.000	0.000	118.79	94.61
Mexico	Telmex	ADSL		2048	512	479.89	788.44	Unlimited	0.000	0.000	319.89	525.57
Poland	Netia	SDSL	BDI Pro	2048	2048	997.98	2074.68	Unlimited	0.000	0.000	623.74	1296.67
Turkey	Turk Telecom	ADSL		2048	512	1686.36	3407.31	Unlimited	0.000	0.000	12.10	24.45
Korea	Thrunet	DSL	Multiplus Lite	2000		26.14	42.07	Unlimited	0.000	0.000	33.61	54.09
Switzerland	Cablecom	Cable Modem	highspeed 2000	2000	400	54.29	39.57	Unlimited	0.000	0.000	0.00	0.00
Denmark	NVE	FTTH	FTH Internet	2000	2000	59.24	47.18	Unlimited	0.000	0.000	749.92	597.28
Norway	NextGenTel	ADSL	Delta 2000	2000	640	100.85	82.36	Unlimited	0.000	0.000	134.55	109.89

Source: OECD.

DSTI/ICCP/TISP(2003)8/FINAL  
Annex Table 3. Broadband offers ranked by capacity, offers from 1 Mbps to less than 2 Mbps, October 2003

Country	Company	Access Type	Plan	Download Speed (Kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Iceland	Siminn (Iceland Telecom)	ADSL	ADSL 1500	1536	256	60.45	51.04	Unlimited Domestic (100 international)	0.031	0.026	75.25	63.54
Netherlands	Zon	ADSL	Zon Breedband Plus	1536	256	61.12	56.68	Unlimited	0.000	0.000	0.00	0.00
Germany	Deutsche Telecom	ADSL	T-Online dsl 5000 MB with T-DSL 1500	1536	192	62.17	58.08	5000	0.018	0.017	0.00	0.00
Belgium	UPC Belgium	Cable Modem	Chello Plus	1536	128	62.20	58.93	Unlimited	0.000	0.000	56.54	53.56
Denmark	Redspot	Fixed Wireless	Redspot@Home Full	1536	384	67.34	53.64	Unlimited	0.000	0.000	89.24	71.08
Slovak Republic	Nextra	ADSL	Nextra ADSLink Optimal 1	1536	256	67.55	158.80	1000	0.019	0.045	126.70	297.87
Slovak Republic	Slovak Telecom	ADSL	ST DSL 1500 with DSL DATA 1000	1536	256	69.42	163.20	1000	0.013	0.031	142.54	335.11
Iceland	Siminn (Iceland Telecom)	ADSL	ADSL 1500	1536	256	85.29	72.01	Unlimited Domestic (1000 international)	0.031	0.026	75.25	63.54
Slovak Republic	Slovak Telecom	ADSL	ST DSL 1500 with DSL DATA 15000	1536	256	117.57	276.41	15000	0.005	0.013	142.54	335.11
Luxembourg	Tiscali	ADSL	ADSL EXPRESS	1536	192	139.28	129.07	Unlimited	0.000	0.000	391.79	363.08
Germany	Deutsche Telecom	ADSL	T-Online dsl flat 1500 (with T-DSL 1500)	1536	192	147.06	137.37	Unlimited	0.000	0.000	0.00	0.00
Slovak Republic	Nextra	ADSL	Nextra ADSLink Optimal 20	1536	256	149.92	352.46	20000	0.003	0.007	126.70	297.87
United States	Amerilinx	Fixed Wireless	Residential Access Only	1500	128	24.95	24.95	Unlimited	0.000	0.000	199.00	199.00
Korea	KT	DSL	Megapass Light	1500		25.21	40.57	Unlimited	0.000	0.000	28.01	45.07
Canada	Telus	ADSL	high speed Internet	1500	512	26.81	31.53	6000	0.000	0.000	0.00	0.00
United States	SBC	ADSL	SBC Yahoo (Standard Plus Package)	1500	128	26.95	26.95	Unlimited	0.000	0.000	0.00	0.00
United States	Verizon	ADSL	Taken with Telephony	1500	128	29.95	29.95	Unlimited	0.000	0.000	12.95	12.95
Canada	Rogers	Cable Modem	Hi-Speed Internet	1500	192	34.48	40.56	Unlimited	0.000	0.000	61.36	72.18
United States	Verizon	ADSL	Taken without Telephony	1500	128	34.95	34.95	Unlimited	0.000	0.000	12.95	12.95
United States	SBC	ADSL	SBC Yahoo (Deluxe Package)	1500	128	36.95	36.95	Unlimited	0.000	0.000	0.00	0.00
Japan	NTT East	ADSL	1.5M type	1500	512	40.25	32.81	Unlimited	0.000	0.000	34.05	27.76
United States	Comcast	Cable Modem	High-Speed Internet for Current Comcast Cable Customers	1500		42.95	42.95	Unlimited	0.000	0.000	0.000	0.00

Annex Table 3. Broadband offers ranked by capacity, offers from 1 Mbps to less than 2 Mbps, October 2003  
(cont'd)

Country	Company	Access Type	Plan	Download Speed (Kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Netherlands	UPC	Cable Modem	Chello Classic	1500	128	52.18	48.39	Unlimited	0.000	0.000	67.86	62.93
United States	Verizon	ADSL	Business DSL	1500	128	59.95	59.95	Unlimited	0.000	0.000	25.00	25.00
United States	Covad	ADSL	TeleSoho	1500	384	69.95	69.95	Unlimited	0.000	0.000	0.00	0.00
United States	Verizon	ADSL	Business DSL	1500	384	89.95	89.95	Unlimited	0.000	0.000	25.00	25.00
Australia	iinet	ADSL	blink 1500	1500	256	97.59	111.22	22000	72Kbps Cap	72Kbps Cap	64.43	99.00
Australia	Telstra - Big Pond	ADSL	1500/256	1500	256	117.12	133.47	5000	0.077	0.088	83.96	95.68
Hungary	Eiender	ADSL	eDSL Uzleti 1500	1500	368	322.02	640.54	Unlimited	0.000	0.000	0.00	0.00
Norway	NextGenTel	ADSL	Charlie 1350	1350	512	73.88	60.34	Unlimited	0.000	0.000	134.55	109.89
France	Noos	Cable Modem	Noosnet + 1280k with Cable TV	1280		45.16	42.33	Unlimited	0.000	0.000	33.84	31.72
France	Noos	Cable Modem	Noosnet + 1280k without Cable TV	1280		56.48	52.94	Unlimited	0.000	0.000	33.84	31.72
Canada	DSL.ca	ADSL	1.2mb Home User	1200		30.64	36.05	Unlimited	0.000	0.000	0.00	0.00
Norway	INO	Fixed Wireless	INO Internett Privat min 3 naboar	1200		40.31	32.92	Unlimited	0.000	0.000	134.69	110.00
Norway	INO	Fixed Wireless	INO Internett Privat 2 naboar	1200		47.19	38.54	Unlimited	0.000	0.000	134.69	110.00
Norway	INO	Fixed Wireless	INO Internett Privat 1 nado	1200		66.06	53.95	Unlimited	0.000	0.000	134.69	110.00
Italy	Telecom Italia	ADSL	Alice Mega	1200	256	73.51	81.34	Unlimited	0.000	0.000	213.24	235.93
Norway	INO	Fixed Wireless	INO Internett Privat	1200		100.31	81.92	Unlimited	0.000	0.000	269.37	219.99
Norway	NexGenTel	SHDSL	SHDSL Charlie	1160	1160	134.55	109.89	Unlimited	0.000	0.000	134.55	109.89
Germany	PrimaCom	Cable Modem	free	1024	256	0.00	0.00	0	0.102	0.095	0.00	0.00
Denmark	Telia Stofa	Cable Modem	FlexRate A	1024	128	7.50	5.97	50	0.150	0.119	37.35	29.74
Korea	Hanaro Telecom	DSL	V LITE	1024		24.83	39.96	Unlimited	0.000	0.000	28.01	45.07
Korea	Hanaro Telecom	Cable Modem	CATV LITE	1024		24.83	39.96	Unlimited	0.000	0.000	28.01	45.07
Canada	Bell Canada	ADSL	High Speed	1024	320	26.81	31.53	Unlimited	0.000	0.000	0.00	0.00
Finland	Suomi Communications	ADSL	shared apartment access	1024		28.30	25.29	Unlimited	0.000	0.000	141.48	126.45
France	9Telecom	ADSL	High Speed 1024 (with Telephony Subscription)	1024	256	30.56	28.65	Unlimited	0.000	0.000	0.00	0.00
United Kingdom	Buildog	ADSL	PrimeTime 1000 Special	1024	512	37.43	35.47	Unlimited	0.000	0.000	131.06	124.19

Annex Table 3. Broadband offers ranked by capacity, offers from 1 Mbps to less than 2 Mbps, October 2003  
(cont'd)

Country	Company	Access Type	Plan	Download Speed (Kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Poland	Dialog	ADSL		1024	256	40.76	84.72	Unlimited	0.000	0.000	109.41	227.45
Sweden	ComHem	Cable Modem	internet cable 1000	1024	200	42.25	36.34	Unlimited	0.000	0.000	47.68	41.02
Germany	PrimaCom	Cable Modem	pro	1024	256	44.14	41.23	Unlimited	0.000	0.000	0.00	0.00
Denmark	Telia Stofa	Cable Modem	FlexRate B	1024	128	45.00	35.84	5000	0.015	0.012	37.35	29.74
France	Tiscali	ADSL	ADSL Maximal 1024k	1024	128	45.27	42.44	Unlimited	0.000	0.000	112.05	105.04
Poland	Aster City	Cable Modem	TwójŚwiat	1024	256	45.76	95.12	Unlimited	0.000	0.000	134.21	279.00
United Kingdom	Bulldog	ADSL	AllTime 1000 40:1	1024	256	46.79	44.34	Unlimited	0.000	0.000	46.79	44.34
Iceland	log vodafone	ADSL	ADSL IV	1024	512	47.03	39.71	Unlimited Domestic (1000 international)	0.031	0.026	0.00	0.00
Finland	Helsingin Samtele	ADSL	shared apartment access	1024		47.54	42.49	Unlimited	0.000	0.000	0.00	0.00
United Kingdom	Scottish Hydro-Electric	Power Line	1Mbps	1024	1024	47.79	45.29	Unlimited	0.000	0.000	79.68	75.51
Sweden	UPC	Cable Modem	chello plus	1024	384	48.17	41.43	Unlimited	0.000	0.000	42.13	36.24
Netherlands	Zon	ADSL	Zon Breedband Basic	1024	160	50.88	47.18	Unlimited	0.000	0.000	84.83	78.67
Belgium	UPC Belgium	Cable Modem	Chello Classic	1024	128	51.91	49.18	Unlimited	0.000	0.000	56.54	53.56
Austria	Inode	ADSL	xdsl@home	1024	256	55.46	53.80	15000/Unlimited at Off-peak	0.000	0.000	89.42	86.74
Netherlands	Cistron	ADSL	1024	1024	512	55.46	51.43	20000			0.00	0.00
United Kingdom	NTL	Cable Modem	1Mb	1024		55.76	52.84	Unlimited	0.000	0.000	0.00	0.00
United Kingdom	Telewest	Cable Modem	blueyond 1Mb	1024		55.78	52.86	Unlimited	0.000	0.000	0.00	0.00
Germany	QSC	ADSL	q-DSL home	1024	256	56.48	52.76	Unlimited	0.000	0.000	179.97	168.10
Netherlands	KPN	ADSL	ADSL Basic	1024	160	58.86	54.58	N/A	N/A	N/A	84.83	78.67
Netherlands	Planet	ADSL	ADSL comfort	1024	160	59.14	54.84	Unlimited	0.000	0.000	84.83	78.67
Denmark	Redspot	Fixed Wireless	Redspot@Home Full	1024	384	59.84	47.66	Unlimited	0.000	0.000	89.24	71.08
Finland	Saunalahti	ADSL		1024	512	64.52	57.66	Unlimited	0.000	0.000	181.10	161.85
Denmark	TDC Kable TV	Cable Modem		1024	128	65.84	52.44	Unlimited	0.000	0.000	104.24	83.02
Norway	Tele2	ADSL	Large	1024	128	67.14	54.83	Unlimited	0.000	0.000	134.15	109.56
Norway	UPC Norge	Cable Modem	Chello Plus	1024	256	67.28	54.94	Unlimited	0.000	0.000	39.77	32.48
Norway	NextGenTel	ADSL	Alpha 1024	1024	256	70.78	57.81	Unlimited	0.000	0.000	134.55	109.89
Austria	UPC Telekabel	Cable Modem	Chello (plus One Plus)	1024	128	71.31	69.17	Unlimited	0.000	0.000	112.05	108.70
Norway	Tiscali	ADSL	Plus	1024	256	71.32	58.25	Unlimited	0.000	0.000	66.74	54.50
Denmark	Cybercity	ADSL	1024/256	1024	256	71.39	56.86	Unlimited	0.000	0.000	0.00	0.00
Iceland	log vodafone	ADSL	ADSL IV	1024	512	71.49	60.36	Unlimited Domestic (1000 international)	0.031	0.026	0.00	0.00

Annex Table 3. Broadband offers ranked by capacity, offers from 1 Mbps to less than 2 Mbps, October 2003  
(cont'd)

Country	Company	Access Type	Plan	Download Speed (Kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Norway	Telenor Avidi	Cable Modem	Online Maxi	1024	256	73.75	60.23	Unlimited	0.000	0.000	93.70	76.52
Norway	Telenor	ADSL	Online ADSL Ekstra	1024	256	74.02	60.45	30000			172.57	140.94
Luxembourg	Coditel	Cable Modem	coditel.net pro	1024	256	75.83	70.28	20000	0.001	0.001	146.01	135.31
Denmark	SONOFON	Fixed Wireless	SONOFON Broadband	1024	512	79.34	63.19	Unlimited	0.000	0.000	118.79	94.61
Czech Republic	Tiscali	ADSL	TISCALI ADSL PRIMA PLUS 1024/256	1024	256	79.84	154.60	Unlimited	0.000	0.000	54.10	104.76
Denmark	TDC	ADSL		1024	256	80.24	63.91	Unlimited	0.000	0.000	36.75	29.27
Denmark	TDC Kable TV	Cable Modem		1024	256	82.34	65.58	Unlimited	0.000	0.000	104.24	83.02
France	France Telecom Wanadoo	ADSL	eXtense fidélité (24 month commitment)	1024	128	84.78	79.47	Unlimited	0.000	0.000	0.00	0.00
Finland	Elisa	ADSL		1024	384	84.89	75.87	Unlimited	0.000	0.000	142.61	127.46
Czech Republic	Czech Telecom	ADSL	IOL Broadband 1024/256	1024	256	85.28	165.15	20GB	0.001	0.003	35.94	69.60
United States	Wheatland Broadband	Fixed Wireless		1024		87.00	87.00	Unlimited	0.000	0.000	0.00	0.00
France	France Telecom Wanadoo	ADSL	eXtense 1024	1024	128	90.55	84.88	Unlimited	0.000	0.000	0.00	0.00
Portugal	Cabovisão	Cable Modem	MEGA	1024		91.61	120.35	Download 10GB /Upload 5GB	0.020	0.026	113.19	148.69
Norway	Telenor	ADSL	Online ADSL Ekstra oppgradert	1024	256	100.98	82.47	Unlimited	0.000	0.000	172.57	140.94
Denmark	Tiscali	ADSL	1024/512	1024	512	101.99	81.23	Unlimited	0.000	0.000	0.00	0.00
United Kingdom	Demon	ADSL	Broadband Business 1000	1024	256	102.99	97.59	Unlimited	0.000	0.000	93.63	88.72
Spain	ONO	Cable Modem	1024 kbps SIN LÍMITE	1024		104.91	118.49	Unlimited	0.000	0.000	60.26	68.07
Poland	TPSA	ADSL	DSL 1	1024	256	122.81	255.31	Unlimited	0.000	0.000	218.55	454.33
Finland	TeliaSonera	ADSL		1024	512	126.01	112.62	Unlimited	0.000	0.000	146.01	130.50
Luxembourg	P&T	ADSL	SpeedSurf-EXPRESS	1024	192	137.71	127.62	25000	0.003	0.003	62.25	57.69
Portugal	Portugal Telecom (Telepac)	ADSL		1024	256	142.77	187.55	Unlimited Domestic /International 12GB	0.017	0.022	101.02	132.70
Spain	Telefónica	ADSL	Linea ADSL 1Mbps	1024		157.56	177.96	Unlimited	0.000	0.000	50.02	56.50
Portugal	Novis	ADSL	Novis Net ADSL 1024	1024	256	169.51	222.67	20000	0.033	0.043	66.21	86.98

DSTI/ICCP/TISP(2003)8/FINAL  
**Annex Table 3. Broadband offers ranked by capacity, offers from 1 Mbps to less than 2 Mbps, October 2003**  
 (cont'd)

Country	Company	Access Type	Plan	Download Speed (Kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Greece	FORTHnet	ADSL		1024	128	171.62	210.95	Unlimited	0.000	0.000	0.00	0.00
United Kingdom	FDM Broadband	Fixed Wireless	FDM-Business 1024S	1024	1024	185.38	175.67	Unlimited	0.000	0.000	561.75	532.33
United Kingdom	BT	ADSL	1000PLUS Plug & Go	1024		187.25	177.44	Unlimited	0.000	0.000	0.00	0.00
Greece	OTEnet	ADSL	OnDSL HOME 1024	1024	256	193.66	238.04	Unlimited	0.000	0.000	0.00	0.00
Switzerland	Swisscom	ADSL	Gateway ADSL	1024	512	216.43	157.75	Unlimited	0.000	0.000	0.00	0.00
Ireland	amocom	Fixed Wireless	Business 3	1024	1024	272.54	237.57	Unlimited	0.000	0.000	362.93	316.36
Poland	Netia	SDSL	BDI Standard	1024	1024	374.24	778.00	Unlimited	0.000	0.000	224.55	466.80
Turkey	Turk Telecom	ADSL		1024	256	995.16	2010.73	Unlimited	0.000	0.000	12.10	24.45
Switzerland	Cablecom	Cable Modem	highspeed 1000	1000	200	43.43	31.66	Unlimited	0.000	0.000	0.00	0.00

Source: OECD.

Annex Table 4. Broadband offers ranked by capacity, offers less than 1 Mbps, October 2003

Country	Company	Access Type	Plan	Download Speed (Kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Norway	NextGenTel	ADSL	Bravo 850	850	384	53.66	43.82	Unlimited	0.000	0.000	134.55	109.89
Germany	Arcor	ADSL	Arcor DSL 768 volume 500	768	128	16.86	15.75	500	0.014	0.013	56.54	52.81
Germany	Arcor	ADSL	Arcor DSL 768 volume 2000	768	128	22.52	21.04	2000	0.014	0.013	56.54	52.81
Austria	Inode	ADSL	adsl starter	768	128	28.18	27.34	1000	0.073	0.071	49.28	47.80
Netherlands	Tiscali	ADSL	Tiscali ADSL Surf	768	128	28.24	26.19	2000	0.006	0.005	0.00	0.00
Netherlands	Zon	ADSL	Zon Breedband Family	768	128	32.82	30.44	Unlimited	0.000	0.000	0.00	0.00
Austria	Telekom Austria	ADSL	AonSpeed 500MB	768	128	33.84	32.83	500	0.079	0.077	49.26	47.78
Germany	Deutsche Telecom	ADSL	T-Online dsl 1000 MB	768	128	33.89	31.65	1000	0.018	0.017	0.00	0.00
Germany	Deutsche Telecom	Satellite	T-DSL via satellite basic with T-Online dsl 1000MB	768		33.89	31.65	500	0.057	0.053	112.05	104.67
Austria	Inode	ADSL	adsl small	768	128	37.35	36.23	2500	0.077	0.075	49.28	47.80
Germany	Arcor	ADSL	Arcor-DSL flatrate 768	768	128	39.50	36.90	Unlimited	0.000	0.000	56.54	52.81
Germany	Deutsche Telecom	Satellite	T-DSL via satellite basic with T-Online surftime 30	768		39.50	36.90	500	0.057	0.052	112.05	104.67
Austria	Tiscali	ADSL	Tiscali ADSL private	768	128	40.74	39.51	1000	0.057	0.055	0.00	0.00
Austria	Telekom Austria	ADSL	AonSpeed 1GB	768	128	45.16	43.81	1000	0.079	0.077	49.26	47.78
Slovak Republic	Slovak Telecom	ADSL	ST DSL 768 with DSL DATA 1000	768	128	47.24	111.06	1000	0.013	0.031	142.54	335.11
United States	EarthLink	ADSL	HighSpeed DSL	768	128	49.95	49.95	Unlimited	0.000	0.000	0.00	0.00
Germany	Deutsche Telecom	Satellite	T-DSL via satellite basic with T-Online dsl 5000MB	768		50.87	47.51	500	0.057	0.053	112.05	104.67
Poland	UPC	Cable Modem	Chello Plus	768	128	50.87	105.75	unlimited	0.000	0.000	50.87	105.75
Germany	Deutsche Telecom	ADSL	T-Online dsl flat	768	128	56.53	52.80	Unlimited	0.000	0.000	0.00	0.00
United States	Wheatland Broadband	Fixed Wireless		768		57.00	57.00	Unlimited	0.000	0.000	0.00	0.00
Slovak Republic	UPC Chello	Cable Modem	chello plus	768	256	63.87	150.16	Unlimited	0.000	0.000	53.22	125.12
Austria	Telekom Austria	ADSL	AonSpeed Freetime	768	128	67.80	65.77	Unlimited	0.000	0.000	49.26	47.78
Hungary	UPC - Chello	Cable Modem	Chello Plus	768	256	68.77	136.79	20000			16.77	33.36
Germany	Deutsche Telecom	Satellite	T-DSL via satellite basic with T-Online surftime 30	768		76.85	71.79	Unlimited	0.000	0.000	112.05	104.67
Portugal	Portugal Telecom (Telepac)	ADSL		768	128	91.59	120.32	Unlimited Domestic /International 9GB	0.017	0.022	101.02	132.70
Slovak Republic	Slovak Telecom	ADSL	ST DSL 768 with DSL DATA 15000	768	128	95.39	224.27	15000	0.005	0.013	142.54	335.11
Mexico	Cablevision	Cable Modem	CableLink Terra	768		100.17	164.58	Unlimited	0.000	0.000	58.43	96.01



Annex Table 4. Broadband offers ranked by capacity, offers less than 1 Mbps, October 2003  
(cont'd)

Country	Company	Access Type	Plan	Download Speed (Kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Hungary	Elender	ADSL	eDSL Irodai 768	768	128	106.98	212.80	Unlimited	0.000	0.000	0.00	0.00
United States	Verizon	ADSL	Business DSL	768	768	129.95	129.95	Unlimited	0.000	0.000	25.00	25.00
Czech Republic	UPC	Cable Modem	Chello Professional	768	256	160.68	311.16	Unlimited	0.000	0.000	51.87	100.44
Norway	Tele2	ADSL	Medium	704	128	42.87	35.01	Unlimited	0.000	0.000	134.15	109.56
Norway	Tiscali	ADSL	Xtra	704	128	44.36	36.23	Unlimited	0.000	0.000	66.74	54.50
Norway	Telenor	ADSL	Online ADSL	704	128	47.05	38.43	1000			172.57	140.94
Norway	NextGenTel	ADSL	Alpha 704	704	128	50.96	41.62	Unlimited	0.000	0.000	134.55	109.89
Norway	Telenor	ADSL	Online ADSL oppgradert	704	128	60.53	49.44	10000			172.57	140.94
France	Noos	Cable Modem	Noosnet + 640k with Cable TV	640		22.52	21.11	Unlimited	0.000	0.000	33.84	31.72
France	Noos	Cable Modem	Noosnet + 640k without Cable TV	640		33.84	31.72	Unlimited	0.000	0.000	33.84	31.72
Portugal	Portugal Telecom (Cabo)	Cable Modem	Speed On	640		39.62	52.04	Domestic 20GB/ International 1GB	0.034	0.045	142.73	187.50
Sweden	UPC	Cable Modem	chello classic	640	256	42.13	36.24	Unlimited	0.000	0.000	59.75	51.40
Italy	Tiscali	ADSL	Sempre Top	640	640	53.14	58.80	Unlimited	0.000	0.000	175.43	194.09
Italy	Telecom Italia	ADSL	Alice 640	640	128	56.54	62.55	Unlimited	0.000	0.000	175.21	193.86
United Kingdom	NTL	Cable Modem	600K	600		39.82	37.74	Unlimited	0.000	0.000	0.00	0.00
Ireland	NTL	Cable Modem	Always-On 600	600	150	45.27	39.46	Unlimited	0.000	0.000	73.57	64.13
Austria	UPC Telekabel	Cable Modem	Chello (plus One Classic)	600	128	48.67	47.21	Unlimited	0.000	0.000		
Switzerland	Tiscali	ADSL	Private 600	600	100	54.29	39.57	Unlimited	0.000	0.000	84.69	61.73
Switzerland	Swisscom	ADSL	Broadway ADSL600	600	100	57.18	41.68	Unlimited	0.000	0.000	0.00	0.00
Switzerland	TDC Switzerland (Sunrise)	ADSL	ADSL 600	600	100	57.18	41.68	Unlimited	0.000	0.000	0.00	0.00
Spain	AUNA	Cable Modem	Net 600	600		91.91	103.81	Unlimited	0.000	0.000	78.91	89.13
Finland	HTV	Cable Modem	welho 525	525	200	55.46	49.57	Unlimited	0.000	0.000	56.59	50.58
France	9Telecom	ADSL	High Speed 512 (with Telephony Subscription)	512	128	26.03	24.40	Unlimited	0.000	0.000	0.00	0.00
Sweden	Tele2	Cable Modem	Tele2 Broadband Kable	512	128	30.06	25.86	Unlimited	0.000	0.000	71.83	61.78
Poland	Aster City	Cable Modem	TwojDom	512	64	30.42	63.23	Unlimited	0.000	0.000	134.21	279.00
France	Free	ADSL	Access Unlimited	512	128	33.94	31.82	Unlimited	0.000	0.000	0.00	0.00
Ireland	Irish Broadband	Fixed Wireless	Ripwave Home	512	128	33.96	29.60	Unlimited	0.000	0.000	135.82	118.39
United States	N.E.T.	Fixed Wireless	Residential	512		34.95	34.95	Unlimited	0.000	0.000	0.00	0.00

Annex Table 4. Broadband offers ranked by capacity, offers less than 1 Mbps, October 2003  
(cont'd)

Country	Company	Access Type	Plan	Download Speed (Kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Sweden	ComHem	Cable Modem	internet cable 500	512	128	35.61	30.63	Unlimited	0.000	0.000	47.68	41.02
United States	Wheatland Broadband	Fixed Wireless		512		37.00	37.00	Unlimited	0.000	0.000	0.00	0.00
Denmark	Redspot	Fixed Wireless	Redspot@Home Full	512	256	37.35	29.74	Unlimited	0.000	0.000	89.24	71.08
United Kingdom	PIPEX	ADSL	Xtreme Solo 500	512	256	37.35	35.40	Unlimited	0.000	0.000	0.00	0.00
United Kingdom	Bulldog	ADSL	AllTime 500	512	256	37.43	35.47	Unlimited	0.000	0.000	93.61	88.70
Poland	TPSA	ADSL	Neostrada	512	128	38.09	79.18	Unlimited	0.000	0.000	51.13	106.28
Poland	UPC	Cable Modem	Chello Classic	512	128	38.09	79.18	Unlimited	0.000	0.000	76.43	158.90
Portugal	Portugal Telecom (sapo)	ADSL	SAPO ADSL.PT	512	128	39.60	52.03	Domestic 20GB /International 2GB	0.017	0.022	56.59	74.34
Ireland	Irish Broadband	Fixed Wireless	Breeze Home	512	512	39.62	34.53	Unlimited	0.000	0.000	168.65	147.01
United Kingdom	Demon	ADSL	Demon Express Solo	512	256	39.82	37.74	Unlimited	0.000	0.000	79.68	75.51
United Kingdom	Telewest	Cable Modem	bluyonder broadband	512		39.84	37.75	Unlimited	0.000	0.000	0.00	0.00
Portugal	Cabovisao	Cable Modem	POP512K	512		40.75	53.53	Download 8GB /Upload 2GB	0.020	0.026	113.19	148.69
Mexico	Megacable	Cable Modem	Megared	512		41.739	68.58	Unlimited	0.000	0.000	18.46	30.33
Portugal	Novis	ADSL	Novis Net ADSL Light	512	128	42.38	55.67	4000	0.033	0.043	66.21	86.98
United Kingdom	Tiscali	ADSL	up to 10x faster	512		43.01	40.76	Unlimited	0.000	0.000	0.00	0.00
United Kingdom	BT	ADSL	BT Broadband Home	512	256	43.03	40.77	Unlimited	0.000	0.000	0.00	0.00
United Kingdom	Freeserve	ADSL		512	256	44.61	42.27	Unlimited	0.000	0.000	0.00	0.00
France	France Telecom Wanadoo	ADSL	eXtense fidélité (24 month commitment)	512	128	45.16	42.33	Unlimited	0.000	0.000	0.00	0.00
Slovak Republic	UPC Chello	Cable Modem	chello classic	512	128	45.23	106.34	Unlimited	0.000	0.000	53.22	125.12
Norway	Telenor Avidi	Cable Modem	Online Midi	512	128	46.78	38.21	Unlimited	0.000	0.000	93.70	76.52
Hungary	UPC - Chello	Cable Modem	Chello Classic	512	128	46.88	93.25	15000			0.00	0.00
Iceland	og vodafone	ADSL	ADSL II	512	256	47.03	39.71	Unlimited Domestic (100 International)	0.031	0.026	0.00	0.00
Czech Republic	Tiscali	ADSL	TISCALI ADSL PRIMA 512/128	512	128	47.16	91.33	Unlimited	0.000	0.000	54.10	104.76
Hungary	Vivendi (Invitel)	ADSL	V-net ADSL residential 512	512	128	47.31	94.10	Unlimited	0.000	0.000	85.58	170.24
United Kingdom	BT	ADSL	BT Yahoo! Broadband Home	512	256	47.79	45.29	Unlimited	0.000	0.000	0.00	0.00
Ireland	eircom	ADSL	eircom i-stream starter (business)	512	128	47.93	41.78	4000	0.041	0.036	225.98	196.98
Czech Republic	Czech Telecom	ADSL	IOL Broadband 512/128	512	128	48.98	94.84	10GB	0.001	0.003	35.94	69.60

Annex Table 4. Broadband offers ranked by capacity, offers less than 1 Mbps, October 2003  
(cont'd)

Country	Company	Access Type	Plan	Download Speed (Kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
United States	Cleanwire	Fixed Wireless	Residential	512		49.95	49.95	Unlimited	0.000	0.000	0.00	0.00
Australia	Telstra - Big Pond	ADSL	512/128	512	128	50.08	57.07	500	0.097	0.111	83.96	95.68
Denmark	TDC Kable TV	Cable Modem		512	128	50.84	40.50	Unlimited	0.000	0.000	104.24	83.02
Portugal	Portugal Telecom (sapo)	ADSL	SAPO ADSL.PT Pro	512	128	50.92	66.89	Unlimited Domestic /International 4GB	0.017	0.022	56.59	74.34
Luxembourg	Coditel	Cable Modem	coditel.net	512	128	50.93	47.20	10000	0.001	0.001	146.01	135.31
Norway	UPC Norge	Cable Modem	Chello Classic	512	128	51.10	41.73	Unlimited	0.000	0.000	39.77	32.48
Hungary	Matav Axeler	ADSL	ADSL OTTHON	512	128	51.18	101.80	Unlimited	0.000	0.000	128.59	255.79
Portugal	Portugal Telecom (Telepac)	ADSL		512	128	51.18	67.24	Domestic 40GB /International 4GB	0.017	0.022	101.02	132.70
France	France Telecom Wanadoo	ADSL	eXtense 512	512	128	51.41	48.19	Unlimited	0.000	0.000	0.00	0.00
Australia	iNet	ADSL	blink 512	512	128	52.03	59.30	16000	72kbps Cap		64.43	99.00
Hungary	Elender	ADSL	eDSL Expressz 512	512	128	53.22	105.87	Unlimited	0.000	0.000	0.00	0.00
Ireland	Irish Broadband	Fixed Wireless	Breeze Home	512	512	54.78	47.75	Unlimited	0.000	0.000	168.65	147.01
Finland	TeliaSonera	ADSL	shared apartment access	512		55.46	49.57	Unlimited	0.000	0.000	28.30	25.29
Finland	Elisa	ADSL		512	512	55.46	49.57	Unlimited	0.000	0.000	142.61	127.46
Finland	Saunalahti	ADSL		512	512	55.46	49.57	Unlimited	0.000	0.000	181.10	161.85
Ireland	Esat BT	ADSL	IOL Broadband	512		56.02	48.83	8000	0.034	0.030	101.87	88.80
United Kingdom	FDM Broadband	Fixed Wireless	FDM - Home 512S	512	512	56.08	53.14	Unlimited	0.000	0.000	365.14	346.02
Turkey	Superonline	Satellite	Skyrunner Silver	512	56	56.48	114.13	400	0.000	0.000	40.93	82.70
Czech Republic	UPC	Cable Modem	Chello Plus	512	128	59.47	115.17	Unlimited	0.000	0.000	51.87	100.44
Ireland	eircom	ADSL	eircom i-stream starter (residential)	512	128	61.63	53.72	4000	0.041	0.036	0.00	0.00
Portugal	Novis	ADSL	Novis Net ADSL 512	512	128	63.57	83.50	8000	0.033	0.043	66.21	86.98
Denmark	Telia Stofa	Cable Modem	FlatRate 512/128	512	128	63.74	50.77	Unlimited	0.000	0.000	37.35	29.74
Denmark	Tiscali	ADSL	512/128	512	128	64.49	51.37	Unlimited	0.000	0.000	0.00	0.00
Denmark	TDC	ADSL		512	128	65.24	51.96	Unlimited	0.000	0.000	36.75	29.27
Denmark	SONOFON	Fixed Wireless	SONOFON Broadband	512	512	65.43	52.11	Unlimited	0.015	0.012	118.79	94.61
Poland	TPSA	ADSL	DSL 512	512	128	68.11	141.59	Unlimited	0.000	0.000	218.55	454.33
Ireland	amocom	Fixed Wireless	Home	512	512	68.60	59.80	Unlimited	0.000	0.000	362.93	316.36
Denmark	Cybercity	ADSL	512/512	512	512	71.39	56.86	Unlimited	0.000	0.000	0.00	0.00

Annex Table 4. Broadband offers ranked by capacity, offers less than 1 Mbps, October 2003  
(cont'd)

Country	Company	Access Type	Plan	Download Speed (Kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Iceland	og vodafone	ADSL	ADSL II	512	256	71.49	60.36	Unlimited Domestic (1000 International)	0.031	0.026	0.00	0.00
Finland	TeliaSonera	ADSL		512	512	77.78	69.52	Unlimited	0.000	0.000	146.01	130.50
Mexico	MVS	Fixed Wireless	MACH4	512		83.39	137.00	Unlimited	0.000	0.000	0.00	0.00
Mexico	Cablevision	Cable Modem	CableLink Giga	512		83.48	137.15	Unlimited	0.000	0.000	58.43	96.01
Denmark	Tiscali	ADSL	512/512	512	512	86.24	68.69	Unlimited	0.000	0.000	0.00	0.00
Greece	FORTHnet	ADSL		512	128	88.15	108.35	Unlimited	0.000	0.000	0.00	0.00
Spain	Tiscali	ADSL	ADSL TOP 512	512	128	89.22	100.77	Unlimited	0.000	0.000	0.00	0.00
Luxembourg	P&T	ADSL	SpeedSurf-RUN	512	128	90.49	83.86	15000	0.003	0.003	62.25	57.69
Luxembourg	Tiscali	ADSL	ADSL OPTIMAL	512	128	91.11	84.44	Unlimited	0.000	0.000	391.79	363.08
Spain	Wanadoo	ADSL	ADSL Expert	512	128	91.84	103.74	Unlimited	0.000	0.000	0.00	0.00
Mexico	Telmex	ADSL		512	256	95.89	157.55	Unlimited	0.000	0.000	319.89	525.57
Spain	Telefónica	ADSL	Linea ADSL 512	512	128	98.45	111.20	Unlimited	0.000	0.000	50.02	56.50
Spain	Terra	ADSL	ADSL a tu medida	512	128	98.45	111.20	Unlimited	0.000	0.000	101.32	114.44
Greece	OTEnet	ADSL	OnDSL HOME 512	512	128	100.17	123.13	Unlimited	0.000	0.000	0.00	0.00
United Kingdom	BT	Satellite	Business Satellite 500/1	512	150	112.33	106.45	Unlimited	0.000	0.000	561.75	532.33
Ireland	eircom	ADSL	eircom i-stream solo	512	128	121.89	106.25	6000	0.041	0.036	225.98	196.98
Turkey	Superonline	Satellite	Skyrunner Gold	512	56	130.16	262.99	1000	0.000	0.000	40.93	82.70
Turkey	Ultra Kablo TV	Cable Modem		512	128	147.35	297.73	Unlimited	0.000	0.000	18.63	37.63
Ireland	eircom	ADSL	eircom i-stream multi	512	128	190.37	165.94	10000	0.041	0.036	225.98	196.98
Ireland	eircom	ADSL	eircom i-stream enhanced	512	128	231.45	201.75	Unlimited	0.000	0.000	225.98	196.98
Poland	Netia	SDSL	BDI Standard	512	512	280.68	583.50	Unlimited	0.000	0.000	224.55	466.80
Turkey	Turk Telecom	ADSL		512	128	370.16	747.91	Unlimited	0.000	0.000	12.10	24.45
Switzerland	Cablecom	Cable Modem	highspeed 500	500	100	32.57	23.74	Unlimited	0.000	0.000	0.00	0.00
Sweden	Bostream	ADSL	istream	500	500	35.97	30.94	Unlimited	0.000	0.000	240.83	207.16
Sweden	Telia2	ADSL	Telia2 Broadband ADSL	500	500	43.34	37.28	Unlimited	0.000	0.000	71.83	61.78
Sweden	Glocalnet	ADSL		500		43.34	37.28	Unlimited	0.000	0.000	59.75	51.40
Sweden	Telia	ADSL	Telia Broadband 500	500	400	45.27	38.94	Unlimited	0.000	0.000	83.90	72.17
United States	Earthlink	Satellite	EarthLink Satellite, powered by DIRECWAY	500	60	69.95	69.95	Unlimited	0.000	0.000	599.90	599.90
Australia	Telstra - Big Pond	Satellite 1 way	1 way Giga Sat	400	56.6	60.49	68.94	3000	0.172	0.196	142.47	295.93

Annex Table 4. Broadband offers ranked by capacity, offers less than 1 Mbps, October 2003  
(cont'd)

Country	Company	Access Type	Plan	Download Speed (Kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Norway	Tiscali	Satellite		400	100	249.15	203.48	Unlimited	0.000	0.000	2501.99	2043.37
Slovak Republic	Slovak Telecom	ADSL	DSL FLAT Basic	384	64	22.56	53.03	Unlimited	0.000	0.000	142.54	335.11
Netherlands	Tiscali	ADSL	Tiscali ADSL Start	384	128	22.58	20.94	1000	0.006	0.005	0.00	0.00
United States	SBC	ADSL	SBC Yahoo (Basic Package)	384	128	26.95	26.95	Unlimited	0.000	0.000	0.00	0.00
Slovak Republic	EuroWeb	ADSL	EW ADSL Flat	384	64	28.20	66.29	Unlimited	0.000	0.000	0.00	0.00
Netherlands	Het Net	ADSL	ADSL Vooideel Surfen	384	96	28.24	26.19	250	0.011	0.010	84.83	78.67
Slovak Republic	Nextra	ADSL	Nextra ADSLink Basic	384	64	31.65	74.41	Unlimited	0.000	0.000	0.00	0.00
Netherlands	Zon	ADSL	Zon Breedband Lite	384	96	33.90	31.44	Unlimited	0.000	0.000	84.83	78.67
Netherlands	Het Net	ADSL	ADSL Surfen sur Het Net	384	96	37.29	34.59	1500	0.006	0.005	84.83	78.67
Slovak Republic	Slovak Telecom	ADSL	DSL FLAT Standard	384	64	37.77	88.79	Unlimited	0.000	0.000	142.54	335.11
Netherlands	Planet	ADSL	ADSL standard	384	96	39.50	36.63	1000	0.006	0.005	84.83	78.67
Netherlands	KPN	ADSL	ADSL Lite	384	96	39.56	36.68	N/A	N/A	N/A	84.83	78.67
Hungary	Elender	ADSL	eDSL Expressz 384	384	64	42.47	84.48	Unlimited	0.000	0.000	0.00	0.00
Hungary	Matav Axelerio	ADSL	ADSL Hobbi	384	64	42.58	84.69	Unlimited	0.000	0.000	128.59	255.79
Hungary	Vivendi (Invitel)	ADSL	V-net ADSL residential 384	384	64	42.58	84.69	Unlimited	0.000	0.000	64.08	127.47
Greece	FORTHnet	ADSL		384	128	57.53	70.71	Unlimited	0.000	0.000	0.00	0.00
Greece	OTEnet	ADSL	OnDSL HOME 384	384	128	58.88	72.37	Unlimited	0.000	0.000	0.00	0.00
Denmark	Cybercity	ADSL	384/384	384	384	59.39	47.30	Unlimited	0.000	0.000	0.00	0.00
Mexico	MVS	Fixed Wireless	MACH3	384		64.83	106.52	Unlimited	0.000	0.000	0.00	0.00
Luxembourg	Tiscali	ADSL	ADSL ORIGINAL	384	64	66.38	61.52	Unlimited	0.000	0.000	391.79	363.08
Mexico	Cablevision	Cable Modem	CableLink Mega	384		70.40	115.66	Unlimited	0.000	0.000	58.43	96.01
Czech Republic	TELE2	Fixed Wireless		384		216.02	418.33	Unlimited	0.000	0.000	107.10	207.41
Netherlands	Essent Kabelcom	Cable Modem	@home Basic	312		33.90	31.44	Unlimited	0.000	0.000	0.00	0.00
Switzerland	Tiscali	ADSL	Private 300	300	50	34.02	24.80	Unlimited	0.000	0.000	84.69	61.73
Switzerland	Swisscom	ADSL	Broadway ADSL300	300	50	35.47	25.85	Unlimited	0.000	0.000	0.00	0.00
Switzerland	TDC Switzerland (Sumrise)	ADSL	ADSL 300	300	50	35.47	25.85	Unlimited	0.000	0.000	0.00	0.00

Annex Table 4. Broadband offers ranked by capacity, offers less than 1 Mbps, October 2003  
(cont'd)

Country	Company	Access Type	Plan	Downl oad Speed (Kbps)	Uploa d Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Netherlands	UPC	Cable Modem	Chello Light	300	64	35.60	33.01	1000			67.86	62.93
Spain	AUNA	Cable Modem	Net 300	300		39.39	44.49	Unlimited	0.000	0.000	78.91	89.13
Spain	ONO	Cable Modem	300 kbps SIN LIMITE	300		43.20	48.79	Unlimited	0.000	0.000	60.26	68.07
Italy	Tiscali	ADSL	Mega	256		14.66	16.22	0	0.057	0.063	175.43	194.09
Denmark	TDC	ADSL		256	128	20.85	16.60	0	0.075	0.060	36.75	29.27
Spain	Tiscali	ADSL	QDSL Libre	256	128	22.25	25.14	0	0.032	0.036	0.00	0.00
Netherlands	Zon	ADSL	Zon Breedband Budget	256	64	22.58	20.94	250	0.011	0.010	0.00	0.00
Germany	PrimaCom	Cable Modem	easy	256	128	27.73	25.90	1500	0.023	0.021	0.00	0.00
New Zealand	Telecom NZ (Xtra)	ADSL	JetStream Home 500	256		29.06	33.73	500	0.116	0.135	0.00	0.00
New Zealand	ihug	ADSL	JetStream Home - 500MB	256		29.06	33.73	500	0.116	0.135	57.59	66.86
Portugal	Cabovisã	Cable Modem	POP256K	256		29.43	38.66	Download 5GB /Upload 1.5GB	0.020	0.026	113.19	148.69
Denmark	Redspot	Fixed Wireless	Redspot@Home Basis	256	128	29.85	23.77	Unlimited	0.000	0.000	89.24	71.08
New Zealand	TelstraClear	Cable Modem	Paradise Hish Speed Starter	256	128	30.22	35.08	10000	0.116	0.135	0.00	0.00
United Kingdom	Tiscali	ADSL	up to 5x faster	256		31.86	30.19	Unlimited	0.000	0.000	79.68	75.51
Australia	iiNet	ADSL	blink 256 Lite	256	64	32.51	37.05	2000	72kbps Cap	72kbps Cap	64.43	73.43
New Zealand	Telecom NZ (Xtra)	ADSL	JetStream Home 1000	256		34.87	40.48	1000	0.116	0.135	0.00	0.00
Denmark	TDC Kable TV	Cable Modem		256	64	35.85	28.55	Unlimited	0.000	0.000	104.24	83.02
New Zealand	Walker Wireless	Fixed Wireless		256		37.78	43.86	Unlimited	0.000	0.000	0.00	0.00
New Zealand	Wired Country (provided by The Packing Shred)	Fixed Wireless	PS Radio Home 1000/256	256		37.81	43.90	1000	0.058	0.068	71.99	83.57
Australia	Telstra - Big Pond	ADSL	256/64	256	64	39.02	44.46	500	0.103	0.118	83.96	95.68
Australia	iiNet	ADSL	blink 256	256	64	39.02	44.46	5000	72kbps Cap	72kbps Cap	64.43	99.00
New Zealand	Telecom NZ (Xtra)	ADSL	JetStream Home 2000	256		40.69	47.24	2000	0.116	0.135	0.00	0.00
Italy	Telecom Italia	ADSL	Alice Time Flat	256	128	41.82	46.27	Unlimited	0.000	0.000	175.21	193.86
Italy	Tiscali	ADSL	Sempre Light	256		41.82	46.27	Unlimited	0.000	0.000	175.43	194.09
United Kingdom	FDM Broadband	Fixed Wireless	FDM Access	256	256	42.97	40.72	unlimited	0.000	0.000	365.14	346.02
Czech Republic	UPC	Cable Modem	Chello Classic	256	96	43.39	84.03	unlimited	0.000	0.000	51.87	100.44

Annex Table 4. Broadband offers ranked by capacity, offers less than 1 Mbps, October 2003  
(cont'd)

Country	Company	Access Type	Plan	Download Speed (Kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Luxembourg	P&T	ADSL	SpeedSurf-JUNIOR	256	64	43.63	40.44	1000	0.003	0.003	62.25	57.69
Denmark	Tiscali	ADSL	256/256	256	256	44.25	35.24	Unlimited	0.000	0.000	0.00	0.00
Denmark	Telia Stofa	Cable Modem	FlatRate 256/128	256	128	44.85	35.72	Unlimited	0.000	0.000	37.35	29.74
Mexico	Cablevision	Cable Modem	CableLink Kilo	256		46.28	76.04	Unlimited	0.000	0.000	58.43	96.01
Mexico	MVS	Fixed Wireless	MACH2	256		46.28	76.04	Unlimited	0.000	0.000	0.00	0.00
Finland	TeliaSonera	ADSL	shared apartment access	256		46.41	41.48	Unlimited	0.000	0.000	28.30	25.29
Finland	Elisa	ADSL	shared apartment access	256	256	46.41	41.48	Unlimited	0.000	0.000	56.59	50.58
Iceland	Siminn (Iceland Telecom)	ADSL	ADSL 256	256	128	47.91	40.45	Unlimited Domestic (1000 international)	0.031	0.026	75.25	63.54
Spain	Tiscali	ADSL	ADSL TOP 256	256	128	48.51	54.80	Unlimited	0.000	0.000	0.00	0.00
Greece	FORTHnet	ADSL		256	128	48.53	59.65	Unlimited	0.000	0.000	0.00	0.00
Spain	Wanadoo	ADSL	ADSL Speed	256	128	51.21	57.84	Unlimited	0.000	0.000	0.00	0.00
Spain	Telefonica	ADSL	Linea ADSL 256	256	128	51.30	57.94	Unlimited	0.000	0.000	50.02	56.50
Denmark	TDC	ADSL		256	128	52.49	41.81	Unlimited	0.000	0.000	36.75	29.27
Mexico	Telmex	ADSL		256	128	53.23	87.45	Unlimited	0.000	0.000	319.89	525.57
Finland	TeliaSonera	ADSL		256	256	54.33	48.56	Unlimited	0.000	0.000	146.01	130.50
Spain	Terra	ADSL	ADSL Plus	256	128	55.20	62.35	Unlimited	0.000	0.000	50.02	56.50
New Zealand	Wired Country (provided by The Packing Shed)	Fixed Wireless	PS Radio Home 5000/256	256		55.26	64.15	5000	0.058	0.068	71.99	83.57
Luxembourg	P&T	ADSL	SpeedSurf-START	256	64	63.33	58.69	10000	0.003	0.003	62.25	57.69
New Zealand	TelstraClear	ADSL	256K	256		64.79	75.21	Unlimited	0.000	0.000	81.80	94.97
Luxembourg	P&T	Cable Modem	TV-Surf	256	64	69.60	64.50	Unlimited	0.000	0.000	17.54	16.26
Iceland	Siminn (Iceland Telecom)	ADSL	ADSL 256	256	128	72.75	61.42	Unlimited Domestic (1000 international)	0.031	0.026	75.25	63.54
Turkey	Ultra Kablo TV	Cable Modem		256	64	84.00	169.72	Unlimited	0.000	0.000	18.63	37.63
Australia	Telstra - Big Pond	Satellite 2 way	2 way Blast Off	256		94.37	107.55	300	0.123	0.140	259.68	295.93
Turkey	Turk Telecom	ADSL		256	64	121.01	244.51	Unlimited	0.000	0.000	12.10	24.45
Czech Republic	TELE2	Fixed Wireless		256		143.41	277.71	Unlimited	0.000	0.000	107.10	207.41
Poland	Netia	SDSL	BDI Standard	256	256	187.12	389.00	Unlimited	0.000	0.000	224.55	466.80
Sweden	ComHem	Cable Modem	internet cable 250	250	64	27.16	23.36	Unlimited	0.000	0.000	47.68	41.02
Sweden	Telia	ADSL	Telia Broadband 250	250	64	36.09	31.05	Unlimited	0.000	0.000	83.90	72.17
Czech Republic	TELE2	Fixed Wireless		192		63.54	123.04	Unlimited	0.000	0.000	107.10	207.41
Finland	Auria	ADSL	shared apartment access	170.7		7.55	6.74	Unlimited	0.000	0.000	56.59	50.58

Annex Table 4. Broadband offers ranked by capacity, offers less than 1 Mbps, October 2003  
(cont'd)

Country	Company	Access Type	Plan	Downl oad Speed (Kbps)	Uploa d Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
France	Noos	Cable Modem	Noosnet + 160k with Cable TV	160		11.21	10.50	Unlimited	0.000	0.000	33.84	31.72
France	Noos	Cable Modem	Noosnet + 160k without Cable TV	160		22.52	21.11	Unlimited	0.000	0.000	33.84	31.72
United Kingdom	Tiscali	ADSL	up to 3x faster	150		25.48	24.15	Unlimited	0.000	0.000	39.84	37.75
United Kingdom	NTL	Cable Modem	150K	150		28.67	27.17	Unlimited	0.000	0.000	0.00	0.00
Ireland	NTL	Cable Modem	Always-On 150	150		33.96	29.60	Unlimited	0.000	0.000	73.57	64.13
Spain	ONO	Cable Modem	150 kbps SIN LIMITE	150		35.32	39.89	Unlimited	0.000	0.000	60.26	68.07
Denmark	Redspot	Fixed Wireless	Redspot@Home Basis	128	128	7.35	5.85	Unlimited	0.000	0.000	89.24	71.08
Germany	PrimaCom	Cable Modem	start	128	64	11.26	10.52	500	0.023	0.021	0.00	0.00
Portugal	Cabovis�o	Cable Modem	POP128K	128		21.51	28.25	Download 3GB /Upload 1GB	0.020	0.026	113.19	148.69
France	Tiscali	ADSL	ADSL Original 128k	128	64	22.64	21.22	Unlimited	0.000	0.000	112.05	105.04
Canada	Bell Canada	ADSL	DSL Basic	128	64	22.97	27.02	2000	0.000	0.000	19.18	22.56
Canada	Rogers	Cable Modem	Hi-Speed Internet Lite	128	64	22.97	27.02	Unlimited	0.000	0.000	61.36	72.18
New Zealand	Wired Country (provided by The Packing Shed)	Fixed Wireless	PS Radio Home 1000/128	128		26.18	30.39	1000	0.058	0.068	71.99	83.57
Switzerland	Cablecom	Cable Modem	highspeed 128	128	64	28.95	21.10	Unlimited	0.000	0.000	0.00	0.00
Mexico	MVS	Fixed Wireless	MACH1	128	128	32.37	53.18	Unlimited	0.000	0.000	0.00	0.00
France	France Telecom Wanadoo	ADSL	eXtense 128	128		33.96	31.83	Unlimited	0.000	0.000	0.00	0.00
Spain	AUNA	Cable Modem	Net 128	128		34.14	38.56	Unlimited	0.000	0.000	78.91	89.13
Turkey	Turk Telecom	ADSL		128	32	34.88	70.48	Unlimited	0.000	0.000	12.10	24.45
New Zealand	Telecom NZ (Xtra)	ADSL	JetStream Starter	128	128	37.75	43.83	5000	0.058	0.068	0.00	0.00
New Zealand	Wired Country (provided by The Packing Shed)	Fixed Wireless	PS Radio Home 5000/128	128		37.81	43.90	5000	0.058	0.068	71.99	83.57
Spain	Wanadoo	ADSL	ADSL Start	128	128	43.20	48.79	Unlimited	0.000	0.000	0.00	0.00
Turkey	Ultra Kablo TV	Cable Modem		128	32	50.54	102.12	Unlimited	0.000	0.000	18.63	37.63
Mexico	Cablevision	Cable Modem	CableLink 128	128		53.33	87.62	Unlimited	0.000	0.000	18.55	30.48
Poland	Netia	SDSL	BDI Standard	128	128	124.75	259.33	Unlimited	0.000	0.000	224.55	466.80

Source: OECD.



Annex Table 5. Incumbent broadband offers ranked by capacity, October 2003

Country	Company	Access Type	Plan	Download Speed (Kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Japan	NTT East	FTTH	Shared connection for apartments (B FLET'S for apartments Type II)	100000	100000	52.45	42.76	Unlimited	0.000	0.000	105.26	85.80
Japan	NTT East	FTTH	Shared connection for stand alone dwellings (B FLET'S New family type)	100000	100000	67.05	54.66	Unlimited	0.000	0.000	239.70	195.40
Japan	NTT East	FTTH	Line dedicated to single connection (B FLET'S Basic type)	100000	100000	158.33	129.07	Unlimited	0.000	0.000	239.70	195.40
Japan	NTT East	ADSL	More II (24M type)	24000	1024	41.57	33.89	Unlimited	0.000	0.000	34.05	27.76
Korea	KT	DSL	Megapass Special	13000		42.01	67.61	Unlimited	0.000	0.000	28.01	45.07
Japan	NTT East	ADSL	More (12M type)	12000	1024	41.13	33.53	Unlimited	0.000	0.000	34.05	27.76
Korea	KT	DSL	Megapass Premium	8000		33.61	54.09	Unlimited	0.000	0.000	28.01	45.07
Japan	NTT East	ADSL	8M type	8000	1024	40.69	33.17	Unlimited	0.000	0.000	34.05	27.76
United States	Verizon	ADSL	Business DSL	7100	768	204.95	204.95	Unlimited	0.000	0.000	25.00	25.00
Denmark	TDC Kable TV	Cable Modem		4096	256	125.84	100.22	Unlimited	0.000	0.000	104.24	83.02
Finland	Elisa	ADSL		4096	512	44.43	394.52	Unlimited	0.000	0.000	142.61	127.46
Canada	Bell Canada	ADSL	High Speed Ultra	3072	640	45.98	54.09	Unlimited	0.000	0.000	19.18	22.56
Belgium	Belgacom	ADSL	ADSL Skynet Go	3000	128	44.75	42.40	10000	0.001	0.001	78.10	73.99
Belgium	Belgacom	ADSL	ADSL Skynet Plus	3000	196	61.58	58.35	15000	0.001	0.001	78.10	73.99
Canada	Telus	ADSL	enhanced high speed Internet	2500	640	34.48	40.56	10000	0.000	0.000	0.00	0.00
New Zealand	Telecom NZ (Xtra)	ADSL	JetStream Home 500 Full Speed	2048	250	34.32	39.84	500	0.116	0.135	0.00	0.00
New Zealand	Telecom NZ (Xtra)	ADSL	JetStream Home 1000 Full Speed	2048	250	45.95	53.35	1000	0.116	0.135	0.00	0.00
Sweden	Telia	ADSL	Telia Broadband 2000	2048	400	57.34	49.32	10000	0.003	0.003	83.90	72.17
Poland	Dialog	ADSL		2048	512	68.11	141.59	Unlimited	0.000	0.000	109.41	227.45
Denmark	TDC Kable TV	Cable Modem		2048	128	80.84	64.39	Unlimited	0.000	0.000	104.24	83.02
Netherlands	KPN	ADSL	ADSL Extra	2048	320	99.60	92.37	N/A	N/A	N/A	84.83	78.67
Netherlands	Planet	ADSL	ADSL advanced	2048	320	99.77	92.53	Unlimited	0.000	0.000	84.83	78.67
Iceland	Siminn (Iceland Telecom)	ADSL	ADSL 2000	2048	512	102.60	86.62	Unlimited Domestic (100 International)	0.031	0.026	75.25	63.54
Denmark	TDC Kable TV	Cable Modem		2048	512	112.34	89.47	Unlimited	0.000	0.000	104.24	83.02
Denmark	TDC	ADSL		2048	512	117.74	93.77	Unlimited	0.000	0.000	36.75	29.27
Iceland	Siminn (Iceland Telecom)	ADSL	ADSL 2000	2048	512	127.43	107.59	Unlimited Domestic (1000 International)	0.031	0.026	75.25	63.54
Finland	Elisa	ADSL		2048	512	135.82	121.39	Unlimited	0.000	0.000	142.61	127.46
Norway	Telenor Avidi	Cable Modem	Online Mega	2048	256	141.16	115.28	Unlimited	0.000	0.000	93.70	76.92
Finland	TeliaSonera	ADSL		2048	512	173.34	154.93	Unlimited	0.000	0.000	146.01	130.50

Annex Table 5. Incumbent broadband offers ranked by capacity, October 2003  
(cont'd)

Country	Company	Access Type	Plan	Download Speed (Kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Spain	Telefónica	ADSL	Linea ADS: 2Mbps	2048	300	197.69	223.29	Unlimited	0.000	0.000	50.02	56.50
Spain	Terra	ADSL	ADSL a tu medida	2048	300	197.69	223.29	Unlimited	0.000	0.000	101.32	114.44
United Kingdom	BT	ADSL	2000PLUS Plug & Go	2048		243.43	230.68	Unlimited	0.000	0.000	0.00	0.00
Switzerland	Swisscom	ADSL	Gateway ADSL	2048	512	317.77	231.61	Unlimited	0.000	0.000	0.00	0.00
Mexico	Telmex	ADSL		2048	512	479.89	788.44	Unlimited	0.000	0.000	319.89	525.57
Poland	Netia	SDSL	BDI Pro	2048	2048	997.98	2074.68	unlimited	0.000	0.000	623.74	1296.67
Turkey	Turk Telecom	ADSL		2048	512	1686.36	3407.31	Unlimited	0.000	0.000	12.10	24.45
Iceland	Siminn (Iceland Telecom)	ADSL	ADSL 1500	1536	256	60.45	51.04	Unlimited Domestic (100 International)	0.031	0.026	75.25	63.54
Germany	Deutsche Telecom	ADSL	T-Online dsl 5000 MB with T-DSL 1500	1536	192	62.17	58.08	5000	0.018	0.017	0.00	0.00
Slovak Republic	Slovak Telecom	ADSL	ST DSL 1500 with DSL DATA 1000	1536	256	69.42	163.20	1000	0.013	0.031	142.54	335.11
Iceland	Siminn (Iceland Telecom)	ADSL	ADSL 1500	1536	256	85.29	72.01	Unlimited Domestic (1000 International)	0.031	0.026	75.25	63.54
Slovak Republic	Slovak Telecom	ADSL	ST DSL 1500 with DSL DATA 15000	1536	256	117.57	276.41	15000	0.005	0.013	142.54	335.11
Germany	Deutsche Telecom	ADSL	T-Online dsl flat 1500 (with T-DSL 1500)	1536	192	147.06	137.37	Unlimited	0.000	0.000	0.00	0.00
Korea	KT	DSL	Megapass Light	1500		25.21	40.57	Unlimited	0.000	0.000	28.01	45.07
Canada	Telus	ADSL	high speed Internet	1500	512	26.81	31.53	6000	0.000	0.000	0.00	0.00
United States	SBC	ADSL	SBC Yahoo (Standard Plus Package)	1500	128	26.95	26.95	Unlimited	0.000	0.000	0.00	0.00
United States	Verizon	ADSL	Taken with Telephony	1500	128	29.95	29.95	Unlimited	0.000	0.000	12.95	12.95
United States	Verizon	ADSL	Taken without Telephony	1500	128	34.95	34.95	Unlimited	0.000	0.000	12.95	12.95
United States	SBC	ADSL	SBC Yahoo (Deluxe Package)	1500	128	36.95	36.95	Unlimited	0.000	0.000	0.00	0.00
Japan	NTT East	ADSL	1.5M type	1500	512	40.25	32.81	Unlimited	0.000	0.000	34.05	27.76
United States	Verizon	ADSL	Business DSL	1500	128	59.95	59.95	Unlimited	0.000	0.000	25.00	25.00
United States	Verizon	ADSL	Business DSL	1500	384	89.95	89.95	Unlimited	0.000	0.000	25.00	25.00
Australia	Telstra - Big Pond	ADSL	1500/256	1500	256	117.12	133.47	5000	0.077	0.088	83.96	95.68
Italy	Telecom Italia	ADSL	Alice Mega	1200	256	73.51	81.34	Unlimited	0.000	0.000	213.24	235.93
Canada	Bell Canada	ADSL	High Speed	1024	320	26.81	31.53	Unlimited	0.000	0.000	0.00	0.00
Poland	Dialog	ADSL		1024	256	40.76	84.72	Unlimited	0.000	0.000	109.41	227.45
Netherlands	KPN	ADSL	ADSL Basic	1024	160	58.86	54.58	N/A	N/A	N/A	84.83	78.67
Netherlands	Planet	ADSL	ADSL comfort	1024	160	59.14	54.84	Unlimited	0.000	0.000	84.83	78.67
Denmark	TDC Kable TV	Cable Modem		1024	128	65.84	52.44	Unlimited	0.000	0.000	104.24	83.02

Annex Table 5. Incumbent broadband offers ranked by capacity, October 2003  
(cont'd)

Country	Company	Access Type	Plan	Download Speed (Kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Norway	Telenor Avidi	Cable Modem	Online Maxi	1024	256	73.75	60.23	Unlimited	0.000	0.000	93.70	76.52
Norway	Telenor	ADSL	Online ADSL Ekstra	1024	256	74.02	60.45	30000			172.57	140.94
Denmark	TDC	ADSL		1024	256	80.24	63.91	Unlimited	0.000	0.000	36.75	29.27
Denmark	TDC Kable TV	Cable Modem		1024	256	82.34	65.58	Unlimited	0.000	0.000	104.24	83.02
France	France Telecom Wanadoo	ADSL	eXtense fidélité (24 month commitment)	1024	128	84.78	79.47	Unlimited	0.000	0.000	0.00	0.00
Finland	Elisa	ADSL		1024	384	84.89	75.87	Unlimited	0.000	0.000	142.61	127.46
Czech Republic	Czech Telecom	ADSL	IOL Broadband 1024/256	1024	256	85.28	165.15	20GB	0.001	0.003	35.94	69.60
France	France Telecom Wanadoo	ADSL	eXtense 1024	1024	128	90.55	84.88	Unlimited	0.000	0.000	0.00	0.00
Norway	Telenor	ADSL	Online ADSL Ekstra-oppgradert	1024	256	100.98	82.47	Unlimited	0.000	0.000	172.57	140.94
Poland	TPSA	ADSL	DSL 1	1024	256	122.81	255.31	Unlimited	0.000	0.000	218.55	454.33
Finland	TeliaSonera	ADSL		1024	512	126.01	112.62	Unlimited	0.000	0.000	146.01	130.50
Luxembourg	P&T	ADSL	SpeedSurf-EXPRESS	1024	192	137.71	127.62	25000	0.003	0.003	62.25	57.69
Portugal	Portugal Telecom (Telepac)	ADSL		1024	256	142.77	187.55	Unlimited Domestic /International 12GB	0.017	0.022	101.02	132.70
Spain	Telefónica	ADSL	Linea ADSL 1Mbps	1024		157.56	177.96	Unlimited	0.000	0.000	50.02	56.50
United Kingdom	BT	ADSL	100PLUS Plug & Go	1024		187.25	177.44	Unlimited	0.000	0.000	0.00	0.00
Greece	OTEnet	ADSL	OnDSL HOME 1024	1024	256	193.66	238.04	Unlimited	0.000	0.000	0.00	0.00
Switzerland	Swisscom	ADSL	Gateway ADSL	1024	512	216.43	157.75	Unlimited	0.000	0.000	0.00	0.00
Poland	Netia	SDSL	BDI Standard	1024	1024	374.24	778.00	Unlimited	0.000	0.000	224.55	466.80
Turkey	Turk Telecom	ADSL		1024	256	995.16	2010.73	Unlimited	0.000	0.000	12.10	24.45
Austria	Telekom Austria	ADSL	AonSpeed 500MB	768	128	33.84	32.83	500	0.079	0.077	49.26	47.78
Germany	Deutsche Telecom	ADSL	T-Online dsl 1000 MB	768	128	33.89	31.65	1000	0.018	0.017	0.00	0.00
Germany	Deutsche Telecom	Satellite	T-DSL via satellite basic with T-Online dsl 1000MB	768		33.89	31.65	500	0.057	0.053	112.05	104.67
Germany	Deutsche Telecom	Satellite	T-DSL vis satellite basic with T-Online surftime 30	768		39.50	36.90	500	0.057	0.053	112.05	104.67
Austria	Telekom Austria	ADSL	AonSpeed 1GB	768	128	45.16	43.81	1000	0.079	0.077	49.26	47.78
Slovak Republic	Slovak Telecom	ADSL	ST DSL 768 with DSL DATA 1000	768	128	47.24	111.06	1000	0.013	0.031	142.54	335.11
Germany	Deutsche Telecom	Satellite	T-DSL via satellite basic with T-Online dsl 5000MB	768		50.87	47.51	500	0.057	0.053	112.05	104.67
Germany	Deutsche Telecom	ADSL	T-Online dsl flat	768	128	56.53	52.80	Unlimited	0.000	0.000	0.00	0.00
Austria	Telekom Austria	ADSL	AonSpeed Freetime	768	128	67.80	65.77	Unlimited	0.000	0.000	49.26	47.78

Annex Table 5. Incumbent broadband offers ranked by capacity, October 2003  
(cont'd)

Country	Company	Access Type	Plan	Download Speed (Kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Germany	Deutsche Telecom	Satellite	T-DSL vis satellite pro with T-Online surftime 60	768		76.85	71.79	Unlimited	0.000	0.000	112.05	104.67
Portugal	Portugal Telecom (Telepac)	ADSL		768	128	91.59	120.32	Unlimited Domestic /International 8GB	0.017	0.022	101.02	132.70
Slovak Republic	Slovak Telecom	ADSL	ST DSL 768 with DSL DATA 15000	768	128	95.39	224.27	15000	0.005	0.013	142.54	335.11
United States	Verizon	ADSL	Business DSL	768	768	129.95	129.95	Unlimited	0.000	0.000	25.00	25.00
Norway	Telenor	ADSL	Online ADSL	704	128	47.05	38.43	1000			172.57	140.94
Norway	Telenor	ADSL	Online ADSL oppgradert	704	128	60.53	49.44	10000			172.57	140.94
Portugal	Portugal Telecom (TV Cabo)	Cable Modem	Speed On	640		39.62	52.04	Domestic 20GB /International 1GB	0.034	0.045	142.73	187.50
Italy	Telecom Italia	ADSL	Alice 640	640	128	56.54	62.55	Unlimited	0.000	0.000	175.21	193.86
Switzerland	Swisscom	ADSL	Broadway ADSL600	600	100	57.18	41.68	Unlimited	0.000	0.000	0.00	0.00
Poland	TPSA	ADSL	Neostrada	512	128	38.09	79.18	Unlimited	0.000	0.000	51.13	106.28
Portugal	Portugal Telecom (sapo)	ADSL	SAPO ADSL-PT	512	128	39.60	52.03	Domestic 20GB /International 2GB	0.017	0.022	56.59	74.34
United Kingdom	BT	ADSL	BT Broadband Home	512	256	43.03	40.77	Unlimited	0.000	0.000	0.00	0.00
France	France Telecom Wanadoo	ADSL	eXtense fidélité (24 month commitment)	512	128	45.16	42.33	Unlimited	0.000	0.000	0.00	0.00
Norway	Telenor Avidi	Cable Modem	Online Midi	512	128	46.78	38.21	Unlimited	0.000	0.000	93.70	76.52
Hungary	Vivendi (Invitel)	ADSL	V-net ADSL residential 512	512	128	47.31	94.10	Unlimited	0.000	0.000	85.58	170.24
United Kingdom	BT	ADSL	BT Yahoo! Broadband Home	512	256	47.79	45.29	Unlimited	0.000	0.000	0.00	0.00
Ireland	eircom	ADSL	eircom i-stream starter (business)	512	128	47.93	41.78	4000	0.041	0.036	225.98	196.98
Czech Republic	Czech Telecom	ADSL	IOL Broadband 512/128	512	128	48.98	94.84	10GB	0.001	0.003	35.94	69.60
Australia	Telstra - Big Pond	ADSL	512/128	512	128	50.08	57.07	500	0.097	0.111	83.96	95.68
Denmark	TDC Kable TV	Cable Modem		512	128	50.84	40.50	Unlimited	0.000	0.000	104.24	83.02
Portugal	Portugal Telecom (sapo)	ADSL	SAPO ADSL-PT Pro	512	128	50.92	66.89	Unlimited Domestic /International 4GB	0.017	0.022	56.59	74.34
Hungary	Matav Axelero	ADSL	ADSL OTTHON	512	128	51.18	101.80	Unlimited	0.000	0.000	128.59	255.79
Portugal	Portugal Telecom (Telepac)	ADSL		512	128	51.18	67.24	Domestic 40GB /International 4GB	0.017	0.022	101.02	132.70
France	France Telecom Wanadoo	ADSL	eXtense 512	512	128	51.41	48.19	Unlimited	0.000	0.000	0.00	0.00
Finland	TeliaSonera	ADSL	shared apartment access	512	512	55.46	49.57	Unlimited	0.000	0.000	28.30	25.29
Finland	Elisa	ADSL		512	512	55.46	49.57	Unlimited	0.000	0.000	142.61	127.46
Ireland	eircom	ADSL	eircom i-stream starter (residential)	512	128	61.63	53.72	4000	0.041	0.036	0.00	0.00
Denmark	TDC	ADSL		512	128	65.24	51.96	Unlimited	0.000	0.000	36.75	29.27
Poland	TPSA	ADSL	DSL 512	512	128	68.11	141.59	Unlimited	0.000	0.000	218.55	454.33
Finland	TeliaSonera	ADSL		512	512	77.78	69.52	Unlimited	0.000	0.000	146.01	130.50
Luxembourg	P&T	ADSL	SpeedSurf-RUN	512	128	90.49	83.86	15000	0.003	0.003	62.25	57.69

Annex Table 5. Incumbent broadband offers ranked by capacity, October 2003  
(cont'd)

Country	Company	Access Type	Plan	Download Speed (Kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Mexico	Telmex	ADSL		512	256	95.89	157.55	Unlimited	0.000	0.000	319.89	525.57
Spain	Telefónica	ADSL	Linea ADSL 512	512	128	98.45	111.20	Unlimited	0.000	0.000	50.02	56.50
Spain	Terra	ADSL	ADSL a tu medida	512	128	98.45	111.20	Unlimited	0.000	0.000	101.32	114.44
Greece	OTEnet	ADSL	OnDSL HOME 512	512	128	100.17	123.13	Unlimited	0.000	0.000	0.00	0.00
United Kingdom	BT	Satellite	Business Satellite 500/1	512	150	112.33	106.45	Unlimited	0.000	0.000	561.75	532.33
Ireland	eircom	ADSL	eircom i-stream solo	512	128	121.89	106.25	6000	0.041	0.036	225.98	196.98
Ireland	eircom	ADSL	eircom i-stream multi	512	128	190.37	165.94	10000	0.041	0.036	225.98	196.98
Ireland	eircom	ADSL	eircom i-stream enhanced	512	128	231.45	201.75	Unlimited	0.000	0.000	225.98	196.98
Poland	Netia	SDSL	BDI Standard	512	128	280.68	583.50	Unlimited	0.000	0.000	224.55	466.80
Turkey	Turk Telecom	ADSL		512	128	370.16	747.91	Unlimited	0.000	0.000	12.10	24.45
Sweden	Telia	ADSL	Telia Broadband 500	500	400	45.27	38.94	Unlimited	0.000	0.000	83.90	72.17
Australia	Telstra - Big Pond	Satellite 1 way	1 way Giga Sat	400	56.6	60.49	68.94	3000	0.172	0.196	142.47	295.93
Slovak Republic	Slovak Telecom	ADSL	DSL FLAT Basic	384	64	22.56	53.03	Unlimited	0.000	0.000	142.54	335.11
United States	SBC	ADSL	SBC Yahoo (Basic Package)	384	128	26.95	26.95	Unlimited	0.000	0.000	0.00	0.00
Netherlands	Het Net	ADSL	ADSL Vooldeel Surfen	384	96	28.24	26.19	250	0.011	0.010	84.83	78.67
Netherlands	Het Net	ADSL	ADSL Surfen sur Het Net	384	96	37.29	34.59	1500	0.006	0.005	84.83	78.67
Slovak Republic	Slovak Telecom	ADSL	DSL FLAT Standard	384	64	37.77	88.79	Unlimited	0.000	0.000	142.54	335.11
Netherlands	Planet	ADSL	ADSL standard	384	96	39.50	36.63	1000	0.006	0.005	84.83	78.67
Netherlands	KPN	ADSL	ADSL Lite	384	96	39.56	36.68	N/A	N/A	N/A	84.83	78.67
Hungary	Matav Axelerio	ADSL	ADSL Hobbi	384	64	42.58	84.69	Unlimited	0.000	0.000	128.59	255.79
Hungary	Vivendi (Invitel)	ADSL	V-net ADSL residential 384	384	64	42.58	84.69	Unlimited	0.000	0.000	64.08	127.47
Greece	OTEnet	ADSL	OnDSL HOME 384	384	128	58.88	72.37	Unlimited	0.000	0.000	0.00	0.00
Switzerland	Swisscom	ADSL	Broadway ADSL300	300	50	35.47	25.85	Unlimited	0.000	0.000	0.00	0.00
Denmark	TDC	ADSL		256	128	20.85	16.60	0	0.075	0.060	36.75	29.27
New Zealand	Telecom NZ (Xtra)	ADSL	JetStream Home 500	256		29.06	33.73	500	0.116	0.135	0.00	0.00
New Zealand	Telecom NZ (Xtra)	ADSL	JetStream Home 1000	256		34.87	40.48	1000	0.116	0.135	0.00	0.00
Denmark	TDC Kable TV	Cable Modem		256	64	35.85	28.55	Unlimited	0.000	0.000	104.24	83.02
Australia	Telstra - Big Pond	ADSL	256/64	256	64	39.02	44.46	500	0.103	0.118	83.96	95.68
New Zealand	Telecom NZ (Xtra)	ADSL	JetStream Home 2000	256		40.69	47.24	2000	0.116	0.135	0.00	0.00
Italy	Telecom Italia	ADSL	Alice Time Flat	256	128	41.82	46.27	Unlimited	0.000	0.000	175.21	193.96

Annex Table 5. Incumbent broadband offers ranked by capacity, October 2003  
(cont'd)

Country	Company	Access Type	Plan	Download Speed (Kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Luxembourg	P&T	ADSL	SpeedSurf-JUNIOR	256	64	43.63	40.44	1000	0.003	0.003	62.25	57.69
Finland	TeliaSonera	ADSL	shared apartment access	256		46.41	41.48	Unlimited	0.000	0.000	28.30	25.29
Finland	Elisa	ADSL	shared apartment access	256	256	46.41	41.48	Unlimited	0.000	0.000	56.59	50.58
Iceland	Siminn (Iceland Telecom)	ADSL	ADSL 256	256	128	47.91	40.45	Unlimited Domestic (100 International)	0.031	0.026	75.25	63.54
Spain	Telefónica	ADSL	Linea ADSL 256	256	128	51.30	57.94	Unlimited	0.000	0.000	50.02	56.50
Denmark	TDC	ADSL		256	128	52.49	41.81	Unlimited	0.000	0.000	36.75	29.27
Mexico	Telmex	ADSL		256	128	53.23	87.45	Unlimited	0.000	0.000	319.89	525.57
Finland	TeliaSonera	ADSL		256	256	54.33	48.56	Unlimited	0.000	0.000	146.01	130.50
Spain	Terra	ADSL	ADSL Plus	256	128	55.20	62.35	Unlimited	0.000	0.000	50.02	56.50
Luxembourg	P&T	ADSL	SpeedSurf-START	256	64	63.33	58.69	10000	0.003	0.003	62.25	57.69
Luxembourg	P&T	Cable Modem	TV-Surf	256	64	69.60	64.50	Unlimited	0.000	0.000	17.54	16.26
Iceland	Siminn (Iceland Telecom)	ADSL	ADSL 256	256	128	72.75	61.42	Unlimited Domestic (1000 International)	0.031	0.026	75.25	63.54
Australia	Telstra - Big Pond	Satellite 2 way	2 way Blast Off	256		94.37	107.55	300	0.123	0.140	259.68	295.93
Turkey	Turk Telecom	ADSL		256	64	121.01	244.51	Unlimited	0.000	0.000	12.10	24.45
Poland	Netia	SDSL	BDI Standard	256	256	187.12	389.00	unlimited	0.000	0.000	224.55	466.80
Sweden	Telia	ADSL	Telia Broadband 250	250	64	36.09	31.05	Unlimited	0.000	0.000	83.90	72.17
Canada	Bell Canada	ADSL	DSL Basic	128	64	22.97	27.02	2000	0.000	0.000	19.18	22.56
France	France Telecom Wanadoo	ADSL	eXtense 128	128		33.96	31.83	Unlimited	0.000	0.000	0.00	0.00
Turkey	Turk Telecom	ADSL		128	32	34.88	70.48	Unlimited	0.000	0.000	12.10	24.45
New Zealand	Telecom NZ (Xtra)	ADSL	JetStream Starter	128	128	37.75	43.83	5000	0.058	0.068	0.00	0.00
Poland	Netia	SDSL	BDI Standard	128	128	124.75	259.33	unlimited	0.000	0.000	224.55	466.80

Source: OECD.

Annex Table 6. Incumbent broadband offers with unmetered data transfer ranked by price, October 2003

Country	Company	Access Type	Plan	Download Speed (Kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Slovak Republic	Slovak Telecom	ADSL	DSL FLAT Basic	384	64	22.56	53.03	Unlimited	0.000	0.000	142.54	335.11
Korea	KT	DSL	Megapass Light	1500		25.21	40.57	Unlimited	0.000	0.000	28.01	45.07
Canada	Bell Canada	ADSL	High Speed	1024	320	26.81	31.53	Unlimited	0.000	0.000	0.00	0.00
United States	SBC	ADSL	SBC Yahoo (Standard Plus Package)	1500	128	26.95	26.95	Unlimited	0.000	0.000	0.00	0.00
United States	SBC	ADSL	SBC Yahoo (Basic Package)	384	128	26.95	26.95	Unlimited	0.000	0.000	0.00	0.00
United States	Verizon	ADSL	Taken with Telephony	1500	128	29.95	29.95	Unlimited	0.000	0.000	12.95	12.95
Korea	KT	DSL	Megapass Premium	8000		33.61	54.09	Unlimited	0.000	0.000	28.01	45.07
France	France Telecom Wanadoo	ADSL	eXtense 128	128		33.96	31.83	Unlimited	0.000	0.000	0.00	0.00
Turkey	Turk Telecom	ADSL		128	32	34.88	70.48	Unlimited	0.000	0.000	12.10	24.45
United States	Verizon	ADSL	Taken without Telephony	1500	128	34.95	34.95	Unlimited	0.000	0.000	12.95	12.95
Switzerland	Swisscom	ADSL	Broadway ADSL300	300	50	35.47	25.85	Unlimited	0.000	0.000	0.00	0.00
Denmark	TDC Kable TV	Cable Modem		256	64	35.85	28.55	Unlimited	0.000	0.000	104.24	83.02
Sweden	Telia	ADSL	Telia Broadband 250	250	64	36.09	31.05	Unlimited	0.000	0.000	83.90	72.17
United States	SBC	ADSL	SBC Yahoo (Deluxe Package)	1500	128	36.95	36.95	Unlimited	0.000	0.000	0.00	0.00
Slovak Republic	Slovak Telecom	ADSL	DSL FLAT Standard	384	64	37.77	88.79	Unlimited	0.000	0.000	142.54	335.11
Poland	TPSA	ADSL	Neotrada	512	128	38.09	79.18	Unlimited	0.000	0.000	51.13	106.28
Japan	NTT East	ADSL	1.5M type	1500	512	40.25	32.81	Unlimited	0.000	0.000	34.05	27.76
Japan	NTT East	ADSL	8M type	8000	1024	40.69	33.17	Unlimited	0.000	0.000	34.05	27.76
Poland	Dialog	ADSL		1024	256	40.76	84.72	Unlimited	0.000	0.000	109.41	227.45
Japan	NTT East	ADSL	More (12M type)	12000	1024	41.13	33.53	Unlimited	0.000	0.000	34.05	27.76
Japan	NTT East	ADSL	More II (24M type)	24000	1024	41.57	33.89	Unlimited	0.000	0.000	34.05	27.76
Italy	Telecom Italia	ADSL	Alice Time Flat	256	128	41.82	46.27	Unlimited	0.000	0.000	175.21	193.86
Korea	KT	DSL	Megapass Special	13000		42.01	67.61	Unlimited	0.000	0.000	28.01	45.07
Hungary	Matav Axelero	ADSL	ADSL Hobbi	384	64	42.58	84.69	Unlimited	0.000	0.000	128.59	255.79
Hungary	Vivendi (Invitel)	ADSL	V-net ADSL residential 384	384	64	42.58	84.69	Unlimited	0.000	0.000	64.08	127.47
United Kingdom	BT	ADSL	BT Broadband Home	512	256	43.03	40.77	Unlimited	0.000	0.000	0.00	0.00

Annex Table 6. Incumbent broadband offers with unmetered data transfer ranked by price, October 2003  
(cont'd)

Country	Company	Access Type	Plan	Download Speed (kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
France	France Telecom Wanadoo	ADSL	eXtense fidélité (24 month commitment)	512	128	45.16	42.33	Unlimited	0.000	0.000	0.00	0.00
Sweden	Telia	ADSL	Telia Broadband 500	500	400	45.27	38.94	Unlimited	0.000	0.000	83.90	72.17
Canada	Bell Canada	ADSL	High Speed Ultra	3072	640	45.98	54.09	Unlimited	0.000	0.000	19.18	22.56
Finland	TeliaSonera	ADSL	shared apartment access	256	256	46.41	41.48	Unlimited	0.000	0.000	28.30	25.29
Finland	Elisa	ADSL	shared apartment access	256	256	46.41	41.48	Unlimited	0.000	0.000	56.59	50.58
Norway	Telenor Avidi	Cable Modem	Online Midi	512	128	46.78	38.21	Unlimited	0.000	0.000	93.70	76.52
Hungary	Vivendi (Invitel)	ADSL	V-net ADSL residential 512	512	128	47.31	94.10	Unlimited	0.000	0.000	85.58	170.24
United Kingdom	BT	ADSL	BT Yahoo! Broadband Home	512	256	47.79	45.29	Unlimited	0.000	0.000	0.00	0.00
Iceland	Siminn (Iceland Telecom)	ADSL	ADSL 256	256	128	47.91	40.45	Unlimited Domestic (100 International)	0.031	0.026	75.25	63.54
Denmark	TDC Kable TV	Cable Modem		512	128	50.84	40.50	Unlimited	0.000	0.000	104.24	83.02
Portugal	Portugal Telecom (sapo)	ADSL	SAPO ADSL PT Pro	512	128	50.92	66.89	Unlimited Domestic /International 4GB	0.017	0.022	56.59	74.34
Hungary	Matav Axelero	ADSL	ADSL OTTHON	512	128	51.18	101.80	Unlimited	0.000	0.000	128.59	255.79
Spain	Telefónica	ADSL	Linea ADSL 256	256	128	51.30	57.94	Unlimited	0.000	0.000	50.02	56.50
France	France Telecom Wanadoo	ADSL	eXtense 512	512	128	51.41	48.19	Unlimited	0.000	0.000	0.00	0.00
Japan	NTT East	FTTH	Shared connection for apartments (B FLET'S for apartments Type II)	100000	100000	52.45	42.76	Unlimited	0.000	0.000	105.26	85.80
Denmark	TDC	ADSL		256	128	52.49	41.81	Unlimited	0.000	0.000	36.75	29.27
Mexico	Telmex	ADSL		256	128	53.23	87.45	Unlimited	0.000	0.000	319.89	525.57
Finland	TeliaSonera	ADSL		256	256	54.33	48.56	Unlimited	0.000	0.000	146.01	130.50
Spain	Terra	ADSL	ADSL Plus	256	128	55.20	62.35	Unlimited	0.000	0.000	50.02	56.50
Finland	TeliaSonera	ADSL	shared apartment access	512	512	55.46	49.57	Unlimited	0.000	0.000	28.30	25.29
Finland	Elisa	ADSL		512	512	55.46	49.57	Unlimited	0.000	0.000	142.61	127.46
Germany	Deutsche Telecom	ADSL	T-Online dsl flat	768	128	56.53	52.80	Unlimited	0.000	0.000	0.00	0.00
Italy	Telecom Italia	ADSL	Alice 640	640	128	56.54	62.55	Unlimited	0.000	0.000	175.21	193.86
Switzerland	Swisscom	ADSL	Broadway ADSL600	600	100	57.18	41.68	Unlimited	0.000	0.000	0.00	0.00
Greece	OTEnet	ADSL	OnDSL HOME 384	384	128	58.88	72.37	Unlimited	0.000	0.000	0.00	0.00
Netherlands	Planet	ADSL	ADSL comfort	1024	160	59.14	54.84	Unlimited	0.000	0.000	84.83	78.67
United States	Verizon	ADSL	Business DSL	1500	128	59.95	59.95	Unlimited	0.000	0.000	25.00	25.00
Iceland	Siminn (Iceland Telecom)	ADSL	ADSL 1500	1536	256	60.45	51.04	Unlimited Domestic (100 International)	0.031	0.026	75.25	63.54
Denmark	TDC	ADSL		512	128	65.24	51.96	Unlimited	0.000	0.000	36.75	29.27
Denmark	TDC Kable TV	Cable Modem		1024	128	65.84	52.44	Unlimited	0.000	0.000	104.24	83.02



DSTI/ICCP/TISP(2003)8/FINAL  
Annex Table 6. Incumbent broadband offers with unmetered data transfer ranked by price, October 2003  
(cont'd)

Country	Company	Access Type	Plan	Download Speed (kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Japan	NTT East	FTTH	Shared connection for stand alone dwellings (B FLET'S New family type)	100000	100000	67.05	54.66	Unlimited	0.000	0.000	239.70	195.40
Austria	Telekom Austria	ADSL	AonSpeed Freetime	768	128	67.80	65.77	Unlimited	0.000	0.000	49.26	47.78
Poland	Dialog	ADSL		2048	512	68.11	141.59	Unlimited	0.000	0.000	109.41	227.45
Poland	TPSA	ADSL	DSL 512	512	128	68.11	141.59	Unlimited	0.000	0.000	218.55	454.33
Luxembourg	P&T	Cable Modem	TV-Surf	256	64	69.60	64.50	Unlimited	0.000	0.000	17.54	16.26
Iceland	Siminn (Iceland Telecom)	ADSL	ADSL 256	256	128	72.75	61.42	Unlimited Domestic (1000 International)	0.031	0.026	75.25	63.54
Italy	Telecom Italia	ADSL	Alice Mega	1200	256	73.51	81.34	Unlimited	0.000	0.000	213.24	235.93
Norway	Telenor Avidi	Cable Modem	Online Maxi	1024	256	73.75	60.23	Unlimited	0.000	0.000	93.70	76.52
Germany	Deutsche Telecom	Satellite	T-DSL vis satellite pro with T-Online surftime 60	768		76.85	71.79	Unlimited	0.000	0.000	112.05	104.67
Finland	TeliaSonera	ADSL		512	512	77.78	69.52	Unlimited	0.000	0.000	146.01	130.50
Denmark	TDC	ADSL		1024	256	80.24	63.91	Unlimited	0.000	0.000	36.75	29.27
Denmark	TDC Kable TV	Cable Modem		2048	128	80.84	64.39	Unlimited	0.000	0.000	104.24	83.02
Denmark	TDC Kable TV	Cable Modem		1024	256	82.34	65.58	Unlimited	0.000	0.000	104.24	83.02
France	France Telecom Wanadoo	ADSL	eXtense fidélité (24 month commitment)	1024	128	84.78	79.47	Unlimited	0.000	0.000	0.00	0.00
Finland	Elisa	ADSL		1024	384	84.89	75.87	Unlimited	0.000	0.000	142.61	127.46
Iceland	Siminn (Iceland Telecom)	ADSL	ADSL 1500	1536	256	85.29	72.01	Unlimited Domestic (1000 International)	0.031	0.026	75.25	63.54
United States	Verizon	ADSL	Business DSL	1500	384	89.95	89.95	Unlimited	0.000	0.000	25.00	25.00
France	France Telecom Wanadoo	ADSL	eXtense 1024	1024	128	90.55	84.88	Unlimited	0.000	0.000	0.00	0.00
Portugal	Portugal Telecom (Telepac)	ADSL		768	128	91.59	120.32	Unlimited Domestic /International 8GB	0.017	0.022	101.02	132.70
Mexico	Telmex	ADSL		512	256	95.89	157.55	Unlimited	0.000	0.000	319.89	525.57
Spain	Telefónica	ADSL	Linea ADSL 512	512	128	98.45	111.20	Unlimited	0.000	0.000	50.02	56.50
Spain	Terra	ADSL	ADSL a tu medida	512	128	98.45	111.20	Unlimited	0.000	0.000	101.32	114.44
Netherlands	Planet	ADSL	ADSL advanced	2048	320	99.77	92.53	Unlimited	0.000	0.000	84.83	78.67
Greece	OTEnet	ADSL	OnDSL HOME 512	512	128	100.17	123.13	Unlimited	0.000	0.000	0.00	0.00
Norway	Telenor	ADSL	Online ADSL Ekstra-opgradert	1024	256	100.98	82.47	Unlimited	0.000	0.000	172.57	140.94
Iceland	Siminn (Iceland Telecom)	ADSL	ADSL 2000	2048	512	102.60	86.62	Unlimited Domestic (100 International)	0.031	0.026	75.25	63.54
United Kingdom	BT	Satellite	Business Satellite 500/1	512	150	112.33	106.45	Unlimited	0.000	0.000	561.75	532.33
Denmark	TDC Kable TV	Cable Modem		2048	512	112.34	89.47	Unlimited	0.000	0.000	104.24	83.02

Annex Table 6. Incumbent broadband offers with unmetered data transfer ranked by price, October 2003  
(cont'd)

Country	Company	Access Type	Plan	Download Speed (kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Denmark	TDC	ADSL		2048	512	117.74	93.77	Unlimited	0.000	0.000	36.75	29.27
Turkey	Turk Telecom	ADSL		256	64	121.01	244.51	Unlimited	0.000	0.000	12.10	24.45
Poland	TPSA	ADSL	DSL 1	1024	256	122.81	255.31	Unlimited	0.000	0.000	218.55	454.33
Poland	Netia	SDSL	BDI Standard	128	128	124.75	259.33	Unlimited	0.000	0.000	224.55	466.80
Denmark	TDC Kable TV	Cable Modem		4096	256	125.84	100.22	Unlimited	0.000	0.000	104.24	83.02
Finland	TeliaSonera	ADSL		1024	512	126.01	112.62	Unlimited	0.000	0.000	146.01	130.50
Iceland	Siminn (Iceland Telecom)	ADSL	ADSL 2000	2048	512	127.43	107.59	Unlimited Domestic (1000 International)	0.031	0.026	75.25	63.54
United States	Verizon	ADSL	Business DSL	768	768	129.95	129.95	Unlimited	0.000	0.000	25.00	25.00
Finland	Elisa	ADSL		2048	512	135.82	121.39	Unlimited	0.000	0.000	142.61	127.46
Norway	Telenor Avidi	Cable Modem	Online Mega	2048	256	141.16	115.28	Unlimited	0.000	0.000	93.70	76.52
Portugal	Portugal Telecom (Telepac)	ADSL		1024	256	142.77	187.55	Unlimited Domestic /International 12GB	0.017	0.022	101.02	132.70
Germany	Deutsche Telecom	ADSL	T-Online dsl flat 1500 (with T-DSL 1500)	1536	192	147.06	137.37	Unlimited	0.000	0.000	0.00	0.00
Spain	Telefónica	ADSL	Línea ADSL 1Mbps	1024		157.56	177.96	Unlimited	0.000	0.000	50.02	56.50
Japan	NTT East	FTTH	Line dedicated to single connection (B FLETS Basic type)	100000	100000	158.33	129.07	Unlimited	0.000	0.000	239.70	195.40
Finland	TeliaSonera	ADSL		2048	512	173.34	154.93	Unlimited	0.000	0.000	146.01	130.50
Poland	Netia	SDSL	BDI Standard	256	256	187.12	389.00	Unlimited	0.000	0.000	224.55	466.80
United Kingdom	BT	ADSL	1000PLUS Plug & Go	1024	1024	187.25	177.44	Unlimited	0.000	0.000	0.00	0.00
Greece	OTEnet	ADSL	OnDSL HOME 1024	1024	256	193.66	238.04	Unlimited	0.000	0.000	0.00	0.00
Spain	Telefónica	ADSL	Línea ADS: 2Mbps	2048	300	197.69	223.29	Unlimited	0.000	0.000	50.02	56.50
Spain	Terra	ADSL	ADSL a tu medida	2048	300	197.69	223.29	Unlimited	0.000	0.000	101.32	114.44
United States	Verizon	ADSL	Business DSL	7100	768	204.95	204.95	Unlimited	0.000	0.000	25.00	25.00
Switzerland	Swisscom	ADSL	Gateway ADSL	1024	512	216.43	157.75	Unlimited	0.000	0.000	0.00	0.00

DSTI/ICCP/TISP(2003)8/FINAL  
**Annex Table 6. Incumbent broadband offers with unmetered data transfer ranked by price, October 2003**  
 (cont'd)

Country	Company	Access Type	Plan	Download Speed (Kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Ireland	eircom	ADSL	eircom i-stream enhanced	512	128	231.45	201.75	Unlimited	0.000	0.000	225.98	196.98
United Kingdom	BT	ADSL	2000PLUS Plug & Go	2048		243.43	230.68	Unlimited	0.000	0.000	0.00	0.00
Poland	Netia	SDSL	BDI Standard	512	512	280.68	583.50	Unlimited	0.000	0.000	224.55	466.80
Switzerland	Swisscom	ADSL	Gateway ADSL	2048	512	317.77	231.61	Unlimited	0.000	0.000	0.00	0.00
Turkey	Turk Telecom	ADSL		512	128	370.16	747.91	Unlimited	0.000	0.000	12.10	24.45
Poland	Netia	SDSL	BDI Standard	1024	1024	374.24	778.00	Unlimited	0.000	0.000	224.55	466.80
Finland	Elisa	ADSL		4096	512	441.43	394.52	Unlimited	0.000	0.000	142.61	127.46
Mexico	Telmex	ADSL		2048	512	479.89	788.44	Unlimited	0.000	0.000	319.89	525.57
Turkey	Turk Telecom	ADSL		1024	256	995.16	2010.73	Unlimited	0.000	0.000	12.10	24.45
Poland	Netia	SDSL	BDI Pro	2048	2048	997.98	2074.68	Unlimited	0.000	0.000	623.74	1296.67
Turkey	Turk Telecom	ADSL		2048	512	1686.36	3407.31	Unlimited	0.000	0.000	12.10	24.45

Source: OECD.

Annex Table 7. Incumbent broadband offers with metered data transfer ranked by price, October 2003

Country	Company	Access Type	Plan	Download Speed (Kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Denmark	TDC	ADSL		256	128	20.85	16.60	0	0.075	0.060	36.75	29.27
Canada	Bell Canada	ADSL	DSL Basic	128	64	22.97	27.02	2000	0.000	0.000	19.18	22.56
Canada	Telus	ADSL	high speed Internet	1500	512	26.81	31.53	6000	0.000	0.000	0.00	0.00
Netherlands	Het Net	ADSL	ADSL Vooldeel Surfen	384	96	28.24	26.19	250	0.011	0.010	84.83	78.67
New Zealand	Telecom NZ (Xtra)	ADSL	JetStream Home 500	256		29.06	33.73	500	0.116	0.135	0.00	0.00
Austria	Telekom Austria	ADSL	AonSpeed 500MB	768	128	33.84	32.83	500	0.079	0.077	49.26	47.78
Germany	Deutsche Telecom	ADSL	T-Online dsl 1000 MB	768	128	33.89	31.65	1000	0.018	0.017	0.00	0.00
Germany	Deutsche Telecom	Satellite	T-DSL via satellite basic with T-Online dsl 1000MB	768		33.89	31.65	500	0.057	0.053	112.05	104.67
New Zealand	Telecom NZ (Xtra)	ADSL	JetStream Home 500 Full Speed	2048	250	34.32	39.84	500	0.116	0.135	0.00	0.00
Canada	Telus	ADSL	enhanced high speed Internet	2500	640	34.48	40.56	10000	0.000	0.000	0.00	0.00
New Zealand	Telecom NZ (Xtra)	ADSL	JetStream Home 1000	256		34.87	40.48	1000	0.116	0.135	0.00	0.00
Australia	Telstra - Big Pond	Cable Modem	500MB Residential	Uncapped	128	35.76	40.76	500	0.103	0.118	123.01	162.36
Netherlands	Het Net	ADSL	ADSL Surfen sur Het Net	384	96	37.29	34.59	1500	0.006	0.005	84.83	78.67
New Zealand	Telecom NZ (Xtra)	ADSL	JetStream Starter	128	128	37.75	43.83	5000	0.058	0.068	0.00	0.00
Australia	Telstra - Big Pond	ADSL	256/64	256	64	39.02	44.46	500	0.103	0.118	83.96	95.68
Germany	Deutsche Telecom	Satellite	T-DSL vis satellite basic with T-Online surftime 30	768		39.50	36.90	500	0.057	0.053	112.05	104.67
Netherlands	Planet	ADSL	ADSL standard	384	96	39.50	36.63	1000	0.006	0.005	84.83	78.67
Netherlands	KPN	ADSL	ADSL Lite	384	96	39.56	36.68	N/A	N/A	N/A	84.83	78.67
Portugal	Portugal Telecom (sapo)	ADSL	SAPO ADSL.PT	512	128	39.60	52.03	Domestic 20GB/ International 2GB	0.017	0.022	56.59	74.34
Portugal	Portugal Telecom (TV Cabo)	Cable Modem	Speed On	640		39.62	52.04	Domestic 20GB/ International 1GB	0.034	0.045	142.73	187.50
New Zealand	Telecom NZ (Xtra)	ADSL	JetStream Home 2000	256		40.69	47.24	2000	0.116	0.135	0.00	0.00
Luxembourg	P&T	ADSL	SpeedSurf-JUNIOR	256	64	43.63	40.44	1000	0.003	0.003	62.25	57.69
Belgium	Belgacom	ADSL	ADSL Skynet Go	3000	128	44.75	42.40	10000	0.001	0.001	78.10	73.99
Austria	Telekom Austria	ADSL	AonSpeed 1GB	768	128	45.16	43.81	1000	0.079	0.077	49.26	47.78
New Zealand	Telecom NZ (Xtra)	ADSL	JetStream Home 1000 Full Speed	2048	250	45.95	53.35	1000	0.116	0.135	0.00	0.00

DSTI/ICCP/TISP(2003)8/FINAL  
**Annex Table 7. Incumbent broadband offers with metered data transfer ranked by price, October 2003**  
 (cont'd)

Country	Company	Access Type	Plan	Download Speed (Kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Norway	Telenor	ADSL	Online ADSL	704	128	47.05	38.43	1000		172.57	140.94	
Slovak Republic	Slovak Telecom	ADSL	ST DSL 768 with DSL DATA 1000	768	128	47.24	111.06	1000	0.013	0.031	142.54	335.11
Iceland	Siminn (Iceland Telecom)	ADSL	ADSL 256	256	128	47.91	40.45	Unlimited Domestic (100 International)	0.031	0.026	75.25	63.54
Ireland	eircom	ADSL	eircom i-stream starter (business)	512	128	47.93	41.78	4000	0.041	0.036	225.98	196.98
Czech Republic	Czech Telecom	ADSL	IOL Broadband 512/128	512	128	48.98	94.84	10GB	0.001	0.003	35.94	69.60
Australia	Telstra - Big Pond	ADSL	512/128	512	128	50.08	57.07	500	0.097	0.111	83.96	95.68
Germany	Deutsche Telecom	Satellite	T-DSL via satellite basic with T-Online dsl 5000MB	768		50.87	47.51	500	0.057	0.053	112.05	104.67
Portugal	Portugal Telecom (sapo)	ADSL	SAPO ADSL.PT Pro	512	128	50.92	66.89	Unlimited Domestic/International 4GB	0.017	0.022	56.59	74.34
Portugal	Portugal Telecom (Telepac)	ADSL		512	128	51.18	67.24	Domestic 40GB/International 4GB	0.017	0.022	101.02	132.70
Sweden	Telia	ADSL	Telia Broadband 2000	2048	400	57.34	49.32	10000	0.003	0.003	83.90	72.17
Netherlands	KPN	ADSL	ADSL Basic	1024	160	58.86	54.58	N/A	N/A	N/A	84.83	78.67
Iceland	Siminn (Iceland Telecom)	ADSL	ADSL 1500	1536	256	60.45	51.04	Unlimited Domestic (100 International)	0.031	0.026	75.25	63.54
Australia	Telstra - Big Pond	Satellite 1 way	1 way Giga Sat	400	56.6	60.49	68.94	3000	0.172	0.196	142.47	295.93
Norway	Telenor	ADSL	Online ADSL oppgradert	704	128	60.53	49.44	10000			172.57	140.94
Belgium	Belgacom	ADSL	ADSL Skynet Plus	3000	196	61.58	58.35	15000	0.001	0.001	78.10	73.99
Ireland	eircom	ADSL	eircom i-stream starter (residential)	512	128	61.63	53.72	4000	0.041	0.036	0.00	0.00
Germany	Deutsche Telecom	ADSL	T-Online dsl 5000 MB with T-DSL 1500	1536	192	62.17	58.08	5000	0.018	0.017	0.00	0.00
Luxembourg	P&T	ADSL	SpeedSurf-START	256	64	63.33	58.69	10000	0.003	0.003	62.25	57.69
Slovak Republic	Slovak Telecom	ADSL	ST DSL 1500 with DSL DATA 1000	1536	256	69.42	163.20	1000	0.013	0.031	142.54	335.11
Iceland	Siminn (Iceland Telecom)	ADSL	ADSL 256	256	128	72.75	61.42	Unlimited Domestic (1000 International)	0.031	0.026	75.25	63.54
Norway	Telenor	ADSL	Online ADSL Ekstra	1024	256	74.02	60.45	30000			172.57	140.94
Czech Republic	Czech Telecom	ADSL	IOL Broadband 1024/256	1024	256	85.28	165.15	20GB	0.001	0.003	35.94	69.60
Iceland	Siminn (Iceland Telecom)	ADSL	ADSL 1500	1536	256	85.29	72.01	Unlimited Domestic (1000 International)	0.031	0.026	75.25	63.54
Luxembourg	P&T	ADSL	SpeedSurf-RUN	512	128	90.49	83.86	15000	0.003	0.003	62.25	57.69

Annex Table 7. Incumbent broadband offers with metered data transfer ranked by price, October 2003  
(cont'd)

Country	Company	Access Type	Plan	Download Speed (Kbps)	Upload Speed (Kbps)	Monthly Charge		Mbytes Included (per month)	Additional Cost per Mbyte		Installation Charge	
						in USD	in USD PPP		in USD	in USD PPP	in USD	in USD PPP
Portugal	Portugal Telecom (Telepac)	ADSL		768	128	91.59	120.32	Unlimited Domestic/ International 8GB	0.017	0.022	101.02	132.70
Australia	Telstra - Big Pond	Satellite 2 way	2 way Blast Off	256		94.37	107.55	300	0.123	0.140	259.68	295.93
Slovak Republic	Slovak Telecom	ADSL	ST DSL 768 with DSL DATA 15000	768	128	95.39	224.27	15000	0.005	0.013	142.54	335.11
Netherlands	KPN	ADSL	ADSL Extra	2048	320	99.60	92.37	N/A	N/A	N/A	84.83	78.67
Iceland	Siminn (Iceland Telecom)	ADSL	ADSL 2000	2048	512	102.60	86.62	Unlimited Domestic (100 International)	0.031	0.026	75.25	63.54
Australia	Telstra - Big Pond	ADSL	1500/256	1500	256	117.12	133.47	5000	0.077	0.088	83.96	95.68
Slovak Republic	Slovak Telecom	ADSL	ST DSL 1500 with DSL DATA 15000	1536	256	117.57	276.41	15000	0.005	0.013	142.54	335.11
Ireland	eircom	ADSL	eircom i-stream solo	512	128	121.89	106.25	6000	0.041	0.036	225.98	196.98
Iceland	Siminn (Iceland Telecom)	ADSL	ADSL 2000	2048	512	127.43	107.59	Unlimited Domestic (1000 International)	0.031	0.026	75.25	63.54
Luxembourg	P&T	ADSL	SpeedSurf-EXPRESS	1024	192	137.71	127.62	25000	0.003	0.003	62.25	57.69
Portugal	Portugal Telecom (Telepac)	ADSL		1024	256	142.77	187.55	Unlimited Domestic/ International 12GB	0.017	0.022	101.02	132.70
Ireland	eircom	ADSL	eircom i-stream multi	512	128	190.37	165.94	10000	0.041	0.036	225.98	196.98

Source: OECD.

Annex Table 8. Exchange rates and PPP exchange rates used in this document

	Exchange rates in national currency units per USD	PPP in national curency units per USD
Australia	1.54	1.35
Austria	0.88	0.91
Belgium	0.88	0.93
Canada	1.40	1.19
Czech Republic	28.92	14.93
Denmark	6.67	8.37
Finland	0.88	0.99
France	0.88	0.94
Germany	0.88	0.95
Greece	0.88	0.72
Hungary	232.52	116.89
Iceland	79.73	94.44
Ireland	0.88	1.01
Italy	0.88	0.80
Japan	118.71	145.62
Korea	1178.22	732.15
Luxembourg	0.88	0.95
Mexico	10.78	6.56
Netherlands	0.88	0.95
New Zealand	1.72	1.48
Norway	7.42	9.08
Poland	3.91	1.88
Portugal	0.88	0.67
Slovak Rep	37.56	15.98
Spain	0.88	0.78
Sweden	8.28	9.63
Switzerland	1.38	1.90
Turkey	1404805.00	695270.72
United Kingdom	0.63	0.66
United States	1.00	1.00

Source: OECD.

**Annex Table 9. Combined retail market share of providers covered in this report as percent of the total market broadband**

Australia	86.50
Austria	68.71
Belgium	85.47
Canada	66.02
Czech Republic	96.09
Denmark	72.24
Finland	64.21
France	79.57
Germany	92.16
Greece	90.17
Hungary	97.97
Iceland	69.59
Ireland	74.17
Italy	88.98
Japan	70.33
Korea	85.46
Luxembourg	64.62
Mexico	89.40
Netherlands	70.91
New Zealand	92.25
Norway	76.84
Poland	64.37
Portugal	78.06
Slovak Republic	89.00
Spain	78.39
Sweden	71.42
Switzerland	84.47
Turkey	60 +
United Kingdom	73.77
United States	64.33

*Notes:*

(a) Percentages are calculated by dividing the total number of broadband subscribers in each OECD country by the number of retail broadband subscribers for providers mentioned in this document. In some countries not all subscriber data were available for smaller operators. This means that percentages shown in this table represent the minimum coverage and in most countries the actual market share covered would be higher.

(b) In Turkey, at the end of 2003, Turk Telecom owned all DSL lines and the underlying cable networks.

Source: OECD.



## NOTES

- <sup>1</sup> OECD “Seizing the Benefits of ICT in a Digital Economy”, 2003  
<http://www.oecd.org/dataoecd/43/42/2507572.pdf>.
- <sup>2</sup> Refer <http://www.idnet.net.uk/broadband/contentionratio.html>
- <sup>3</sup> DSTI/ICCP/TISP(2003)7/FINAL, [http://www.ois.oecd.org/olis/2003doc.nsf/linkto/dsti-iccp-tisp\(2003\)7-final](http://www.ois.oecd.org/olis/2003doc.nsf/linkto/dsti-iccp-tisp(2003)7-final)
- <sup>4</sup> Independent ISPs added 45 000 DSL subscribers compared to 26 000 subscribers for Telstra using all platforms (*i.e.* cable, DSL and satellite).
- <sup>5</sup> Nadia Cameron, “Telstra takes symmetrical broadband service to businesses”, *PC World*, 14 October 2003.  
<http://www.computerworld.com.au/index.php?id=675888079&fp=16&fpid=0>
- <sup>6</sup> Telstra’s unlimited download offer included 10 gigabytes at the advertised speed after which a capacity throttle is applied.
- <sup>7</sup> [http://business.telekom.at/produkte/internet/ba/ba\\_kosten.php](http://business.telekom.at/produkte/internet/ba/ba_kosten.php)
- <sup>8</sup> “Cesky Telecom to triple ADSL speed, introduce data transfer limit by September” Interfax, 5 August 2003.
- <sup>9</sup> Cesky Telecom, “Cesky Telecom Increases ADSL Speed Today”, Press Release, 15 September 2003.  
[http://www.telecom.cz/infocentrum\\_e/tiskove\\_centrum/tiskove\\_zpravy/clanek.php?tz=15092003\\_1](http://www.telecom.cz/infocentrum_e/tiskove_centrum/tiskove_zpravy/clanek.php?tz=15092003_1)
- <sup>10</sup> Refer <http://www.9online.fr/offres/adsl/> 9Telecom offers were for the first 12 months of service but still represented substantial reductions over previous prices.
- <sup>11</sup> ITU (2003), “Promoting Broadband: The Case of Iceland”.  
<http://www.itu.int/osg/spu/ni/promotebroadband/casestudies/iceland.pdf>
- <sup>12</sup> eircom “eircom Retail launches major broadband promotion”, Press Release, 15 September 2003.
- <sup>13</sup> The ISP charge is not included in this price reduction. See, [http://flets.com/misc/prom\\_adsl\\_15m.html](http://flets.com/misc/prom_adsl_15m.html)
- <sup>14</sup> Telecom New Zealand, “New Telecom XTRA Jetstream Plans Priced from USD 49.95 a Month”, Press Release, 19 September 2003. [http://www.telecom-media.co.nz/releases\\_detail.asp?id=2926&page=2&pagesize=10](http://www.telecom-media.co.nz/releases_detail.asp?id=2926&page=2&pagesize=10)
- <sup>15</sup> Wired Country, ‘Counties Region enjoys even greater high speed internet’, Press Release, 9 September 2003.  
[http://www.wiredcountry.co.nz/press\\_18.html](http://www.wiredcountry.co.nz/press_18.html)
- <sup>16</sup> Telecom’s unlimited download offer included 10 gigabytes at the advertised speed after which a capacity throttle is applied. Refer: [http://www.telecom-media.co.nz/releases\\_detail.asp?id=3006&page=1&pagesize=10](http://www.telecom-media.co.nz/releases_detail.asp?id=3006&page=1&pagesize=10)
- <sup>17</sup> Telia “Telia launches new high-speed broadband - 8 and 10 Mbit/s”, 9 October 2003.  
<http://presstjanst.telia.se/press/Article.jsp?category=81&selected=2&article=3569>
- <sup>18</sup> Jim Hu, “Comcast raises broadband speed bar”, 2 October 2003.
- <sup>19</sup> Jim Hu, “Cable joins broadband price war”, MSNBC, 12 November 2003.  
<http://www.msnbc.com/news/992784.asp?0cv=TB10&cp1=1>