4th Report on

Monitoring of EU Candidate Countries (Telecommunication Services Sector)

The opinions expressed in this report are those of the authors and do not necessarily reflect the views of the European Commission.

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1 Introduction

With regard to its task to assist in the creation of an open and competitive internal market for telecommunication services in the Member States, the European Commission (EC) has been preparing regular reports monitoring the implementation of the European Union (EU) regulatory framework since 1997. The last (9th) report was released in November 2003.

The reports examine major developments in the market, analyse the implementation of the key regulatory principles covered by the regulatory framework and draw conclusions intended to contribute to ensuring compliance with the European regulatory framework.

As part of the preparation for the enlargement of the EU by the EU candidate countries (EUCCs or CCs), monitoring of their telecommunication markets, as significant drivers of economic growth, is being performed. The resulting report, similar to those of the member states, will be prepared on a semi-annual basis in the period of 2002 and 2003. The project, called "Monitoring of EU Candidate Countries – Telecommunication Services Sector", is funded by the EC Directorate-General Information Society and performed by IBM Business Consulting Services.

The following countries are included in the project: Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, Slovenia and Turkey.

2 Objectives and methodology

The overall objective of the project is to assist EC and the representatives of the candidate countries in monitoring the progress made by each candidate country towards compliance with the EU standards for the telecommunication services.

This is the last - fourth intermediate report out of four intermediate reports in total. Like in the third report, a country-by-country overview is included as well. In this section we take a look at the telecommunication markets in the respective candidate countries according to the areas mentioned below in terms of their development. At the end of the project, a comprehensive final report will be produced.

The scope of the fourth report is similar to the third report and covers the same major areas. In addition, some new indicators have been introduced in order to provide more information on the development of telecommunication markets. These areas are: (1) Telecommunication Markets, (2) National Regulatory Authorities (NRAs), (3) Licensing, (4) Numbering, (5) Universal Service Obligation and Quality of Service, (6) Public Fixed Voice Telephony Tariffs, (7) Mobile Services, (8) Leased Lines, (9) Local Access, (10) Interconnection, (11) Internet, and (12) Financial Information of fixed incumbent operator.

In the data collection process, we relied heavily on the support of the local NRAs and/or Ministry representatives from each EUCC, who supplied most of the market data, unless stated otherwise (e.g. traditional sources of information for the telecommunication sector, such as Eurostat, were also used. In this case the data is quoted without endorsement). The reference date for the most of the data is either 30 June 2003 (for status indicators) or calendar year 2002 (for cumulative indicators). The date for status indicators was chosen in order to reflect the changes that usually occur in the first half of the year. All deviations from the dates are indicated in the report.

The financial indicators are all presented in nominal values and also in PPP (Purchasing Power Parity) terms. Nominal values are used for assessing international competitiveness and the degree of convergence with the EU internal market (such information as interconnection charges or prices of leased lines). PPP values can better show the differences in the area of end-user prices where affordability of services is important (such information as monthly rentals or charges for fixed calls). The European Commission has also used PPP values to aid comparison between EU Member States. Certain indicators, where relevant, are presented in both forms in this report. For EUCCs, this is even more important since the difference between the nominal and PPP values is much greater.

The nominal values were converted from the local currency to Euro using nominal exchange rates provided by the National Statistic Offices or National Banks. The PPP exchange rates for the year 2002 were provided by European Commission DG ECFIN and PPP rates as of 30 June 2003 were calculated using nominal exchange rate as of 30 June 2003 maintaining the ratio of PPP and nominal exchange rates for the year 2002.

3 General overview

The report contains about 200 indicators, reflecting the state of development of the telecommunications market in the 13 EUCCs. In specific cases also the situation in 10 acceding countries is analysed separately. Generally, the status indicators are reported as of 30 June 2003. As this is the last report, more up-to-date information is included where any progress has been made after the general cut-off date.

The collected information suggests that there are great variances between the individual countries in terms of relative size per capita, penetration, pricing, regulatory regime, and, last but not least, in data availability (in the areas of fixed network penetration, interconnection charges, and Internet). It is important to mention that with the level of liberalization increasing, the availability of information decreases.

The fixed telecommunication market has been liberalized in all EUCCs by 1 January 2003 with the exception of Turkey where the liberalization is planned to be launched on 1 January 2004. In 7 countries, the state still holds a controlling stake in the fixed incumbent operators. The competition gradually begins to develop in all countries, as the fixed markets are opened. However, there is little or no competition in the area of local access in most countries and the progress is slow.

Fixed alternative operators are still effectively present in the fixed market in only about half of EUCCs. These operators are licensed or have authorization under the General Authorization System that was applied in several EUCCs starting 2003. In some countries where the liberalization started on 1 January 2003, the alternative operators are licensed or notified but have not started their operation yet. The competition in the fixed market is ensured via Carrier Selection and Pre-selection facilities in several countries only and not for all types of calls yet. Further progress in this area should be achieved in the course of 2004 or even later.

A trend towards decreasing the share of the fixed market is evident in most EUCCs. This is evident from the decreasing number of telephones per capita. In the countries with historically well-developed fixed market, this number is above 0.5 lines per capita, while in the less developed ones in this area, the ratio is below 0.3. The fixed networks are fully digitalized in only 4 countries and in 8 countries the level is above 70%.

The major driver for the growth in the telecommunication market is the mobile segment. The mobile penetration varies greatly from as little as 26% to a respectable 88% with an average penetration reaching 43% as of 30 June 2003. The year-to-year growth in most countries exceeded 10%. The growth is mainly driven by pre-paid packages. The level of mobile penetration correlates with the level of GDP per capita in EUCCs more than the fixed lines penetration does.

In most countries, fixed tariff rebalancing has yet to be completed (only 3 countries are reporting that rebalancing has been completed by 30 June 2003). This is reflected in the relatively low monthly rental fees. The prices of national fixed calls are relatively low and comparable to the prices in EU Member States in nominal terms. The prices of international calls greatly vary and the prices are much higher than the EU average prices. On the other hand, a positive effect of the competition (either traditional or VoIP telephony) can be observed in this field. Generally, the earlier liberalized markets show a greater effect of the competition.

National Regulatory Authorities are established in all EUCCs. NRAs are involved in the areas that require involvement of such bodies; these are areas like numbering, Universal Service Obligation, Local Access or Quality of Service. Especially the areas of Interconnection and Local Access are those that need the biggest attention in connection with the launched liberalization of the telecommunication markets.

Fixed-to-fixed interconnection is operational in most EUCCs and the non-discrimination rules are applied to termination in fixed network in these countries, i.e. the charges for origination in both fixed and mobile networks are equal. Generally, the level of interconnection charges for termination in the fixed network varies and is very high in several countries as a consequence of administrative fixing of the charges. Fixed-to-mobile interconnection is more unified and similar to the level existing in the EU. RIO of fixed incumbent operators was published in eight countries and exists in draft form in two other countries as of 30 June 2003.

The figures relating to the Internet penetration vary and, in our view, their reliability is questionable. The share of the broadband access is increasing (via ADSL, CaTV networks or wireless connections) but the narrowband access is still dominating the market. Assessed prices for the dial-up connection to the Internet show great differences between individual countries and in certain EUCCs may be interpreted as the background for the low Internet penetration in the countries concerned.

4 Comparative indicators

The following country codes are used for the countries included in the charts (the abbreviations used are the Internet top level domain names for each country):

Table 1: List of participating countries and their country codes

Country	Country code
Bulgaria	BG
Cyprus	CY
Czech Republic	CZ
Estonia	EE
Hungary	HU
Latvia	LV
Lithuania	LT
Malta	MT
Poland	PL
Romania	RO
Slovakia	SK
Slovenia	SI
Turkey	TR

The total values are in some cases presented for all EUCCs (i.e. CC-13 or accession countries) and sometimes only for the acceding countries (Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia, i.e. CC-10).

4.1 Macro-economic indicators

This chapter provides basic macro-economic information about EUCCs in terms of currency, population and GDP.

Table 2 below contains information about the nominal exchange rates used for the conversion of information expressed in national currencies to Euro. These exchange rates are EUR/national currency as of 30 June 2003 and average for the year 2002. The table also includes PPP exchange rates for the year 2002 provided by the European Commission DG ECFIN and the calculated PPP exchange rates as of 30 June 2003.

Table 2: Basic EUCCs currency and exchange rate information

Country	Average exchange rate for year 2002	Average PPP exchange rate for year 2002	Nominal/PPP ratio for 2002	Exchange rate as of 30 June 2003	PPP exchange rate as of 30 June 2003
Bulgaria	1,956	0,668	293%	1,956	0,668
Cyprus	0,577	0,496	116%	0,588	0,505
Czech R.	30,812	15,180	203%	31,575	15,556
Estonia	15,647	7,938	197%	15,647	7,938
Hungary	242,970	123,400	197%	266,300	135,249
Latvia	0,583	0,261	224%	0,652	0,291
Lithuania	3,461	1,515	228%	3,453	1,512
Malta	0,409	0,331	123%	0,427	0,346
Poland	3,856	2,048	188%	4,457	2,367
Romania	31 255,250	11 120,000	281%	37 671,000	13 402,597
Slovakia	42,699	16,930	252%	41,551	16,475
Slovenia	226,224	150,700	150%	233,755	155,717
Turkey	1 436 662,024	693 000,000	205%	1 613 384,000	786 321,950

Source: National banks and National Statistical Offices in EUCCs (nominal exchange rates), European Commission DG ECFIN (PPP exchange rates)

Table 3 presents two population indicators. New updated data have been obtained from National Statistical Offices in the below-mentioned countries and Eurostat as of 1 January 2003:

1) Number of inhabitants as of 31 December 2002 (Bulgaria, Cyprus, Lithuania, Malta, Poland, Romania and Slovenia).
2) Number of households as of 31 December 2002 (Bulgaria, Cyprus, Lithuania, Poland and Romania)

Table 3: EUCC population information as of 31 December 2002

Country	Inhabitants as of 31 December 2002	Percentage of EU population as of 31 December 2002	Households as of 31 December 2002
Bulgaria	7 848 395	2,1%	2 921 887
Cyprus	715 100	0,2%	233 000
Czech R.	10 204 000	2,7%	3 827 678
Estonia	1 356 000	0,4%	566 669
Hungary	10 152 000	2,7%	3 819 900
Latvia	2 345 800	0,6%	802 848
Lithuania	3 462 500	0,9%	1 356 800
Malta	385 077	0,1%	128 990
Poland	38 230 100	10,1%	13 337 000
Romania	21 680 974	5,7%	7 392 131
Slovakia	5 379 161	1,4%	1 665 536
Slovenia	1 995 033	0,5%	685 023
Turkey	69 626 000	18,4%	17 500 000
CC-10	74 224 771	19,6%	26 423 444
CC-13	173 380 140	45,8%	54 237 462
EU-15	378 470 600	100,0%	-

Source: National Statistical Offices (EUCCs), Eurostat – Statistics in focus Theme 3 –estimation as of 1 January 2003 - 25/2002 (EU)

The total amounts compared with the previous data (used in the 3rd report) decreased by 349 575 inhabitants and 726 473 households for all EUCCs in total. The population of the acceding countries amounts only to about 20% of EU Member states as two out of three most populated EUCCs (Turkey and Romania) that will join EU in 2004 amount together to additional 24% of the EU population. The most populated one of acceding countries is Poland with more than 50% of population of all the acceding countries.

The next macro-economic indicator is GDP. It was provided in current prices for the years 2001 and 2002. These figures were converted into the nominal and the PPP Euro using exchange rates from Table 2, and per capita GDP was calculated using these exchange rates and the numbers of inhabitants from Table 3.

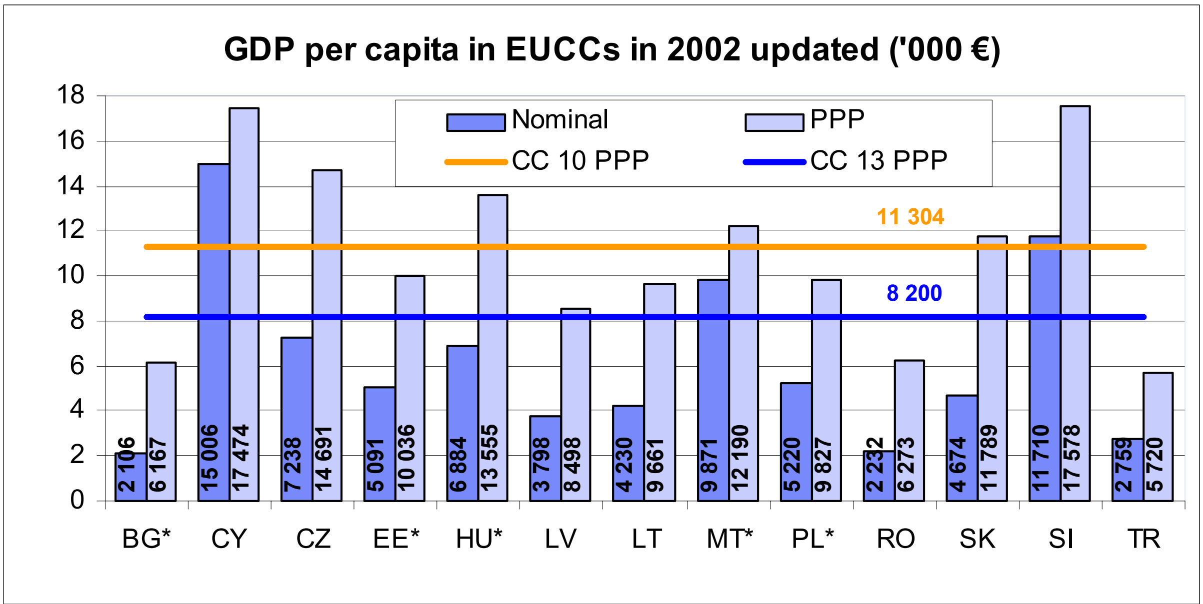
Table 4: GDP in EUCCs and EU expressed in nominal Euro, per capita GDP in nominal and PPP Euro (all indicators for the years 2001 and 2002)

Country	GDP (billion EUR)		GDP per capita (EUR)		GDP per capita (EUR/PPP)	
	2002	2001	2002	2001	2002	2001
Bulgaria	16,52	15,14	2 106	1 898	6 167	7 082
Cyprus	10,73	10,17	15 006	14 744	17 474	19 855
Czech R.	73,85	62,97	7 238	6 117	14 691	13 854
Estonia	6,90	6,17	5 091	4 534	10 036	9 770
Hungary	69,89	58,05	6 884	5 693	13 555	11 905
Latvia	8,91	8,45	3 798	3 603	8 498	7 460
Lithuania	14,64	13,38	4 230	3 841	9 661	8 496
Malta	3,91	3,97	9 871	10 313	12 190	12 987
Poland	199,55	196,90	5 220	5 097	9 827	9 093
Romania	48,38	44,34	2 232	2 044	6 273	5 858
Slovakia	25,14	22,27	4 674	4 141	11 789	11 619
Slovenia	23,36	21,02	11 710	10 539	17 578	16 292
Turkey	192,11	166,34	2 759	2 453	5 720	5 526
CC-10	436,90	403,37	5 885	5 395	11 304	10 432
CC-13	693,92	629,20	4 002	3 653	8 200	7 824
EU-15	9 160, 80	8 827,06	24 000	23 200	24 000	22 600
EU min	Not applicable	Not applicable	12 500 (P)	11 900 (P)	15 800(EL)	15 800(EL)

Source: National Statistical Offices (EUCCs), Eurostat – Statistics in focus Theme 2 - 35/2003 (EU)

GDP per capita for EUCCs is presented below in the form of a chart as well as in terms of the nominal and the PPP Euro. The average is indicated for both 13 EUCCs (8 200 EUR/PPP) and for 10 acceding countries (11 304 EUR/PPP). Since the 3rd report publication, the GDP values in several countries have been revised. The averages are thus slightly higher compared with the 3rd report.

Chart 1: GDP per capita in nominal and PPP Euro in EUCCs in 2002



Source: GDP & inhabitants – NRAs, nominal exchange rates – National banks and National Statistical Offices, PPP exchange rates – European Commission DG ECFIN
* Updated data as of June 2003

The average GDP per capita in EU-15 in PPP Euro in 2002 was approximately 24 000 EUR and a minimum amounted to approximately 15 800 EUR in Greece. In this case, all the countries are below the EU average and only Cyprus and Slovenia have almost reached a minimum PPP level of EU-15.

The 3 countries that are not supposed to join EU in 2004 (Bulgaria, Romania, Turkey) have the lowest GDP per capita of all the EUCCs but even excluding these three countries the average of CC-10 is only about 50% of the average of EU-15 in terms of PPP and only about 25% in terms of nominal Euro.

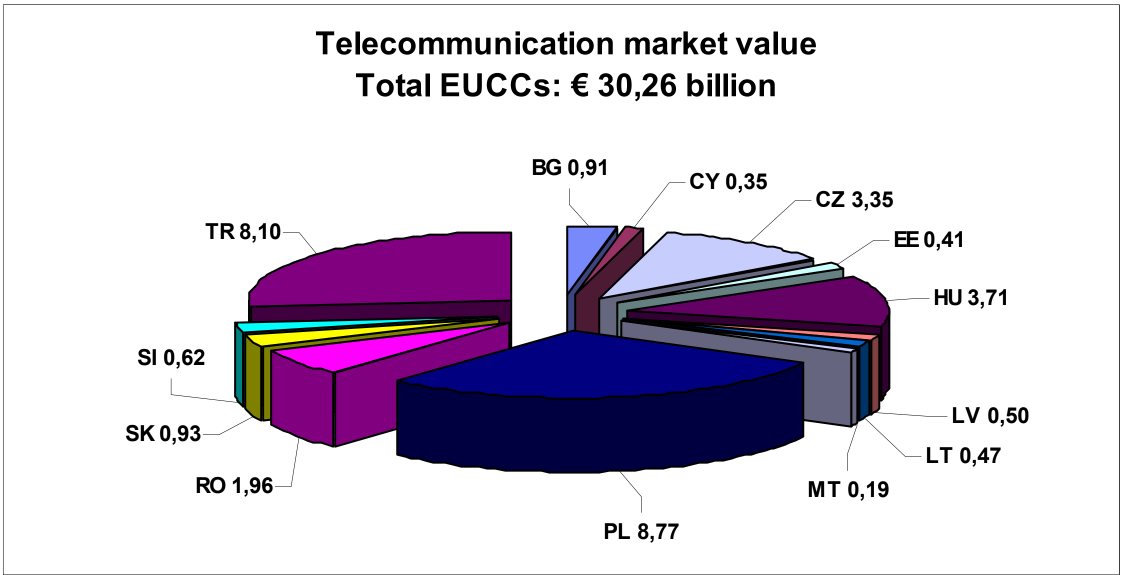
4.2 Telecommunications market overview

This chapter provides information on the value of the telecommunication market in EUCCs and the market's main segments, as well as on the development of fixed networks.

The value of the telecommunication market includes the fixed telephony segment (excluding dial-up Internet access revenues), Internet segment (dial-up Internet access revenues), the mobile telephony segment and the data segment (leased lines and switched data services).

The chart below gives a summary of the value of markets in all EUCCs as provided by NRAs. The exact assessment of the segments is not available up to definition in all countries. Therefore the market value is not directly comparable between EUCCs and the total value should be considered accordingly. Some of the values have been updated since 3rd report publication.

Chart 2: Telecommunication market value for the year 2002 in billion EUR



Source: CZ – operators, other EUCCs - NRAs

According to the updated information provided by NRAs, the value of the market for the year 2002 has grown to about 30 billion EUR from approximately 25 billion EUR in 2001. This growth is driven predominantly by the mobile segment as can be seen in chart 4 below as well as in the chart which analyses the mobile penetration.

The size of telecommunication market compared with each country's GDP shows the telecommunication market value as a percentage of the other markets in each country, but it doesn’t directly correlate with development of the telecommunication market as such.

Chart 3: Size of telecommunication market compared with GDP in 2002

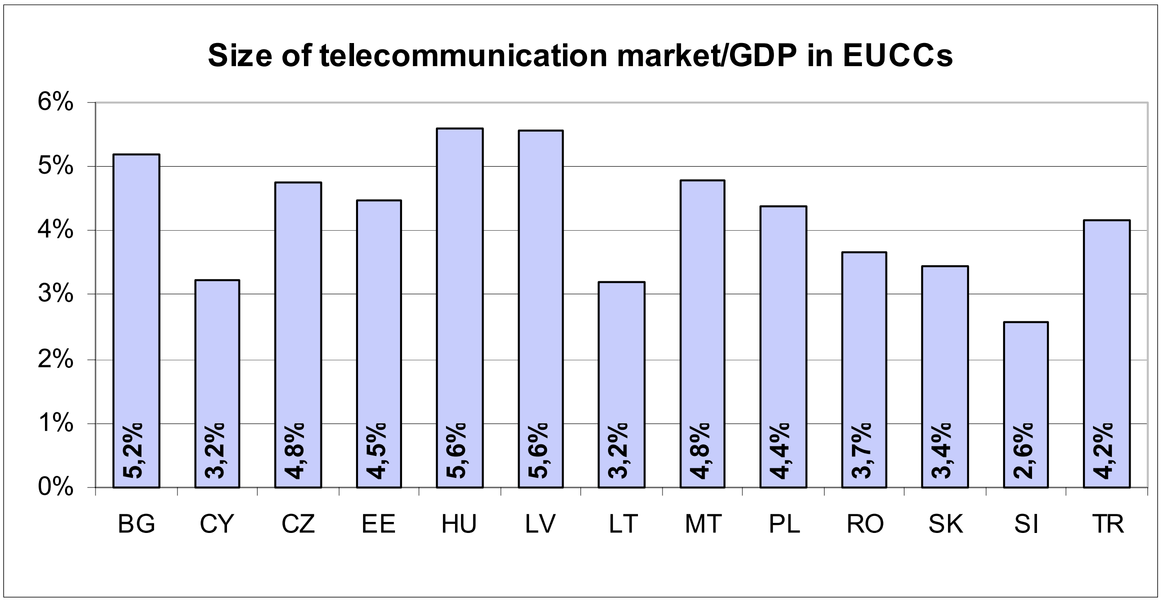
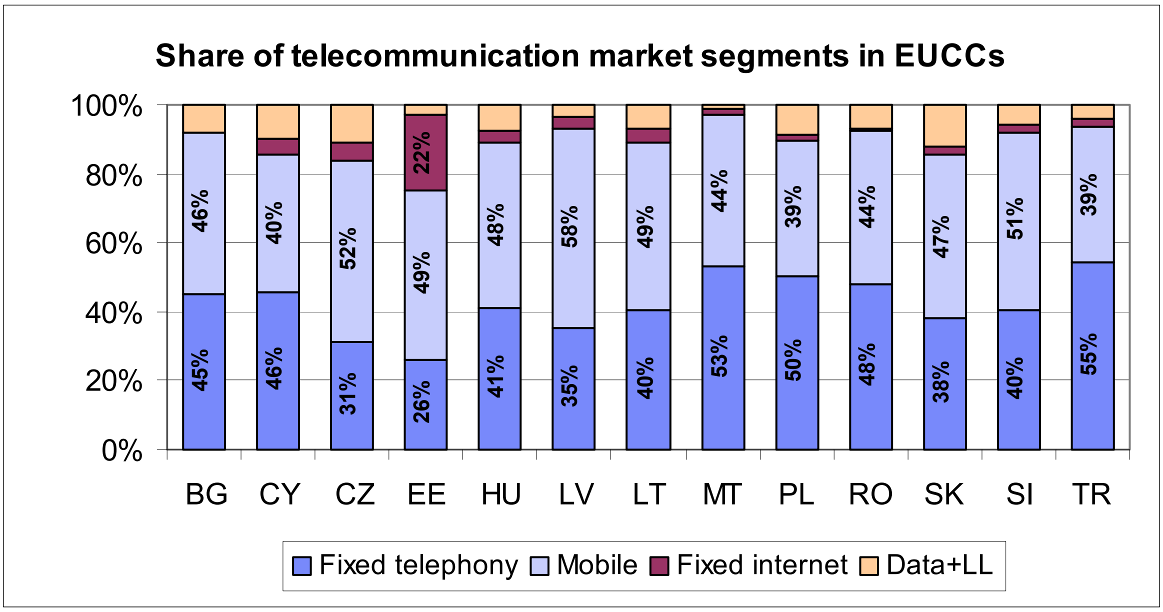


Chart 4 below presents a comparison of the shares of telecommunication market segments in 2002. It is evident that in most countries the mobile segment is dominant in terms of revenues, reaching close to 50% share in many EUCCs, with the exception of the countries with historically well-developed fixed markets (Cyprus, Malta and Turkey) and Poland with developed competition in the fixed market.

The data on Internet were not available for Bulgaria where the fixed incumbent has no exact assessment of the revenues from dial-up Internet access telephony traffic. The income from dial-up Internet access is included in the total income of fixed telephony. The data for the Switched data and leased lines for Malta were included in the total income of fixed telephony. The value of Estonian Internet segment represents the total value of the Internet market; no exact assessment of dial-up Internet revenue is available. Therefore the significant market share of 22 % is not comparable with the values of other EUCCs.

Chart 4: Breakdown of telecommunications market sectors in EUCCs in year 2002

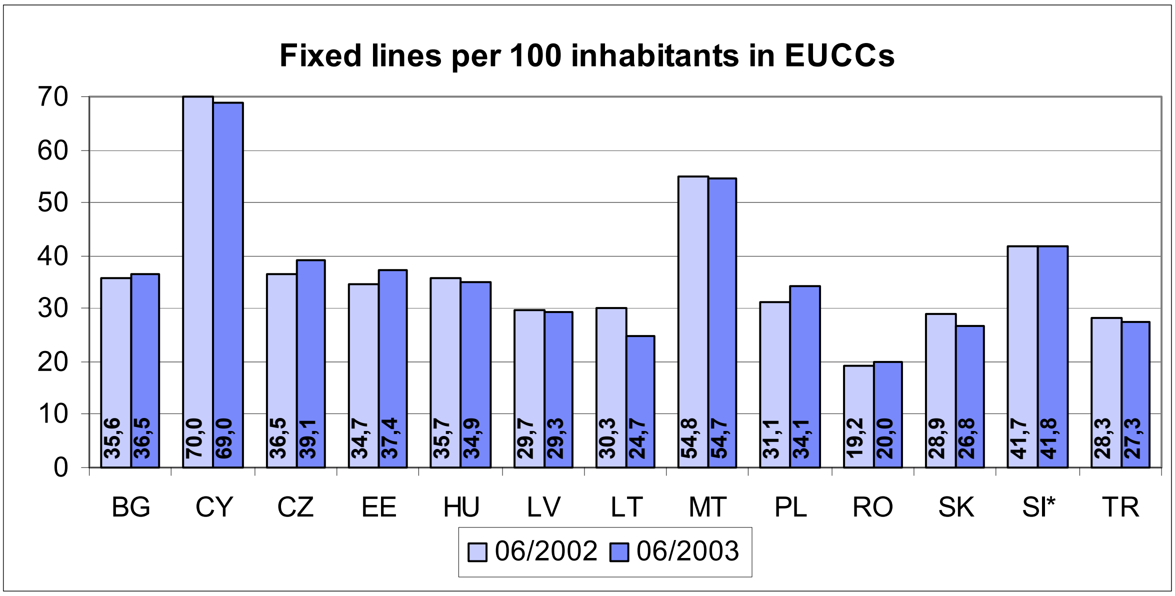


Source: NRAs

The situation of the fixed telephony is represented below with regard to the penetration rates by population (**number of fixed lines including ISDN channels per 100 inhabitants**) and by household (**number of fixed residential lines including ISDN channels per 100 households**). For the purpose of calculation of the below-indicated penetration rates, the number of ISDN lines has been converted to the number of ISDN channels. This has been done by multiplying the number by 2 for ISDN BRA lines and by 30 for ISDN PRA lines. In this way it was possible to group standard and ISDN lines and present them in a single indicator. The number of ISDN lines for Estonia is not separate and the calculated ratio in chart 5 below should be regarded as an estimate.

In the chart below, the number of residential fixed lines per 100 inhabitants is presented. The trend of overall decrease of fixed lines is also shown in the residential segment itself. The trend towards decrease of the fixed lines per 100 inhabitants is present in most countries. This ratio grows only in countries with underdeveloped fixed markets (Bulgaria, Romania) or countries with a higher number of lines provided by alternative operators (Czech Republic, Estonia and Poland). Despite the decrease of standard fixed lines in some countries, the number of ISDN lines has increased over the same period of time in all EUCCs. Like in the case of the decrease in the share of the fixed telephony segment, the same applies to the number of fixed lines, which is falling primarily due to mobile subscriptions.

Chart 5: Fixed lines per 100 inhabitants in EUCCs

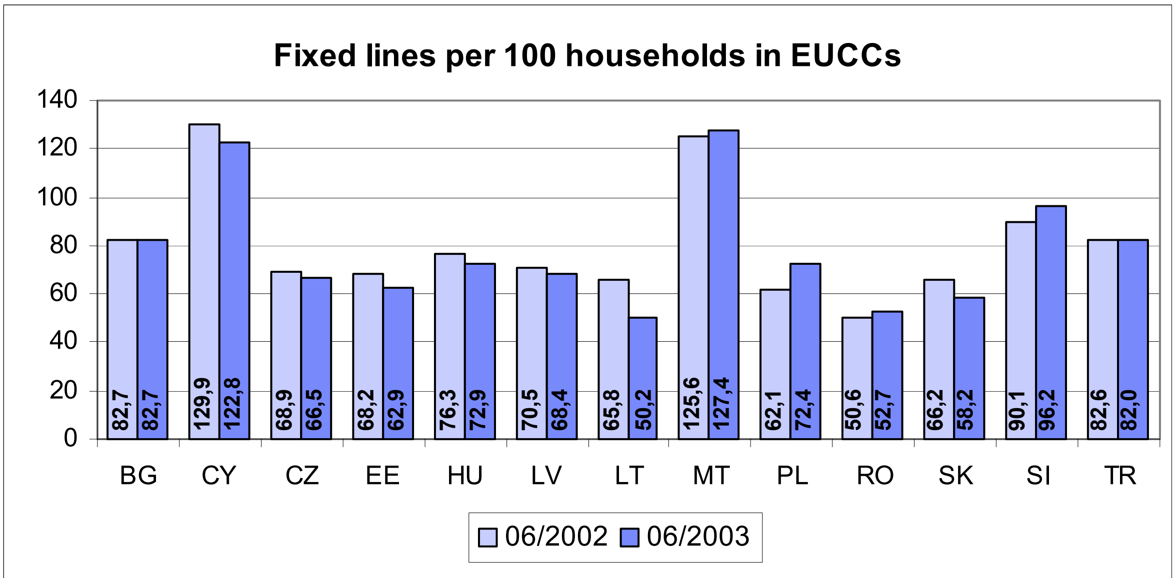


Source: NRAs (CZ also fixed incumbent operator)
*SI - Centrex lines are not included

In the chart below the number of fixed residential lines per 100 households is presented. The trend of the overall decrease of fixed lines is even more evident in the residential segment. The number of standard fixed lines is increasing in Malta, Poland, Romania and Slovenia. In all countries (with exception of Lithuania) the number of residential ISDN lines has increased, but in most countries, this growth cannot compensate for the decrease in the number of standard fixed lines.

The presented ratio is based only on the number of standard fixed lines. ISDN lines in Poland were not distinguished in previous reports, either, but for this report the numbers are split. This is the reason for the increase in chart 6 below.

Chart 6: Fixed lines per 100 households

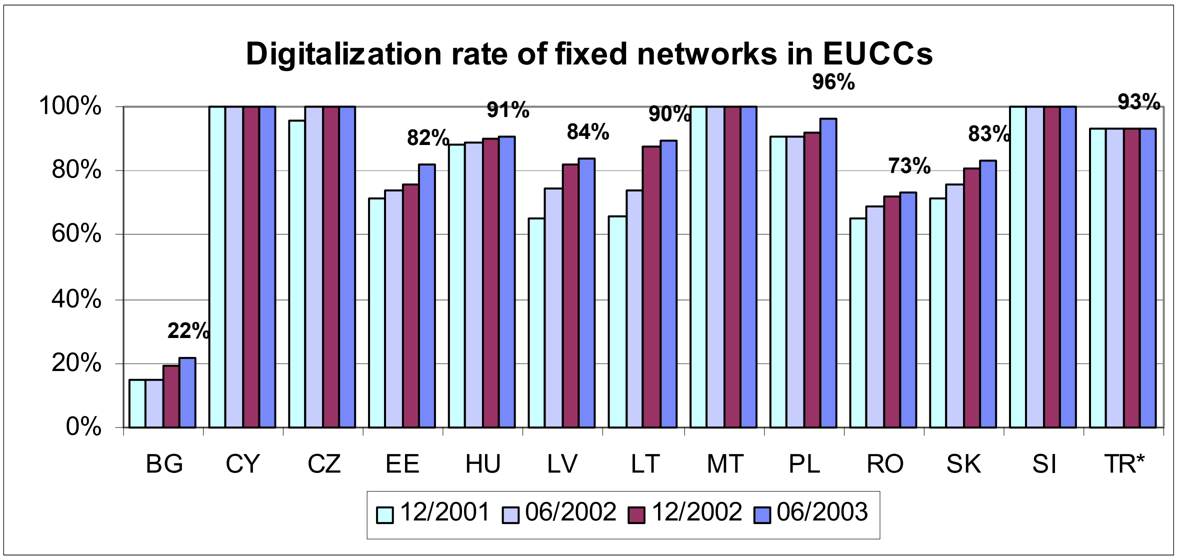


Source: CZ – fixed incumbent operator, other EUCCs – NRAs

The level of digitalisation of fixed networks is crucial for provision of value-added services, and thus for increasing the quality of services provided to customers. The digitalisation rate presented in the chart below is calculated as the number of digital fixed lines (standard telephone lines including ISDN channels) to the total number of fixed lines (standard telephone lines including ISDN channels). The data for Poland and Turkey are not available as of 30 June 2003; the presented values are as of 31 December 2002.

All the countries are showing progress in this area. In comparison with the 3rd report (i.e. as of 31 December 2002) no country has completed digitalisation of the fixed network, and only four countries have fully digitalized fixed networks as of 30 June 2003. The biggest progress has been made in Estonia (8% growth compared with the end of 2002). It is likely that most acceding countries will not complete the digitalisation by 1 May 2004.

Chart 7: Digitalisation rate of fixed networks in EUCCs



Source: NRAs

*Data as of 30 June 2003 is not available; figure refers to the situation as of 31 December 2002

Most of the countries liberalized their fixed markets as late as at the beginning of 2003. The telecommunication market was liberalized already before 2003 in Czech Republic, Estonia, Poland and Slovenia. Therefore the share of fixed lines of alternative operators in the three respective countries has reached several percent. The share of these lines in Latvia, Lithuania and Romania is still low, but the pace of changes in the market is respectable. Alternative operators are playing important roles on the fixed market only in the Czech Republic and Poland. The competition of alternative fixed operators in other countries is still very low. The number of fixed lines held by alternative operators and their percentage of all fixed lines is shown in table 5 below.

Hungary the fixed incumbent was divided into 5 separate local companies, which operate in different parts of the country and compete with each other on the long-distance and international call markets. The information about the number of fixed lines of all 5 operators is reported together.

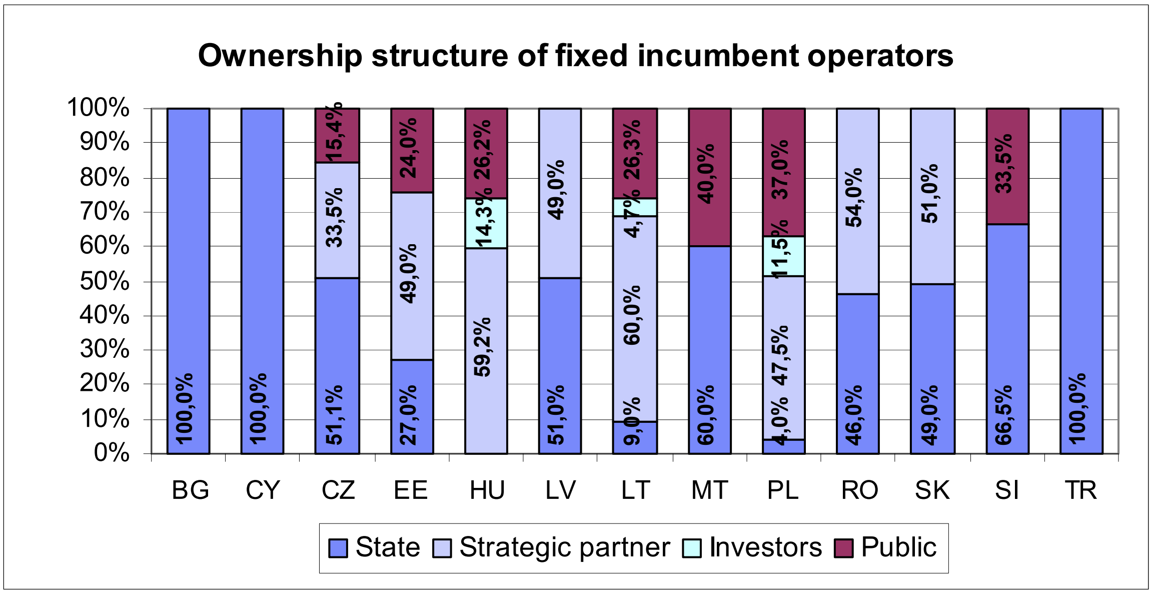
Table 5: Number of fixed lines of alternative operators and percentage of these lines in relation to the total number of fixed lines as of 30 June 2003

Country	Standard lines	ISDN channels	Percentage of lines of alternative operators
Czech Republic	352 622	135 308	8,83%
Estonia	11 500	7640	2,27%
Latvia	7 549	-	1,10%
Lithuania	1 200	1364	0,14%
Poland	1 058 177	Ca 253 514	Ca 8,12%
Romania	1578	-	0,04%

Source: NRAs

In comparison with the 3rd report (as of 31 January 2003), changes of share ownership are observed only in Hungary, Lithuania and Poland. In Hungary, 5 companies together are regarded as one fixed incumbent operator – the information on the biggest company, Matáv, is provided. There is a slight change of 2,5% of shares devolved to public from the investor. In Lithuania, there is 1% of state difference of share ownership transferred to public. In Poland, the biggest change has been observed, when 12 % of state-owned shares have been devolved to the public and 1% of shares to strategic investors. Therefore the state still holds a majority in the fixed incumbent in 7 countries as of 30 June 2003.

Chart 8: Fixed incumbent operator ownership structure in EUCCs as of 30 June 2003



Source: NRAs

4.3 National Regulatory Authority

This chapter provides information on the sources of National Regulatory Authorities (NRAs) in EUCCs in terms of their budget, financing and employees.

The important information about NRAs is provided by their budget. Operational budget for the year 2002 is provided in table 7 with the information about the source of financing included. Many NRAs are financed from the state budget but some also have alternative sources of financing. These budgets are very similar to those for the year 2001 presented in the 2nd intermediate report (the updated information obtained on 30 June 2003 shows an increase of the budget of Slovakia).

Table 6: Operational budget of NRAs in EUCCs for the year 2002 and sources of financing

Country	Operational budget (million EUR)	Source of financing of 2002 budget
Bulgaria	2,46	Licensing fees
Cyprus	1,36	License fees since 2003 (Government Grant ended in 2002)
Czech R.	7,78	State budget
Estonia	2,45	State budget
Hungary	37,70	Frequency, licensing and numbering (QoS surveillance fees ended from 2003)
Latvia	1,85 [1)]	Regulatory fee
Lithuania	2,66	Administrative fees via state budget
Malta	0,79	State budget
Poland	15,95	State budget
Romania	3,07 [2)]	Loan to be paid from monitoring fees
Slovakia	2,55	State budget
Slovenia	2,74	Numbering, radio frequencies, licenses and notification fees
Turkey	28,22	Administrative fees

Source: NRAs

[1)] The budget is related to all four sectors of NRA together

[2)] The NRA started operation on 25 September 2002, the budget is related to year 2003

Sources of NRAs and their ability to act are also indicated by the number of employees. In table 8, there are three relevant categories:

1) Number of permanent employees of NRAs in terms of Full Time Equivalents (FTE) as of 30 June 2003
2) Number of planned permanent employees of NRAs in terms of FTEs for year 2003
3) Number of employees in terms of FTEs that are handling regulatory tasks (this may include economic, technical and administrative regulation and enforcement of the law) as of 30 June 2003. This number includes NRA employees and additional employees from other bodies (e.g. Ministry) where relevant. From the total number of employees, the following staff is subtracted:
    - Employees dedicated to other sectors (e.g. post, energy, etc.),
    - Employees handling spectrum management, consumer affairs, equipment certification, broadcasting regulation,
    - All support staff (e.g. secretaries, IT, finance, logistics, library, archive, etc.),
    - All temporary staff or staff on secondment.

The numbers of employees in all three categories are similar to those presented in the 3rd intermediate report (i.e. as of 1 January 2003).

Table 7: Employees of NRAs and employees directly handling regulatory tasks in EUCCs

Country	Employees of NRAs as of		Planned employees of NRAs for 2003	Employees handling regulatory tasks as of	
	1/1/2003	30/06/2003		1/1/2003	30/06/2003
Bulgaria	220	210	237	17	20
Cyprus	20	20	33	14	13
Czech R.	476	476	486	16	22
Estonia	137	135	146	96	96
Hungary	470	496	490	125	125
Latvia 1)	68	82	85	24	23
Lithuania	119	120	135	24	27
Malta	17	17	23	11	11
Poland	614	614	620	70	70
Romania 2)	131	185	186	95	96
Slovakia	188	188	208	10	9
Slovenia	52	65	65	17	17
Turkey	447	447	62 3)	54	54

Source: NRAs

1) The total number of employees relates to all four sectors of NRA altogether

2) The NRA started operation on 25 September 2002

3) Figure refers to planned number of employees handling telecommunications regulatory tasks only

4.4 Licenses

This chapter provides information on the licensed operators in fixed markets in EUCCs, fees paid by these operators, licenses in the mobile market including UMTS licenses.

The following table provides information about the number of licensed operators in fixed markets across EUCCs. This is an essential indicator of the liberalization of the fixed markets and is provided for two types of licenses:

1) Number of licenses issued for the provision of public voice telephony (local/national)
2) Number of licenses issued for the operation of public network infrastructure and provision of network services (local/national)

Table 8: Number of licenses for provision of fixed telecommunication services as of 30 June 2003

Country	Public voice telephony		Network services	
	Local	National	Local	National
Bulgaria	0	3	0	1
Cyprus	**10**	**10**	**1**	**1**
Czech R.	**2**	**33**	**20**	**47**
Estonia	**31**	**22**	**14**	**31**
Hungary	**10**	**16**	**2**	**14**
Latvia [1)]	**10**	**29**	**29**	**14**
Lithuania [1)]	**3**	**23**	**1**	**12**
Malta	0	1	0	2
Poland	**45**	**33**	**46**	**25**
Romania [1)]	**109**	**120**	**726**	
Slovakia	**2**	**16**	**12**	**33**
Slovenia	**0**	**3**	**0**	**3**
Turkey	0	1	0	1

Source: NRAs

[1)] Licensing regime was replaced by general authorization system

All the countries report that the fixed market was liberalized by 1 January 2003 at the latest (with exception of Turkey). Despite this, no alternative operators were licensed by 30 June 2003 in Bulgaria and Malta. The two licenses additionally granted in Bulgaria include the provision of payphone services only. In Malta, the cable operator is licensed to offer network services.

Fees for the licenses related to the fixed market are set in most EUCCs. The detailed information about license fees for all the countries is included in form of a table in Annex 1 to this Report.

No new UMTS licenses were granted in EUCCs by 30 June 2003 in comparison with 3rd report. Licenses for 3G mobile networks have been granted to mobile operators in five EUCCs. The basic information about the licenses and obligations of the operators is included in table 9 below.

Table 9: Information about assigned UMTS licenses in EUCCs as of 30 June 2003

Country	Administrative fees		Spectrum fees	Deadline for launching services	Coverage and roll-out obligations
	Fixed (EUR million)	Annual (EUR)			
Czech R.	121 (Eurotel) 132 (Radiomobil)	0	Will be specified	1.1.2005	1. 1. 2005 - 90% of the capital area (Prague) has to be covered.
Latvia	5,8 for each of 2 operators	0	0	31.12.2004	End of 2005 - 30 % of country population, end of 2007 – 45% of population
Poland	650 for each of 3 operators	0	1,6 mil EUR (2003), 1,7 mil EUR (2004), 2,0 mil EUR (2005), 2,3 mil EUR (2006)	1.1.2006	End of 2007 - 20 % of country population,
Slovakia	36 for each of 2 operators	0,08 % of yearly gross sales	866 EUR per each base station annually	30 months of frequency band release	Will not be set
Slovenia	97 for 1 operator	72 127 EUR (license fee) + 189 934 EUR (numbering fee)	84 148 EUR annually	31.12.2003	31.12.2004 - 53,6% 1.7.2006 - 59,3% 1.7.2008 - 68,2%

Source: NRAs

Changes (compared with 3rd report) appear due to conversions of fees from the local currency to EUR as on 30 June 2003.

4.5 Numbering

This chapter covers the availability of carrier selection (CS), carrier pre-selection (CPS) and number portability (NP) as well as their application in EUCCs, the number of allocated access codes and their usage by operators for the provision of services and with numbering fees. All the information is as of 30 June 2003.

Three tables below summarize the availability of CS, CPS and NP in each of the EUCCs. "Yes" means in the tables that a specific facility is available to end-users. A date defines a point in time when the facility is expected to become available, "Not available" means that a facility is not available and the date of expected availability is not known. "Not required" means that a facility is not available and there is no requirement by national law for launching the facility and "Not decided" means that the date has not been set yet. Changes against the 3rd report are highlighted in bold.

As of 30 June 2003 only the seven countries report availability of the CS. In Slovenia, however, CS has not been put into practice so far.

In some countries the originally planned dates were postponed, as in the case of Bulgaria, Cyprus, Malta and Poland. Slovakia is prepared for CS, but it has not been applied so far (RIO was not approved). On the other hand, Bulgaria, Cyprus, Malta and Slovakia are still planning to introduce CS during the year 2003. Latvia is planning to introduce the facility gradually to the whole country on the dates stated.

Table 10: Availability of carrier selection in EUCCs as of 30 June 2003

Country	Local calls	Long distance calls	International calls	Calls to mobile	Calls to non-geographical numbers
Bulgaria	**7.10.2003**	**7.10.2003**	**7.10.2003**	**7.10.2003**	Not decided
Cyprus	**1.10.2003**	**1.10.2003**	**1.10.2003**	After 1/2004	After 1/2004
Czech R.	Yes	Yes	Yes	Yes	Yes
Estonia	Yes	Not applicable *	Yes	Yes	Yes
Hungary	Not decided	Yes	Yes	Yes	Not decided
Latvia	1.1.2006	1.7.2004 and 1.1.2006	1.1.2003, 1.7.2004, 1.1.2006	Not decided	Not decided
Lithuania	Yes	Yes	Yes	Yes	Yes
Malta	End 2003	Not Applicable**	End 2003	End 2003	End 2003
Poland	**2005**	Yes	Yes	2003	**2004**
Romania	**Yes**	**Yes**	**Yes**	**Yes**	**Not decided**
Slovakia	2003	2003	2003	2003	2003
Slovenia	Not available	Yes	Yes	**Yes**	Not available
Turkey	Not before 2004	Not before 2004	Not before 2004	Not before 2004	Not before 2004

Source: NRAs
* There is only one tariff for national call
** Due to geographical size

CPS is available for the some types of calls in Hungary, Poland, and Slovenia, and for all types of calls in the Czech Republic. As in the case of CS, the dates for launching of CPS were postponed in Cyprus, Poland and Slovakia.

Table 11: Availability of carrier pre-selection in EUCCs as of 30 June 2003

Country	Local calls	Long distance calls	International calls	Calls to mobile	Calls to non-geographical numbers
Bulgaria	1.1.2005	1.1.2005	1.1.2005	1.1.2005	Not decided
Cyprus	**1.10.2003**	**1.10.2003**	**1.10.2003**	After 1/2004	After 1/2004
Czech R.	Yes	Yes	Yes	Yes	Yes
Estonia	1.1.2004	1.1.2004	1.1.2004	1.1.2004	1.1.2004
Hungary	Not decided	Yes	Yes	Yes	Not decided
Latvia	1.7.2006	1.1.2005, 1.7.2006	1.1.2004, 1.1.2005, 1.7.2006	Not decided	Not decided
Lithuania	1.1.2004	1.1.2004	1.1.2004	1.1.2004	1.1.2004
Malta	End 2003	Not Applicable*	2004	End 2003	End 2003
Poland	**2005**	Yes	Yes	2003	**2004**
Romania	**Not decided**	**Not decided**	**Not decided**	**Not decided**	**Not decided**
Slovakia	**1-2Q 2004**	**1-2Q 2004**	**1-2Q 2004**	**1-2Q 2004**	**1-2Q 2004**
Slovenia	Not available	Yes	Yes	**Yes**	Not available
Turkey	Not before 2004	Not before 2004	Not before 2004	Not before 2004	Not before 2004

Source: NRAs
* Due to geographical size

Czech Republic, Poland and Slovenia – these are the only three countries where NP was available as of 30 June 2003. The remaining countries plan to introduce NP in 2004 or later, or have not yet reached a decision at all. The planned date was changed only in Hungary for NP of non-geographical fixed numbers.

Table 12: Availability of number portability in EUCCs as of 30 June 2003

Country	Fixed numbers	Non-geographical fixed numbers	Mobile numbers
Bulgaria	1.1.2009	Not decided	**1.1.2007**
Cyprus	After 1/2004	After 1/2004	After 1/2004
Czech. R.	Yes	No	Not decided
Estonia	Not decided	Not decided	Not decided
Hungary	1.1.2004	**1.5.2004**	1.5.2004
Latvia	1.1.2005	Not decided	1.1.2005
Lithuania	1.1.2004	1.1.2004	1.1.2004
Malta	2004	2004	2004
Poland	**Yes**	**Yes**	Not decided
Romania	Not decided	Not decided	Not decided
Slovakia	1.1.2005	1.1.2005	1.1.2005
Slovenia	Yes	Yes	Not required
Turkey	Not before 2004	Not before 2004	Not decided

Source: NRAs

The availability of these facilities is important as they create conditions for competition in the fixed market. The number of allocated access codes and the actual usage of these facilities by operators as of 30 June 2003 are provided in table 13. Operators with the allocated access code exist in all the countries where the facility is available. Nevertheless, not all of those operators really provide voice telephony services.

Table 13: Operators with allocated access code and use of CS and CPS for provision of voice telephony service in EUCCs as of 30 June 2003

Country	Operators with allocated access code	Operators using CS for provision of services	Operators using CPS for provision of services
Bulgaria	0	0	0
Cyprus	0	0	0
Czech R.	**29**	**10**	**Not available**
Estonia	**14**	**14**	0
Hungary	8	2	2
Latvia	**17**	0	0
Lithuania	**14**	**4**	0
Malta	0	0	0
Poland	**45**	**15**	**15**
Romania	**34**	**12**	0
Slovakia	**17**	0	0
Slovenia	**9**	0	0
Turkey	0	0	0

Source: NRAs

Fixed numbers are assigned in many countries to the fixed incumbent operators as well as to the alternative fixed operators. The proportion of the allocated numbers as of 30 June 2003 is presented in the table below. In Turkey only the fixed incumbent was allocated numbers due to the prevailing monopoly situation (until 2004). The numbering fees are set in most EUCCs and the information on them is available in the table included in Annex 1 to this Report.

Table 14: Proportion of fixed numbers allocated to fixed incumbent and fixed alternative operators in EUCCs as of 30 June 2003

Country	Percentage of fixed numbers allocated to fixed incumbent operator	Percentage of fixed numbers allocated to fixed alternative operators
Bulgaria	100%	0%
Cyprus	100%	0%
Czech R.	**70%**	**30%**
Estonia	**88%**	**12%**
Hungary	**97%**	**3%**
Latvia	**90%**	**10%**
Lithuania	**97%**	**3%**
Malta	100%	0%
Poland	**80%**	**20%**
Romania	**76%**	**24%**
Slovakia	**79%**	**21%**
Slovenia	100%	0%
Turkey	100%	0%

Source: NRAs

4.6 Universal Service Obligation and Quality of Service

This chapter provides information on the Universal Service Obligation (USO) including the payphones penetration, information about the application of Quality of Service (QoS) and the values of QoS indicators for the fixed incumbent operators for mid 2003.

In most EUCCs the USO is imposed on the fixed incumbent operator by law and the USO covers all basic services as stated in the table below.

Table 15: Scope of USO as of 30 June 2003

Country	Connection to network	Access to voice telephony	Emergency services	Payphones	Directory of subscribers	Directory enquiries
Bulgaria	Yes	Yes	Yes	Yes	Yes	Yes
Cyprus	Yes	Yes	Yes	Yes	Yes	Yes
Czech R.	Yes	Yes	Yes	Yes	Yes	Yes
Estonia	Yes	Yes	Yes	Yes	No	No [1)]
Hungary	Yes	Yes	Yes	Yes	Yes	Yes
Latvia	Yes	Yes	Yes	Yes	Yes	Yes
Lithuania	Yes	Yes	Yes	Yes	Yes	Yes
Malta	Yes	Yes	Yes	Yes	Yes	Yes
Poland	Yes	Yes	Yes	Yes	Yes	Yes
Romania	Yes	Yes	Yes	Yes	Yes	Yes
Slovakia	Yes	Yes	Yes	Yes	Yes	Yes
Slovenia	Yes	Yes	Yes	Yes	Yes	Yes
Turkey	No	No	Yes	Yes	No	Yes

Source: NRAs

[1)] Not in the scope of USO or any other legislation, but existing in fact

A USO cost recovery scheme is applied only in the Czech Republic, but is stipulated by the law in several EUCCs. Latvia and Romania are planning to introduce such scheme within a specified timeframe as stated in the table below.

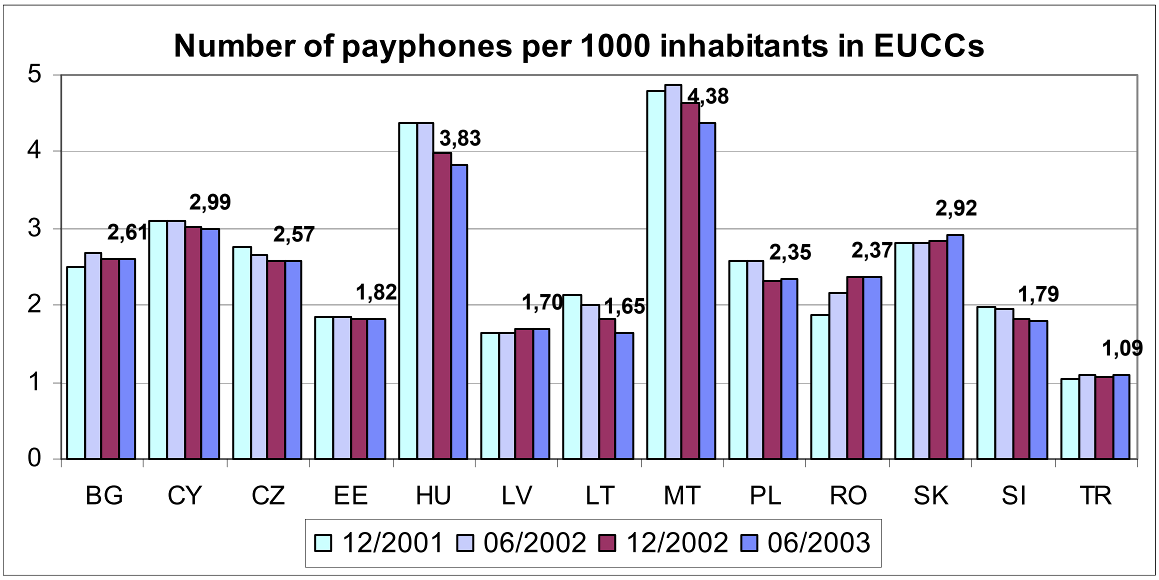
Table 16: USO cost recovery scheme and application of the mechanism in practice as of 30 June 2003

Country	USO cost recovery scheme stipulated by law	Recover scheme applied in practice
Bulgaria	No	No
Cyprus	Yes	Not decided
Czech R.	Yes	Applied in practice
Estonia	No	No
Hungary	Yes	No
Latvia	Yes	Planned end 2003
Lithuania	Yes	No
Malta	Yes	No
Poland	No	No
Romania	**Yes**	**2004**
Slovakia	Yes	No
Slovenia	**Yes**	**No**
Turkey	No	No

Source: NRAs

Part of the USO obligation is the provision of payphones services. This information in terms of payphone penetration (number of payphones per 1000 inhabitants) is shown below in chart 9. Data are provided for all evaluated periods, i.e. as of end of 2001, half of 2002; end of 2002 and mid 2003. The level of penetration significantly differs from country to country, from 1.1 in Turkey and reaching 4.4 in Malta. In some countries the penetration level tends to decrease while in others it is still increasing.

Chart 9: Number of payphones per 1000 inhabitants



Source: NRAs

The quality of the telecommunications services provided is standardized in ETSI QoS. In most countries, NRAs set QoS indicators for SMP operators that measure QoS mainly according to ETSI standard (ETSI EG 201 or earlier ETSI ETR 138).

Table 17: Application of Quality of Service in EUCCs as of 30 June 2003

Country	NRA set QoS to SMP/other operators	SMP operators measure QoS pursuant to	Measurements for 2002 published by NRA/SMP operator	Last publication in the national Official Journal or other
Bulgaria	Yes	ETSI EG 201	No obligation	No publication
Cyprus	Yes	ETSI EG 201	Not yet	No publication
Czech R.	Yes	ETSI EG 201	Yes	Published by operators
Estonia	Yes [1)]	ETSI ETR 138	No	No publication
Hungary	Yes	Other	Yes	December 2002 (www.hif.hu)
Latvia	Yes	ETSI EG 201	Yes	3.3.2003 (www)
Lithuania	Yes	ETSI EG 201	No	No publication
Malta	Yes	**ETSI EG 201**	No	Not available
Poland	Yes	Other	Yes	January 2003
Romania	Yes	ETSI EG 201	No	November 2002
Slovakia	Yes	Other	No	No publication
Slovenia	Yes (by Ministry)	ETSI EG 201	No	1999
Turkey	No	Other	No	No publication

Source: NRAs

[1)] Qos is set by law.

The values of QoS indicators for the fixed incumbent operators are presented in the tables below. The data are not available at all for Malta; in several other countries some of the indicators are not available. Due to the different standards applied to the measurements of QoS indicators, the values are not fully comparable across all the countries (for exact definitions of indicators please refer to ETSI EG 201 document).

Table 18: ETSI standardized QoS indicators (1-5) of fixed incumbent operator for 30 June 2003

Country	Supply time for initial connection	Faults rate per access line	Fault repair time	Unsuccessful call ratio	Call set up time
Bulgaria	2 months, 4 days	0,4416	5 hours, 34 minutes	47,00%	0,6 s
Cyprus	Not available	0,176	80% of faults repaired in 24,3 hours; 95% faults repaired in 64,87 hrs	0,19%	0,32 s
Czech R.	18,05 days	0,04	9,48 hrs	0,92%	1,45 s
Estonia	7,6 days	0,113	1 day	2,30%	0,5-5 sec
Hungary	14,7 days	0,0087	Not available	0,23%	0,03% longer than 12 sec
Latvia	5,53 days to supply 95%; 7,94 days to supply 99%	0,2306	14 hrs for 80%; 21,8 hrs for 95%	0,95% for local calls; 1,22% for long-distance calls	Mean time: 1,51 s for local calls; 2,16 s for long-distance calls
Lithuania	40 days	0,048	80% of faults for direct services - 23,85 hours, 95% - 55,32 hours	0,33% for national calls, 3,21 - for international calls	0,92 sec
Malta	Not available	Not available	Not available	Not available	Not available
Poland	2,5 months	0,166	0,57 days	Local traffic - 0,16%, traffic within one numbering zone - 0,28%, national traffic – 0,56%	Not available
Romania	Not available	0,149	8,47 hours - repair time for access lines; 4,92 hours - repair time for any other problem	9,80%	1% - local 3.43% - national 8.6% - international
Slovakia	1 month	0,010	7,5 hours	3,00%	4,75 sec.
Slovenia	11,8 cal. days	0,225	18,5 hours	8,60%	1,89 sec
Turkey	3 days	0,3736	24,21 hours	8,00%	1,7 sec

Source: NRAs

Table 19: ETSI standardized QoS indicators (6-9) of fixed incumbent operator for 30 June 2003

Country	Response time for operator services	Response time for directory enquiry services	Proportion of card and coin operated public pay-telephones in working order	Bill correctness complaints
Bulgaria	89% response within 30 sec	79,1% response within 30 sec	85,00%	0,40%
Cyprus	15,9 seconds mean time	4,4 seconds mean time	98,48%	0,01%
Czech R.	2,97 s	14,60 s	99,34%	0,10%
Estonia	Not available	Not available	95,00%*	Not available
Hungary	96,05% response within 30 sec	Not available	96,68%	0,02%
Latvia	Mean time 4,57s; 94,75% within 20 sec	Mean time 2,62s; 99% within 20 sec	96,08%	0,19%
Lithuania	4 sec 91,82%	3 sec 94,20%	99,65%	0,34%
Malta	Not available	Not available	Not available	Not available
Poland	Not available	Not available	Not available	Not available
Romania	15,4 sec		96,94	0,46%
Slovakia	90% response within 20 sec	Not available	Not available	0,30%
Slovenia	6,2 sec	9,9 sec	99,30%	0,50%
Turkey	20 s	18 s	99,13%	Not available

Source: NRAs
*Set by law, not actually measured

4.7 Public fixed voice telephony tariffs

This chapter presents basic information regarding tariffs, the applied charging system, and the rental charges of standard fixed line, the main national and international calls tariffs applicable to public fixed voice telephony charged by the fixed incumbent operators and fixed alternative operators in EUCCs.

The financial figures are provided in nominal and PPP Euro as of 30 June 2003. Both figures are included in this section in order to analyse the nominal level of tariffs and assess the affordability of services using PPP values as explained in chapter 2.

Table 20 provides basic information about the completion of tariff rebalancing, applied type of regulation and applied time of public notice before tariffs change in EUCCs. In Estonia the "Announce" type of regulation means that the NRA has the right to issue a precept to suspend the application of the tariffs if the tariffs are to be applied or the procedure for the application thereof fails to comply with the requirements of the law.

Table 20: Basic information about tariffs in EUCCs as of 30 June 2003

Country	Completion of tariff rebalancing	Type of tariff regulation	Public notice before tariff change
Bulgaria	No	Price cap	1 month
Cyprus	Yes (2001)	Approval by NRA	1 month
Czech R.	No	Price cap	30 days
Estonia	Yes	Announce [1)]	30 days
Hungary	No	Price cap	15 days
Latvia	No	Price cap	30 days
Lithuania	Yes	Price cap	30 days
Malta	No	Approval by NRA	30 days
Poland	No	Approval by NRA	30 days
Romania	No	**Approval by NRA**	**30 days**
Slovakia	No	Price cap	**30 days**
Slovenia	No	Approval	7 days
Turkey	No	Not available	Not available

Source: NRAs

[1)] The operators are obliged to inform NRA, which may raise objections.

Table 21 provides information about the applied charging system and the application of an initial charge in each EUCC.

Charging system can be either Real Time (i.e. per second), Time-based (i.e. per time unit, e.g. per 30 seconds, 1 minute etc.) or Pulse-based (i.e. pulses are used).

The initial charge can be applied in the form of a call set-up charge or unit charge when a fixed charge is also applied at the beginning of the call.

Table 21: Call charging system and initial charge application as of 30 June 2003

Country	Charging system	Charge applied at the beginning of a call
Bulgaria	Pulse-based (national) Time - based (international)	Yes (unit charge)
Cyprus	Time-based	Yes (unit charge)
Czech Republic	Time-based	Yes (unit charge)
Estonia	Real-time	Yes (set-up charge)
Hungary	Real-time	Yes (set-up charge)
Latvia	Real-time	Yes (set-up charge)
Lithuania	Real-time	Yes (set-up charge)
Malta	Pulse-based	Yes (one pulse charge)
Poland	Real-time	Yes (one pulse charge)
Romania	Pulse-based (national) Unit-based (international)	Yes (one pulse charge)
Slovakia	Real-time	Yes (unit charge)
Slovenia	Time-based	Yes (unit charge)
Turkey*	Pulse-based	No

Source: NRAs

4.7.1 Monthly rental charges

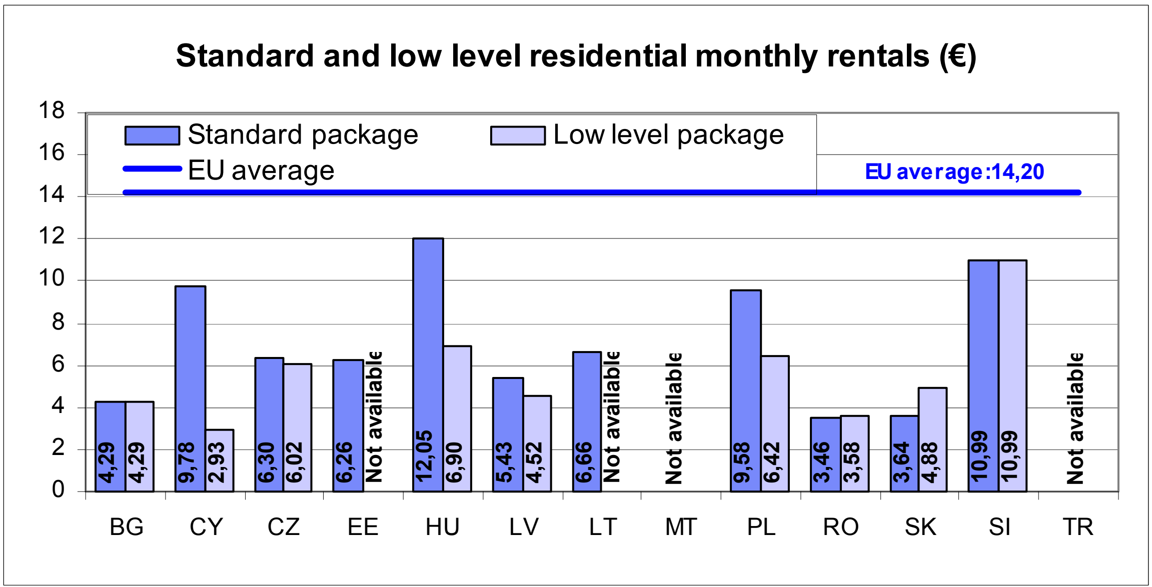
The following charts show the monthly fixed line rental charges for residential and business users applied by the fixed incumbent operator (in Hungary the charges of the main incumbent, Matáv Co, are presented).

The charts are expressed in nominal Euro and in PPP terms. The charts also indicate the EU average charges. The nominal charges are taken from the EU 9th implementation Report and PPP figures are not shown, because relevant figures are not found in the European Commission studies. The EU figures are valid as of August 2003.

The first chart provides comparison of levels of standard and low-level residential monthly rental without evaluation of the free calling credit. The other charts also indicate the amount of free calling credit included in rental charges. In Turkey the amount of free credit is equal to the monthly rental for both residential and business users, in Malta the credit for residential users (more than 6 EUR) is even higher than the residential rental charge (about 5 EUR). The credit in Slovakia is provided in form of free minutes that can be spent on either local or long-distance calls. Depending on the mix of the national calls the financial amount of credit may range from 1,6 to 3,6 EUR for residential users and from 1,4 to 3 EUR for business users.

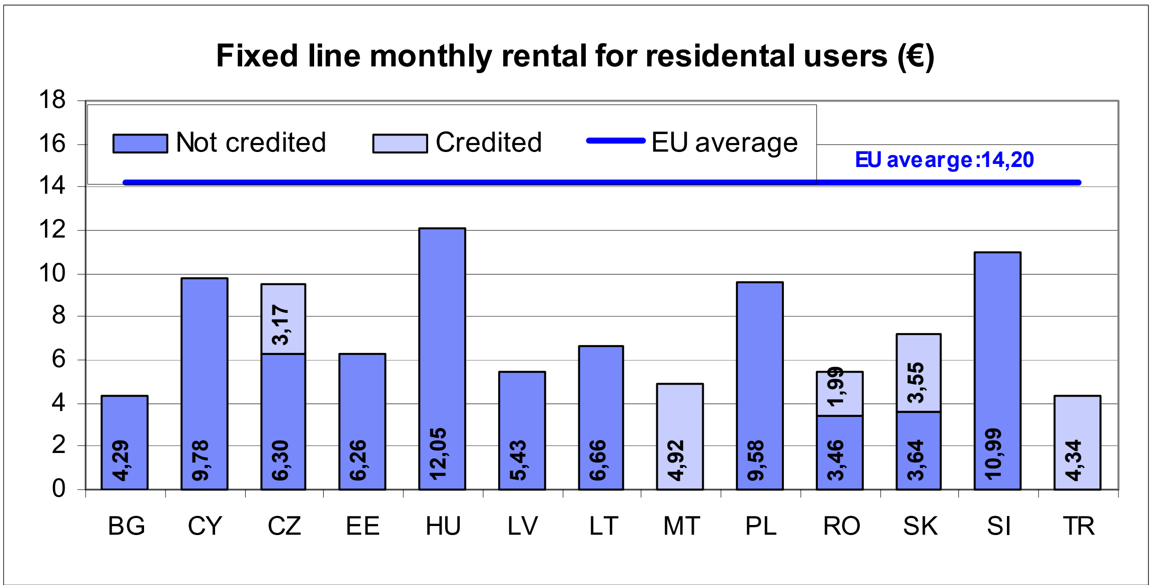
The charges had been increased to a small extent by 30 June 2003 only in Hungary, Slovenia and Turkey. In Slovakia the rentals were slightly decreased for residential users and increased for business users. In Romania tariffs are newly set in EUR (residential customers still have 100 pulses credit). The nominal rental fees are still very low in most EUCCs, they are below the cost level and further rebalancing will be needed. VAT is included in the charge for residential users and excluded from the business users charge.

Chart 10: Comparison of standard and low-level monthly line rental charge of fixed incumbent operator for residential users in nominal EUR as of 30 June 2003



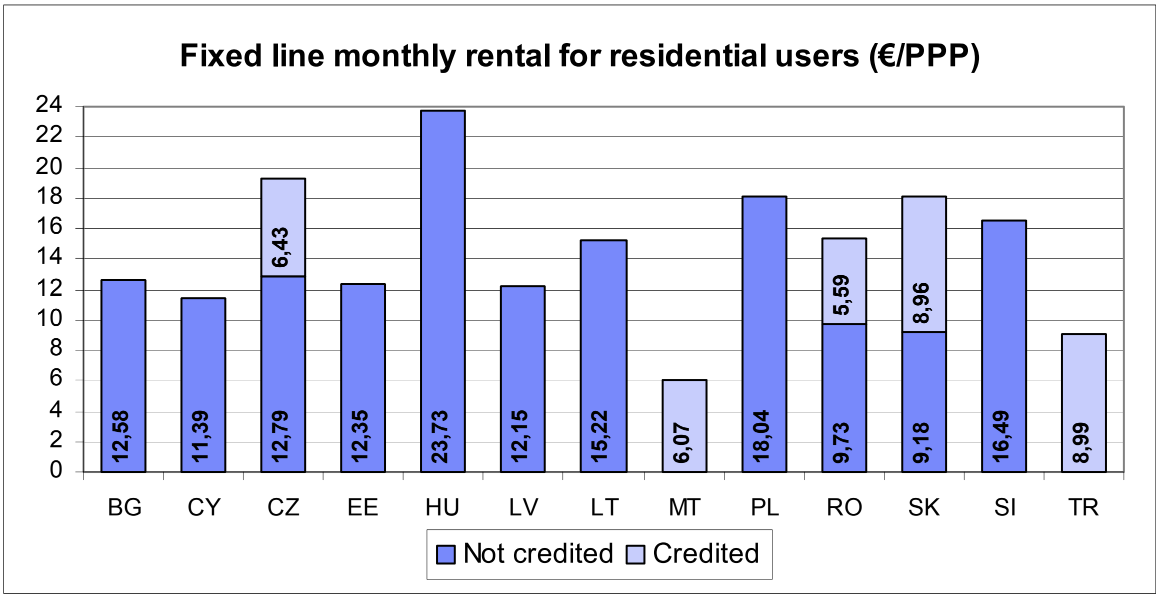
Source: NRAs

Chart 11: Monthly line rental charge of fixed incumbent operator for residential users in EUR as of 30 June 2003



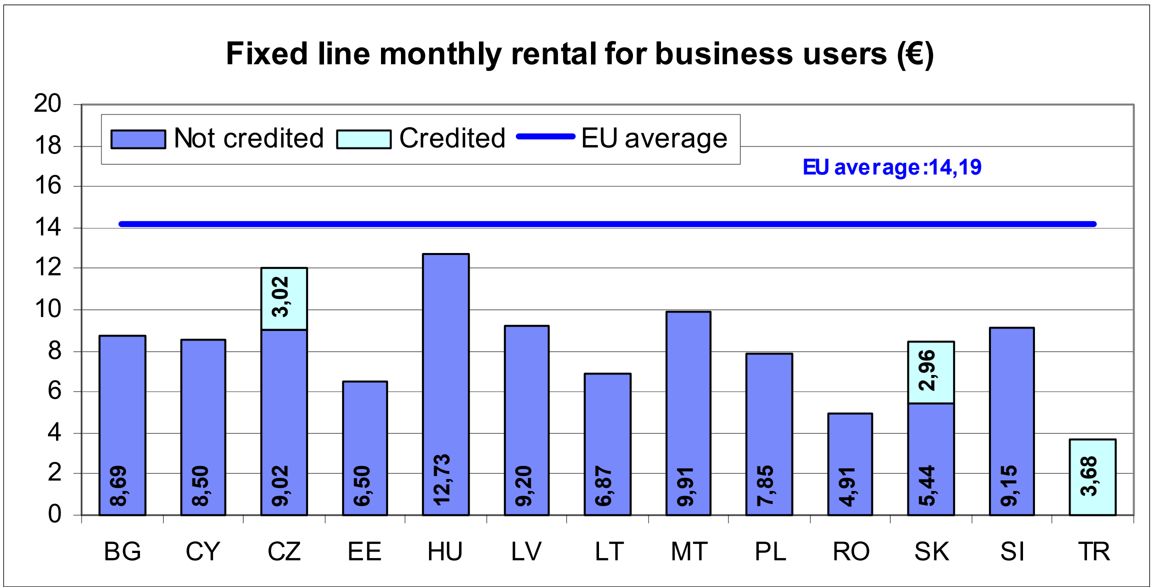
Source: NRAs

Chart 12: Monthly line rental charge of fixed incumbent operator for residential users in EUR/PPP as of 30 June 2003



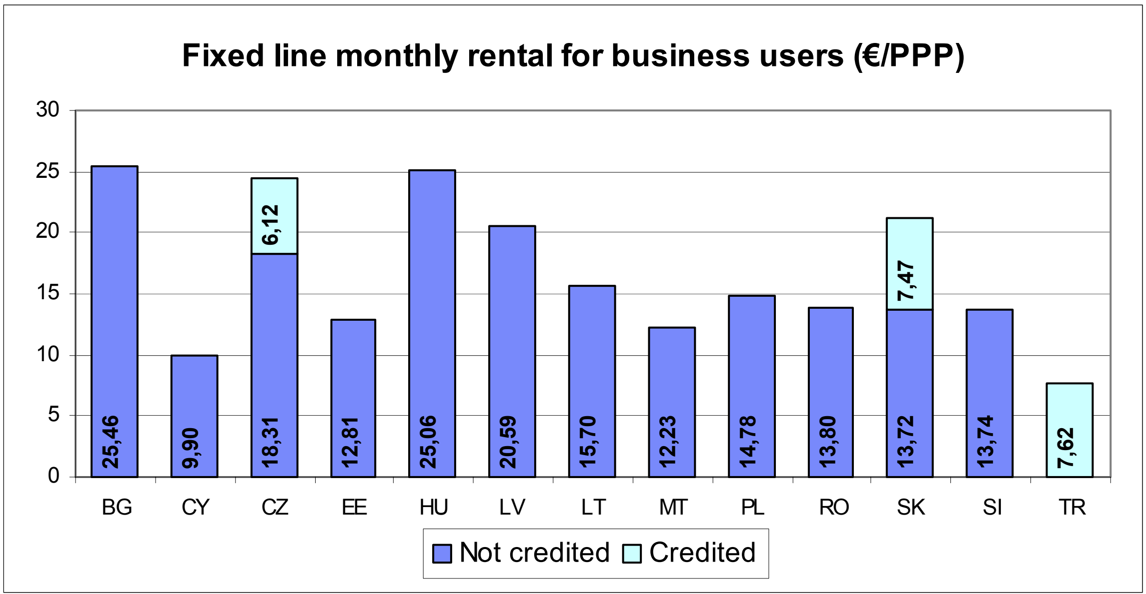
Source: NRAs, PPP exchange rates - European Commission DG ECFIN, EU values - European Commission studies

Chart 13: Monthly line rental charge of fixed incumbent operator for business users in nominal EUR as of 30 June 2003



Source: NRAs

Chart 14: Monthly line rental charge of fixed incumbent operator for business users in EUR/PPP as of 30 June 2003



Source: NRAs, PPP exchange rates - European Commission DG ECFIN, EU values - European Commission studies

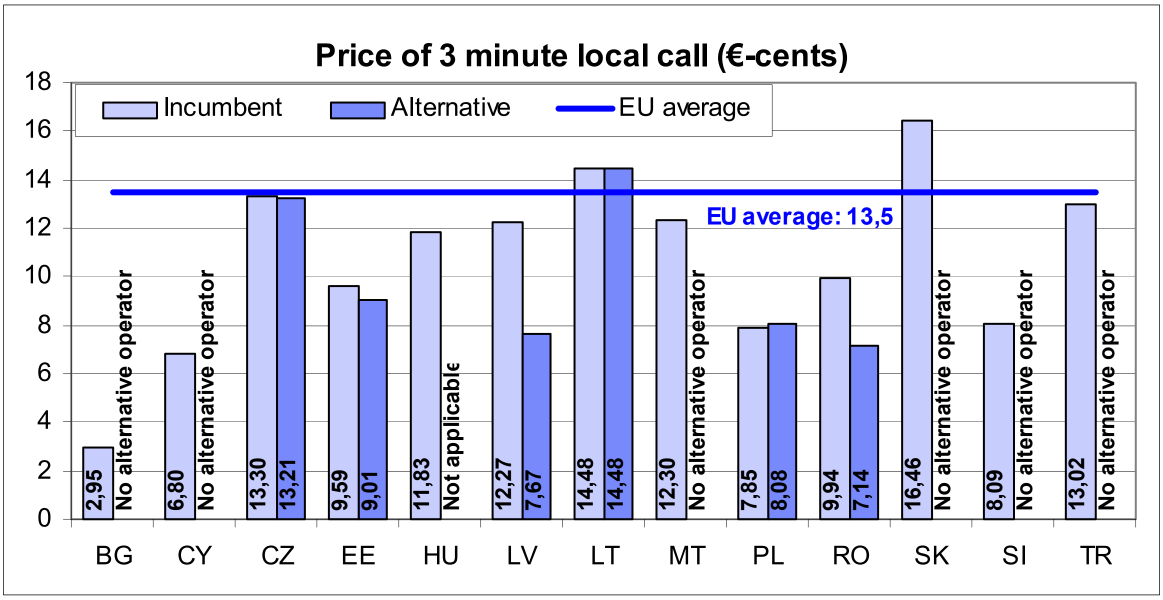
4.7.2 Standard national call charges

This section assesses the prices charged by the fixed incumbent operator and the lowest available prices of alternative fixed operators for individual national fixed and fixed-to-mobile calls to a residential customer (expressed in Eurocents including VAT). Alternative fixed operators operate only in the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland and Romania as of 30 June 2003. The prices as of 30 June 2003 were not available for the alternative operator of Poland. In Bulgaria and Slovakia, a similar service is offered by the VoIP operator. The prices of local calls are higher than those of the fixed incumbent and therefore not presented in the charts below.

Prices of fixed calls are given for 3-minute and 10-minute calls over two distances: 3 km (equivalent to a local call) and 200 km (equivalent to a long-distance call) in the peak time (weekdays 11:00). For the fixed-to-mobile calls the price refers to a 3-minute call in peak time. For Cyprus, Estonia and Slovenia, charges for long-distance calls are equal to the charges for local calls due to the size of the country. Based on the size of the country, the definition of long-distance call is not applicable in Malta.

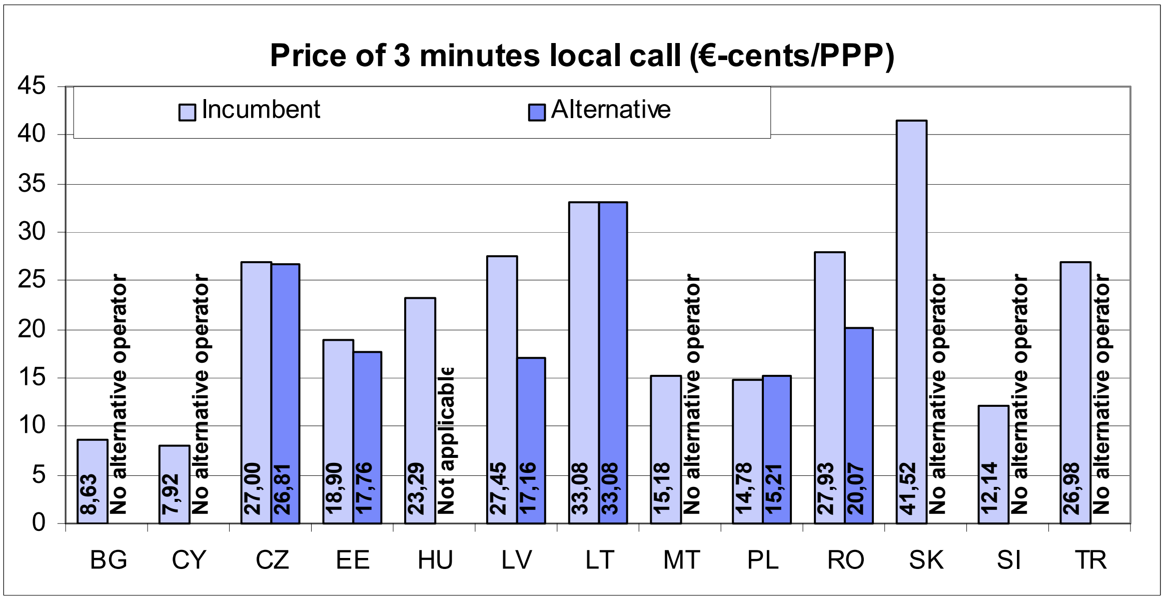
The charts are expressed in nominal Euro and in PPP terms. The charts also give the EU average charges. Nominal charges are taken from the EU 9th implementation Report and PPP figures are not shown, because the relevant figures cannot be found in the European Commission studies. The EU figures are valid as of August 2003.

Chart 15: Price of fixed incumbent and alternative fixed operators for a 3-minute local call in nominal Eurocents as of 30 June 2003



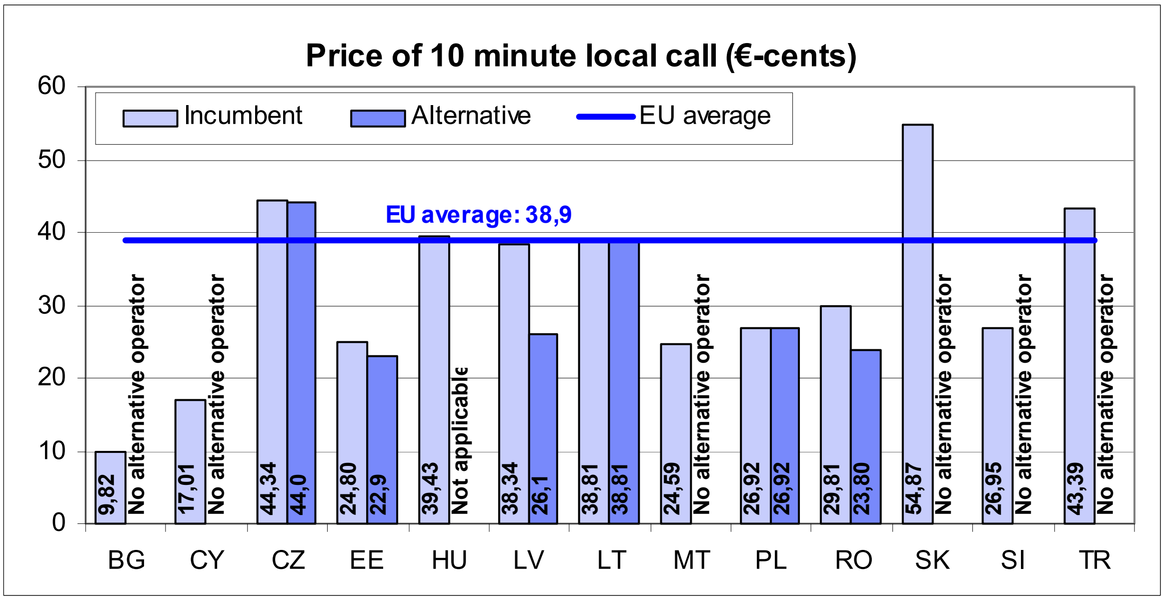
Source: NRAs

Chart 16: Price of fixed incumbent and alternative fixed operators for a 3-minute local call in Eurocents/PPP as of 30 June 2003



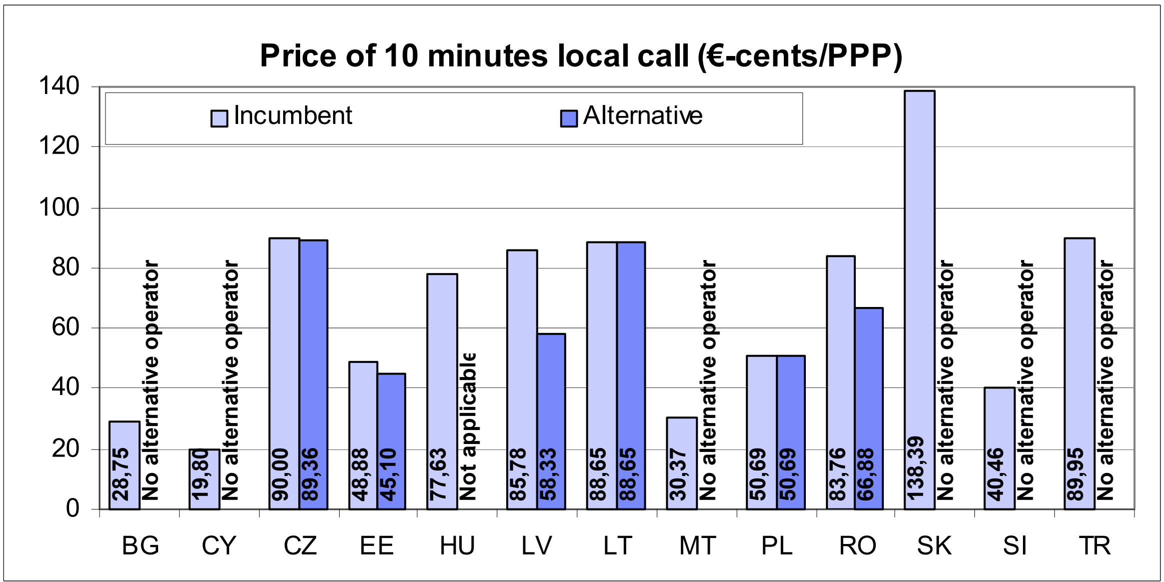
Source: NRAs, PPP exchange rates - European Commission DG ECFIN, EU values - European Commission studies

Chart 17: Price of fixed incumbent and alternative fixed operators for a 10-minute local call in nominal Eurocents as of 30 June 2003



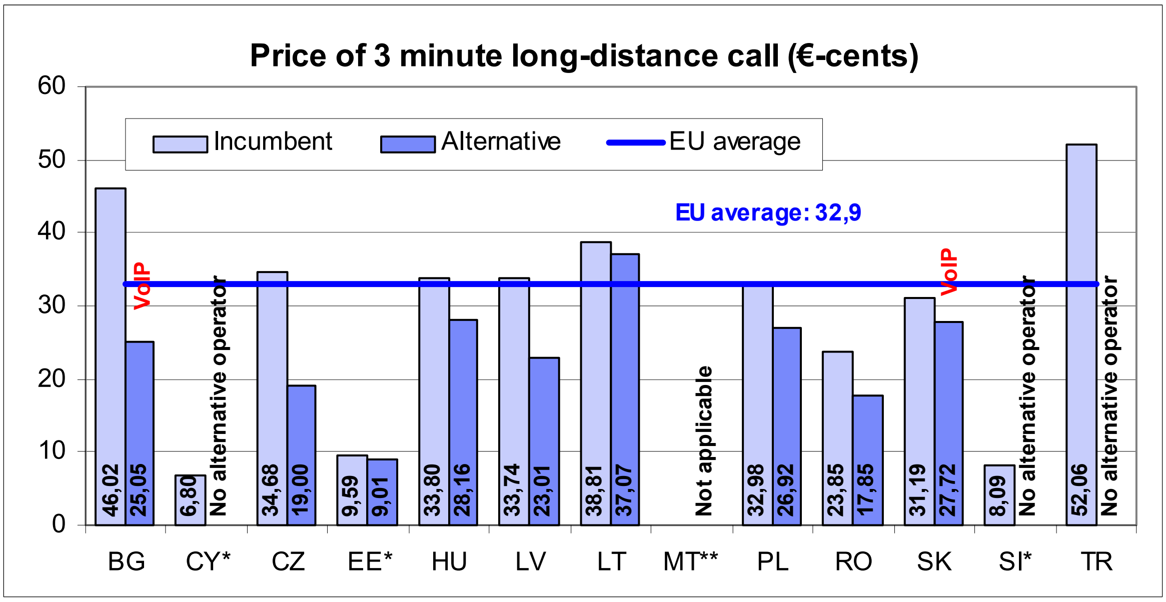
Source: NRAs

Chart 18: Price of fixed incumbent and alternative fixed operators for a 10-minute local call in Eurocents/PPP as of 30 June 2003



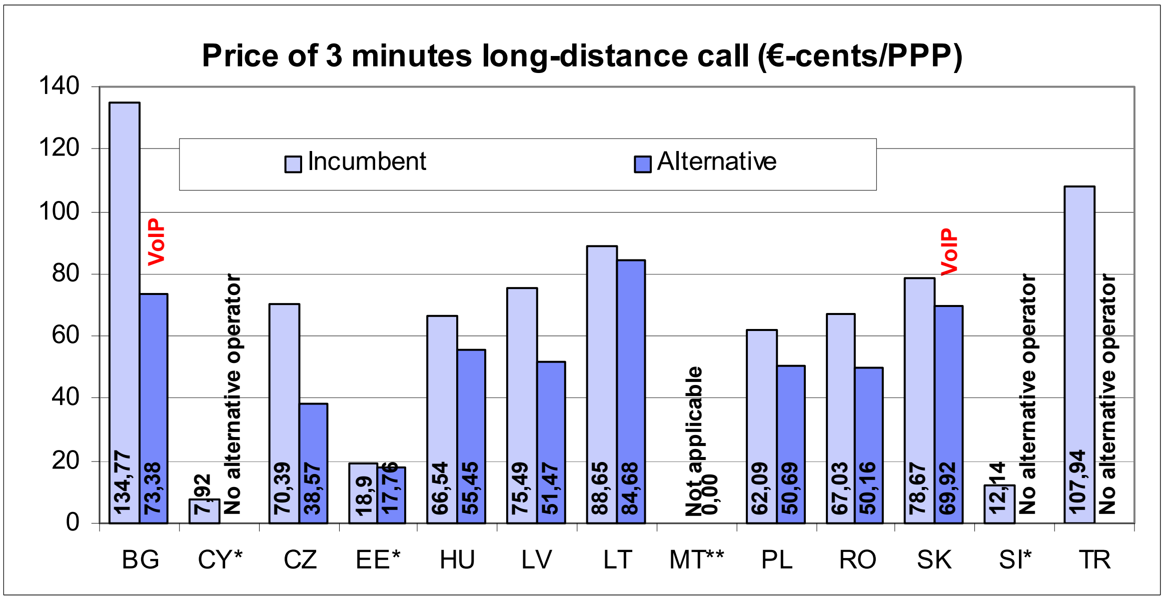
Source: NRAs, PPP exchange rates - European Commission DG ECFIN, EU values - European Commission studies

Chart 19: Price of fixed incumbent and alternative fixed operators for a 3-minute long-distance call in Eurocents as of 30 June 2003



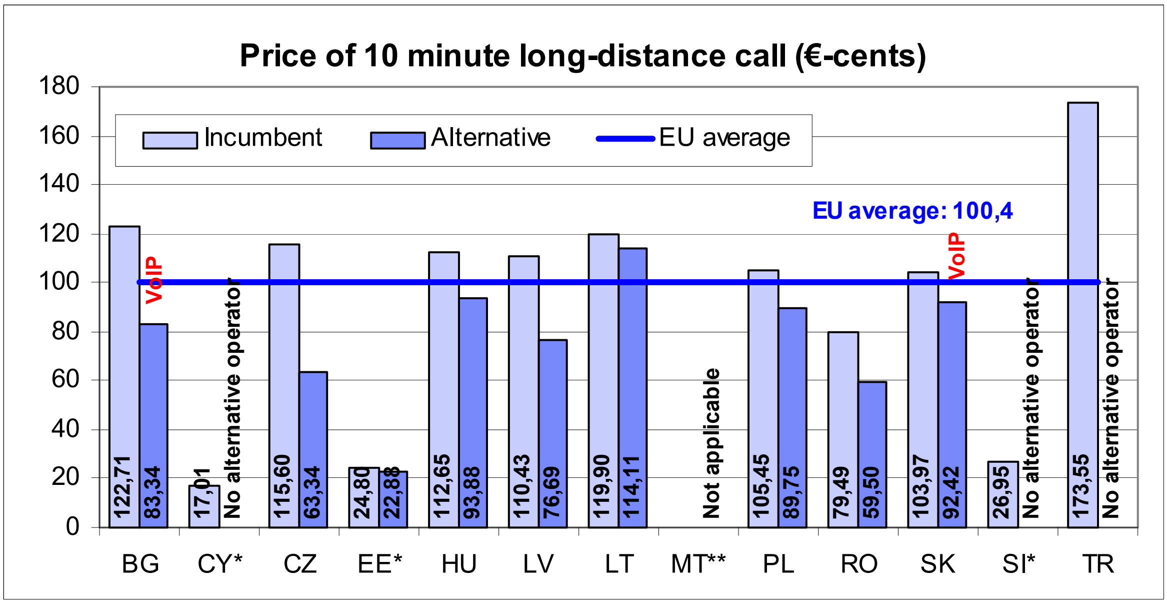
Source: NRAs
* Local and long-distance charges do not differ
** Not applicable due to the geographical size of the country

Chart 20: Price of fixed incumbent and alternative fixed operators for a 3-minute long-distance call in Eurocents/PPP as of 30 June 2003



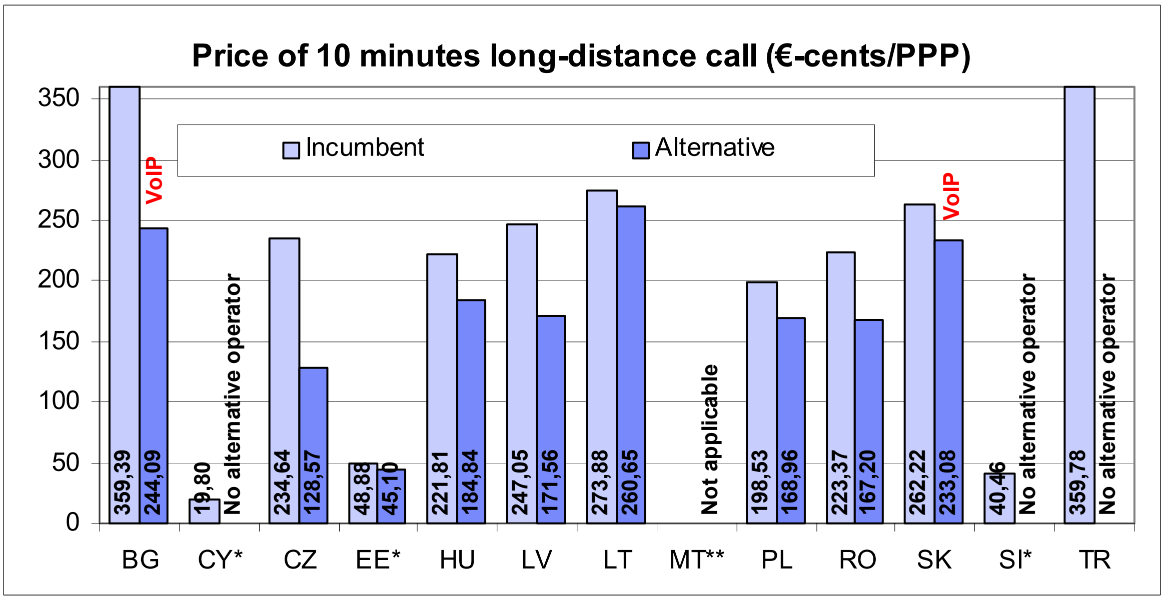
Source: NRAs, PPP exchange rates - European Commission DG ECFIN, EU values - European Commission studies
* Local and long-distance charges do not differ
** Not applicable due to the geographical size of the country

Chart 21: Price of fixed incumbent and alternative fixed operators for a 10-minute long-distance call in nominal Eurocents as of 30 June 2003



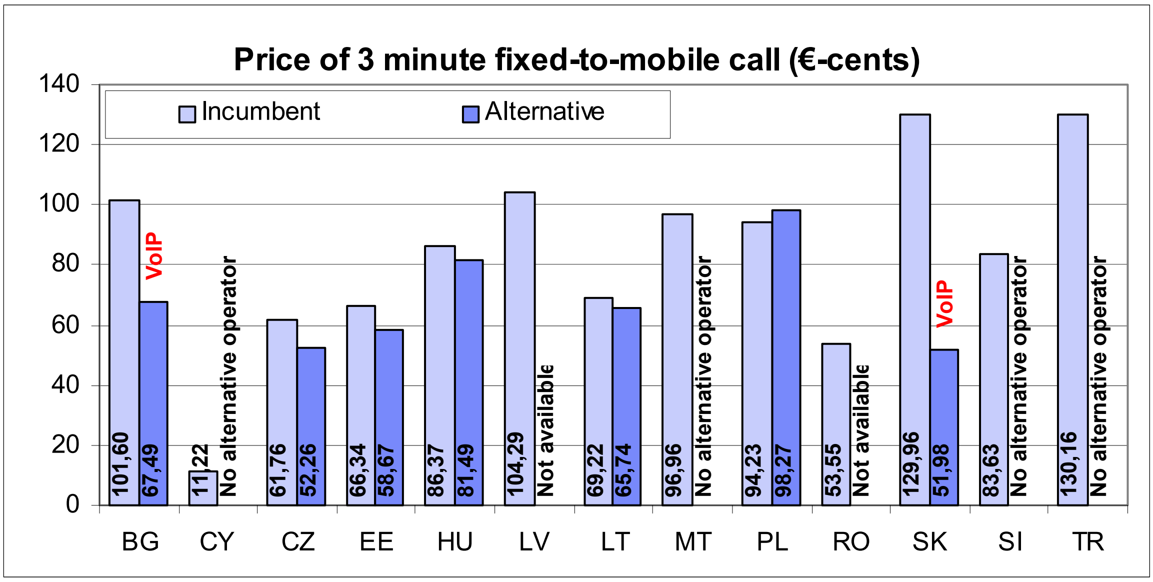
Source: NRAs
* Local and long-distance charges do not differ
** Not applicable due to the geographical size of the country

Chart 22: Price of fixed incumbent and alternative fixed operators for a 10-minute long-distance call in nominal Eurocents/PPP as of 30 June 2003



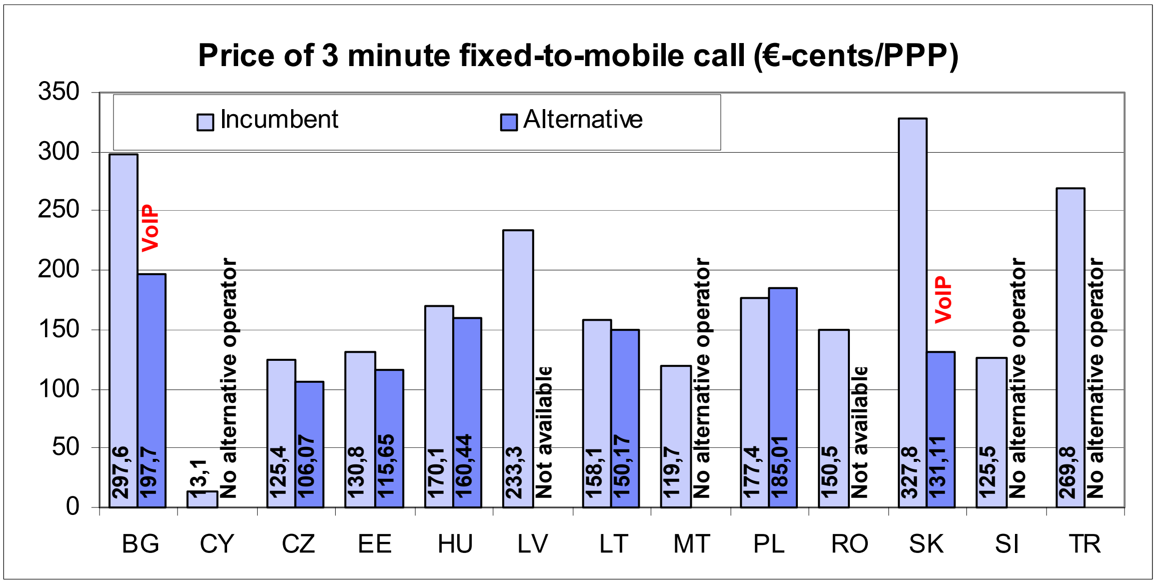
Source: NRAs, PPP exchange rates - European Commission DG ECFIN, EU values - European Commission studies
* Local and long-distance charges do not differ
** Not applicable due to the geographical size of the country

Chart 23: Price of fixed incumbent for a 3-minute fixed-to-mobile call in nominal Eurocents as of 30 June 2003



Source: NRAs

Chart 24: Price of fixed incumbent for a 3-minute fixed-to-mobile call in Eurocents/PPP as of 30 June 2003



Source: NRAs, PPP exchange rates - European Commission DG ECFIN

4.7.3 Standard international call charges

This section assesses the prices charged by the fixed incumbent and alternative operators for individual international fixed calls to a residential customer (expressed in Euro-cents including VAT). Prices are indicated for 10-minute calls in peak time (weekdays 11:00).

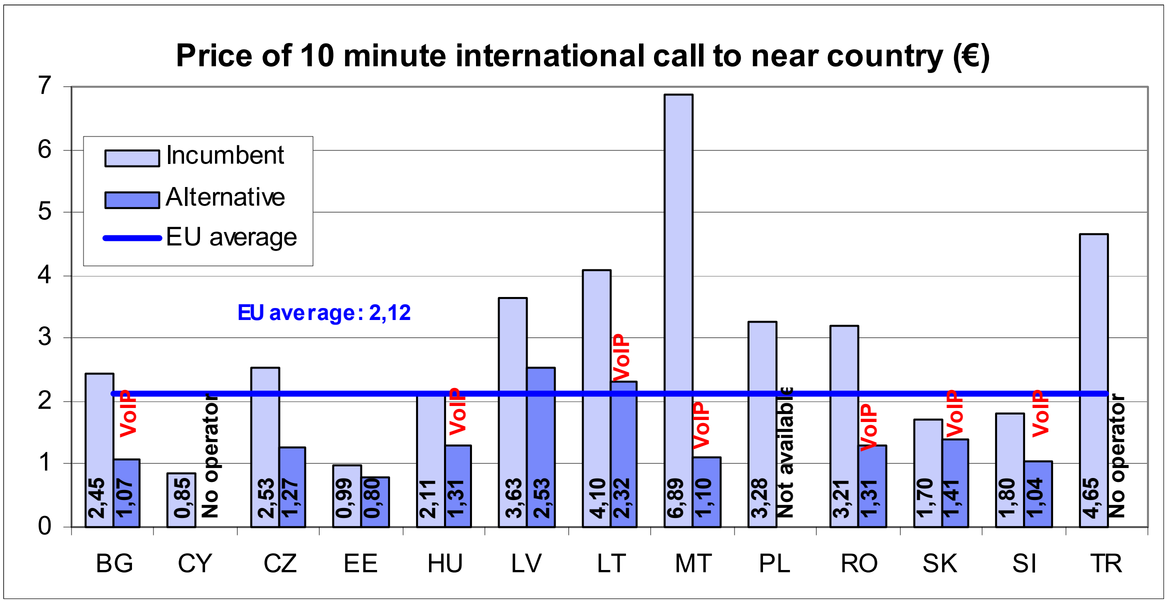
For most EUCCs the prices for calls to near country are valid for all countries. In the countries where prices are not equal, the lowest charge is displayed in the chart. For Estonia the charges vary from 0,99 EUR (calls to Finland and Sweden) to 3,19 EUR (Russia). For Lithuania the charges vary from 4,09 EUR (Latvia) to 5,81 EUR (Poland). For Turkey charges vary from 4,65 EUR (Bulgaria, Greece, Georgia) to 10,85 EUR.

The prices of calls to the near countries, UK and USA were reduced for the period from 31 January 2003 to 30 June 2003 in Bulgaria, Hungry, Romania and Slovakia. The prices of calls to the USA were reduced by 29 % in Lithuania.

International calls are offered by alternative fixed operators only in the Czech Republic, Estonia, Latvia and Poland. In Hungary, Lithuania, Malta, Romania, Slovakia and Slovenia, there are VoIP operators offering evaluated international calls. In Bulgaria, Cyprus and Turkey, there is no operator offering international calls other than the fixed incumbent.

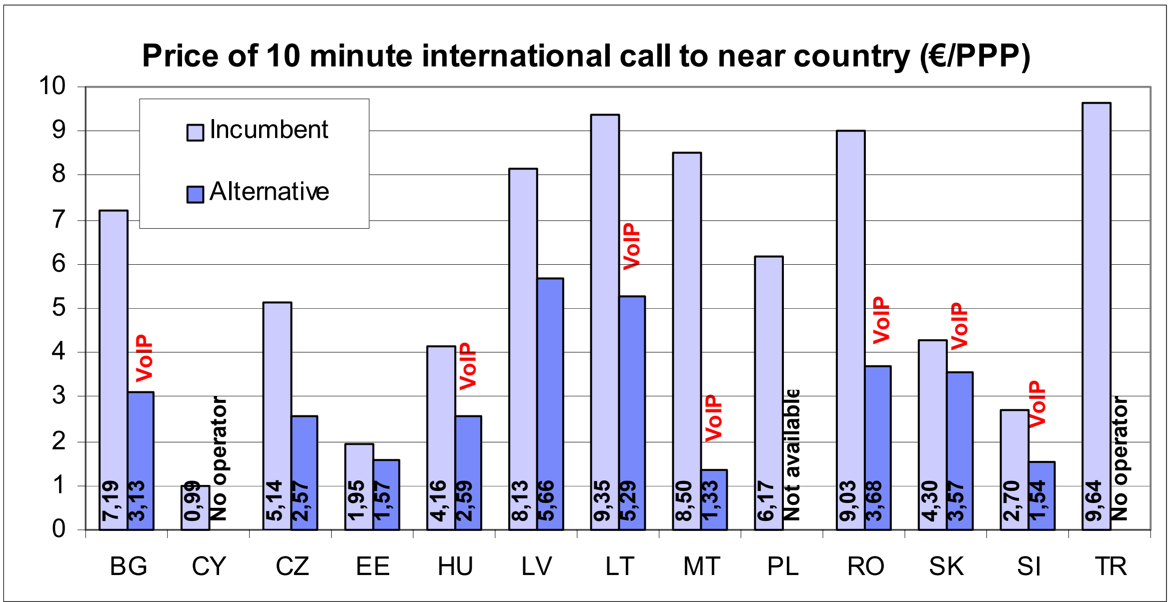
The charts also indicate the EU average charges taken from the EU 9th implementation report, i.e. as of August 2003. The definition of 'near country' is presented for each EU Member State separately. The 9th implementation report provides information on the "Call to distant EU country" (Greece or Denmark for individual countries). In this report, "Call to UK" is similarly presented and compared with EU average. All charges for the international calls are not fully comparable due to different distances applied.

Chart 25: Price of the fixed incumbent and the alternative fixed operators for a 10-minute international call to a near country in nominal EUR as of 30 June 2003



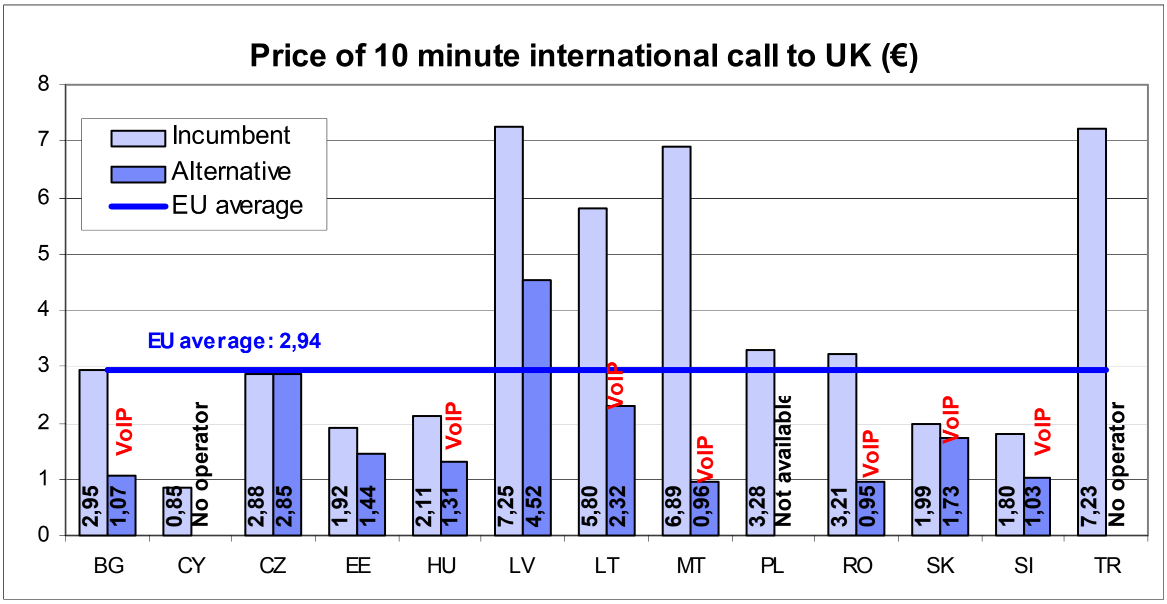
Source: NRAs

Chart 26: Price of the fixed incumbent and the alternative fixed operators for a 10-minute international call to a near country in EUR/PPP as of 30 June 2003



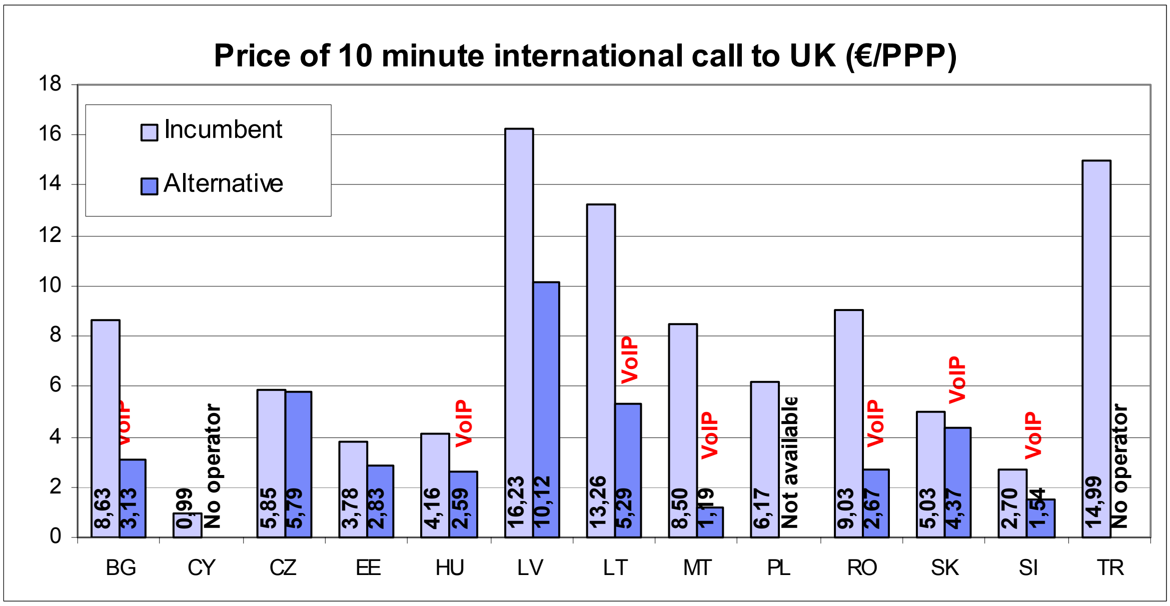
Source: NRAs, PPP exchange rates - European Commission DG ECFIN

Chart 27: Price of the fixed incumbent and the alternative fixed operators for a 10-minute international call to the United Kingdom in nominal EUR as of 30 June 2003



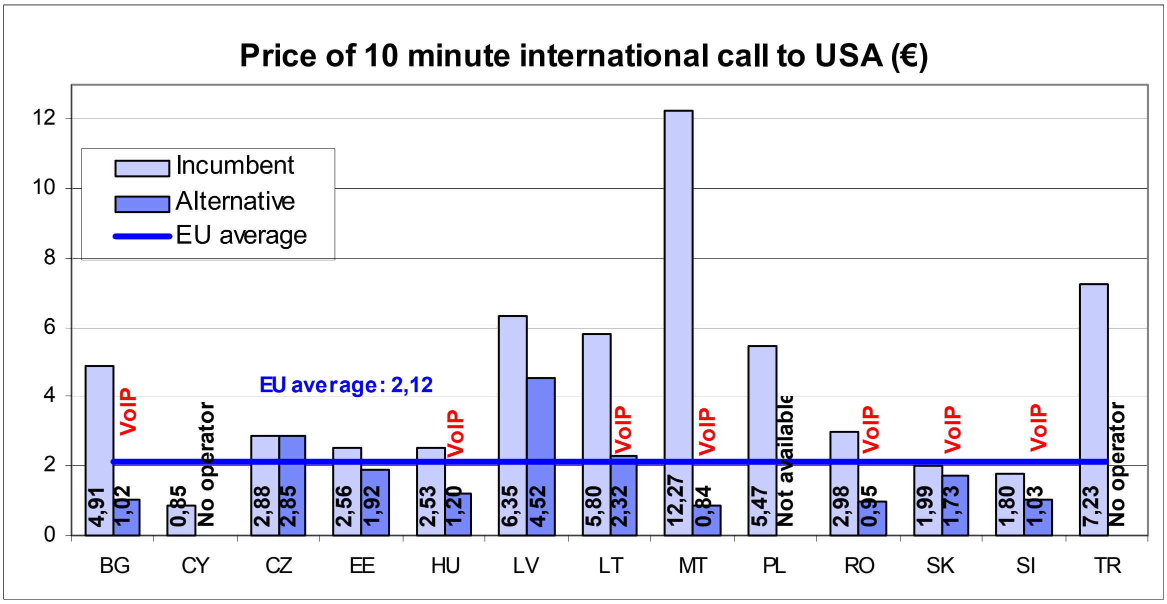
Source: NRAs

Chart 28: Price of the fixed incumbent and the alternative fixed operators for a 10-minute international call to the United Kingdom in EUR/PPP as of 30 June 2003



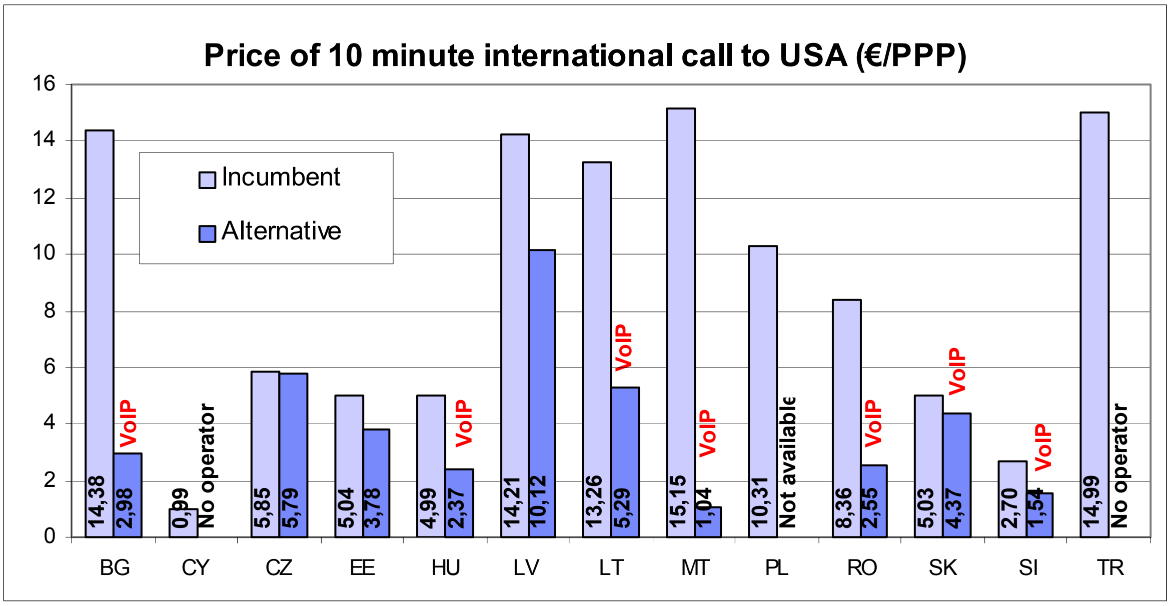
Source: NRAs, PPP exchange rates - European Commission DG ECFIN

Chart 29: Price of the fixed incumbent and the alternative fixed operators for a 10-minute international call to the USA in nominal EUR as of 30 June 2003



Source: NRAs

Chart 30: Price of the fixed incumbent and the alternative fixed operators for a 10-minute international call to the USA in EUR/PPP as of 30 June 2003



Source: NRAs, PPP exchange rates - European Commission DG ECFIN

Charges by the fixed incumbent operators are in many cases very high and should be rebalanced (such as in Bulgaria, Latvia and Malta). The difference between the charge for a call to the USA of the fixed incumbent and the VoIP operator is still high despite the fact that VoIP is not considered as an alternative for the traditional telephony.

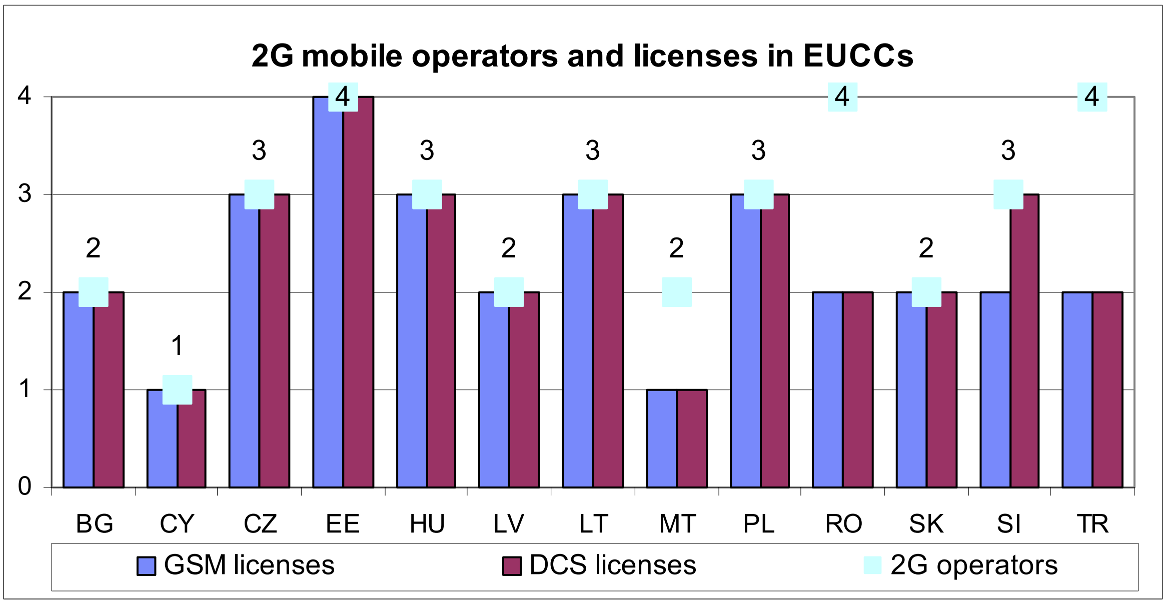
4.8 Mobile services

This chapter provides an overview of the mobile market in terms of number of operators and licenses for 2G networks, mobile penetration rate (including both analogue and digital mobile subscribers) and situation of GPRS services.

In most countries at least 2 operators are present on the mobile market (with the exception of Cyprus where an auction for the 2nd GSM license is taking place in October 2003). In many countries an operator usually has both GSM 900 and DCS 1800 licenses. The information about the number of operators and licenses is available in the chart below.
One of the operators is virtual in Estonia. In Lithuania, in addition to the 4 operators, 15 companies have notified CRA about their intention to engage in public mobile telephone service provision (virtual operators/resellers), but only 2 of them have started provision of services by 30 June 2003.

In Romania there is an operator with CDMA 2000 license present on the market in addition to 3 operators with GSM or DCS licenses.

Chart 31: Number of 2G operators and licenses for the provision of digital mobile services as of 30 June 2003



Source: NRAs

UMTS licenses have been already assigned to the operators in the Czech Republic, Latvia, Poland, Slovakia and Slovenia; however, 3G networks are not operational in any of these countries as of 30 June 2003. The first UMTS services should be launched in Slovenia at the end of year 2003.

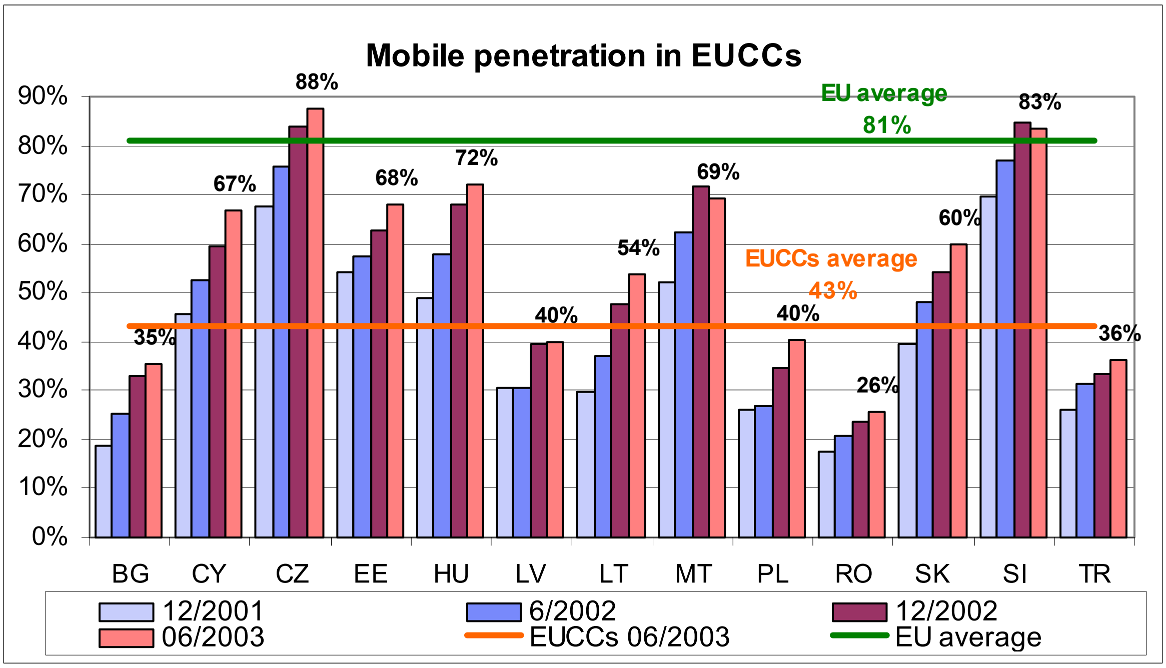
Only the penetrations in the Czech Republic, Hungary and Slovenia are comparable with the level of penetration in the EU Member States as of August 2003 (81%). The mobile penetration in most EUCCs is below the EU average, but it is growing at a fast pace. The average penetration in EUCCs as of 30 June 2003 was about 43%; this level was reached in EU during the year 2000.

Further growth can be expected in the markets with a lower level of penetration (such as Bulgaria, Latvia, Poland, Romania or Turkey) while in the markets with high penetration rates (Czech Republic or Slovenia), further growth is already limited, and in Slovenia even a decrease is already reported.

The information on split of post-paid and pre-paid customers is not available in Latvia. In all countries where the split is available, pre-paid customers are prevailing with the exception of Cyprus, Estonia (only one operator data is available) and Lithuania.

The penetration is calculated using the number of subscribers of all operators provided to NRAs. However, the operators do not use a standard methodology, the penetration rates are therefore not absolutely comparable across EUCCs.

Chart 32: Evolution of mobile penetration rate in EUCCs from end of 2001 - mid 2003



Source: NRAs

In most EUCCs as of 30 June 2003, at least one operator is providing GPRS services (with the exception of Bulgaria). The number of GPRS users is not available in the Czech Republic, Malta and Turkey. In other countries the number of users was provided by NRAs and the proportion of GPRS users to the number of mobile subscribers amounts up to 4,66% in Slovenia (3,87% in Poland, 2,50% in Estonia, in the rest of countries the ratio is less than 2%). In all countries the operators cover at least 95% of the population with this service.

4.9 Leased lines

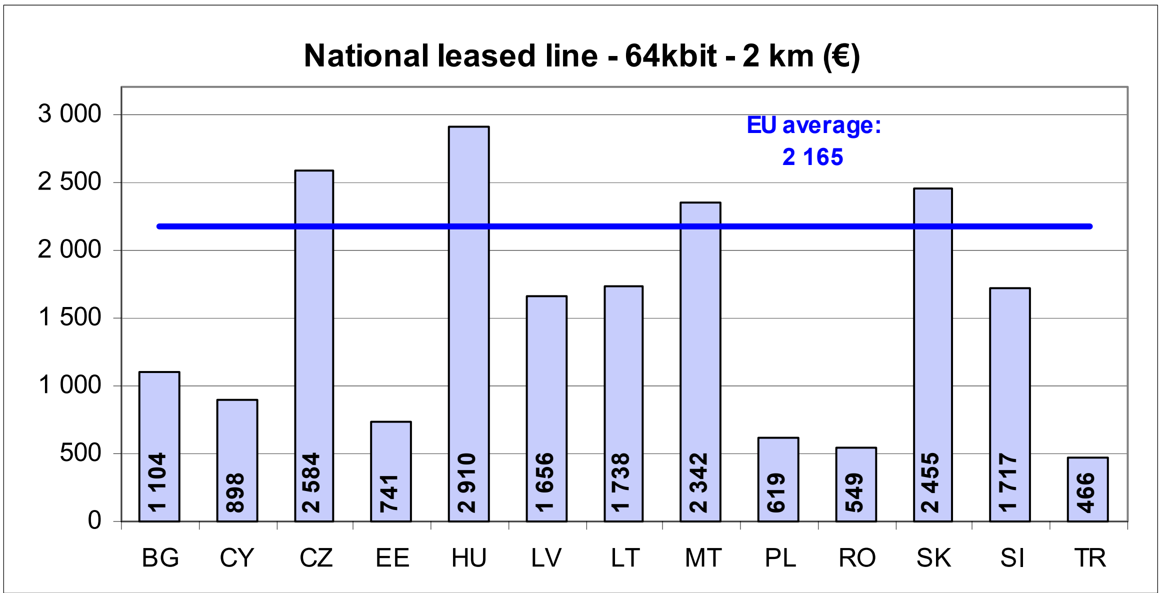
This chapter contains an overview of prices charged by fixed incumbent operators in EUCCs for national and international leased lines. All prices refer to basic services provided by the fixed incumbent operator. Prices are basic per year prices, excluding any discounts and excluding VAT, as of 30 June 2003.

4.9.1 National leased lines

For the national leased line services, two distances are evaluated: 2 km and 200 km. 3 bit rates are considered: 64 kbit/s, 2 Mbit/s and 34 Mbit/s. Nevertheless, the last bit rates list prices are not established in most countries and the prices are set individually. In Malta only 2 km lines are feasible due to the physical size of the country and only a leased line up to 2 Mbit/s is provided (for 34 Mbit/s bit rate ATM solution is applied and price provided).

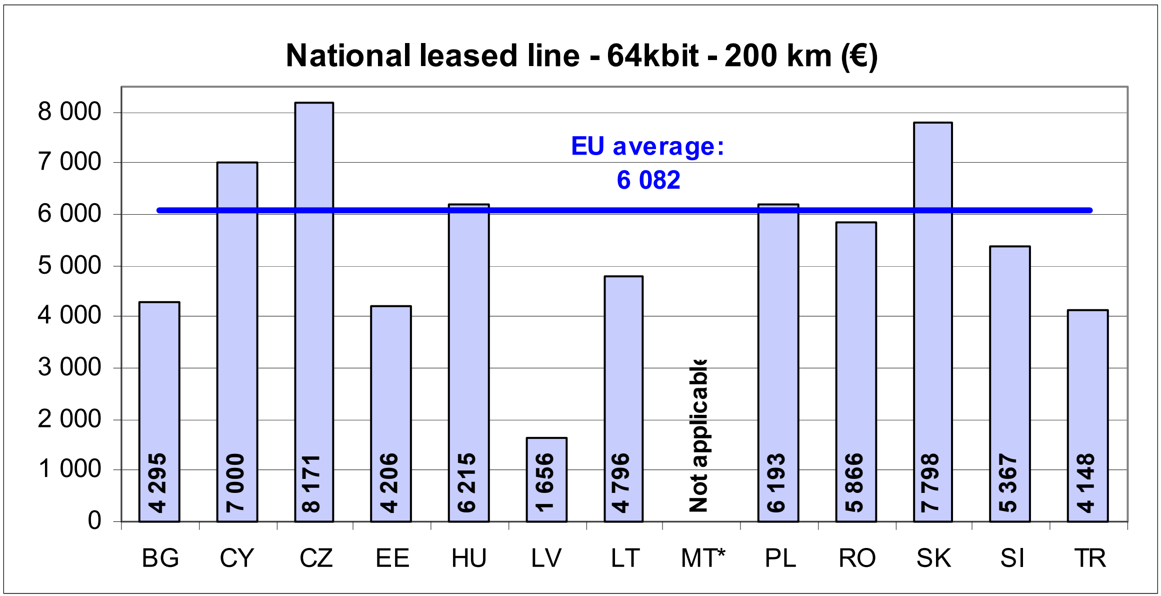
The charts also give the EU average charges (taken from the EU 9th implementation report, i.e. as of August 2003) in the form of a blue line.

Chart 33: Price for 64 kbit/s, 2 km national leased line as of 30 June 2003



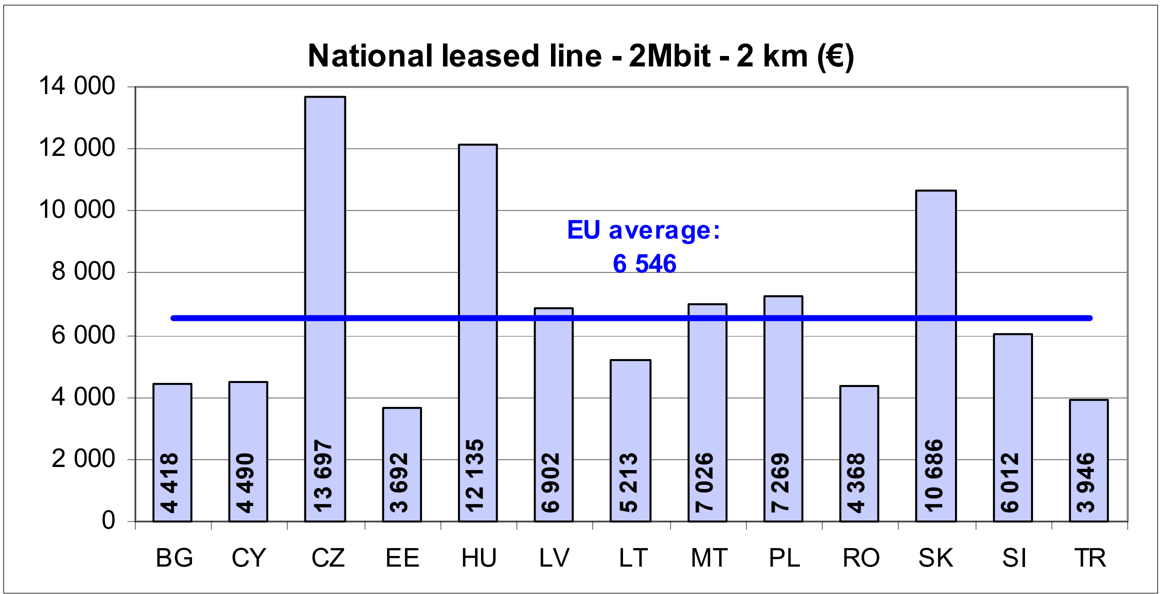
Source: NRAs, Prices are basic per year

Chart 34: Price for 64 kbit/s, 200 km national leased line as of 30 June 2003



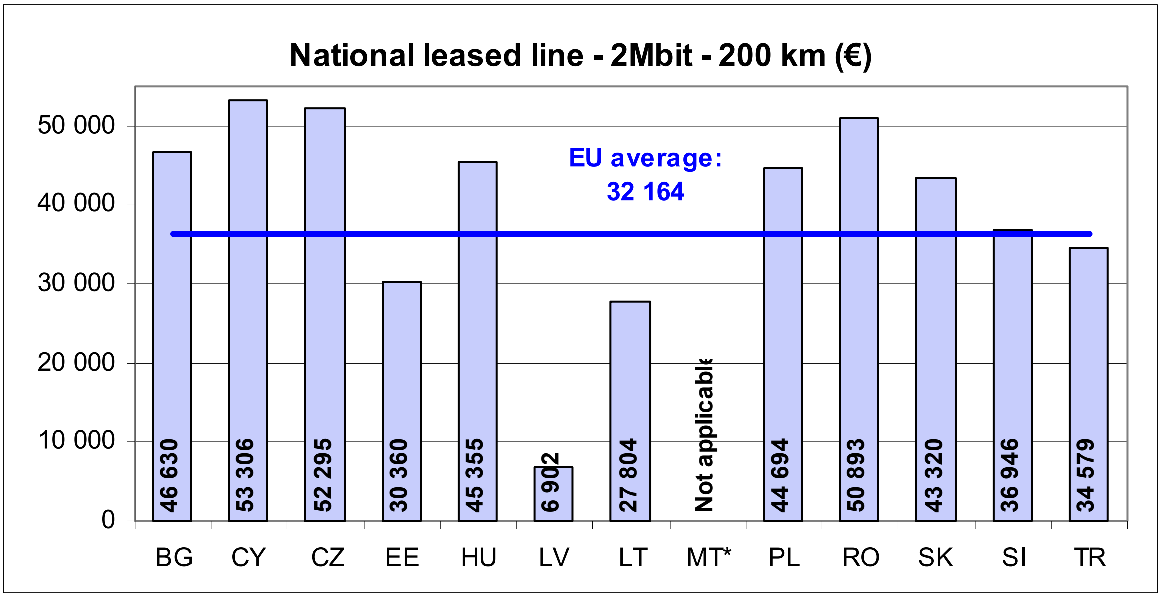
Source: NRAs, Prices are basic per year
* Not applicable due to the gegraphical size of the country

Chart 35: Price for 2 Mbit/s, 2 km national leased line as of 30 June 2003



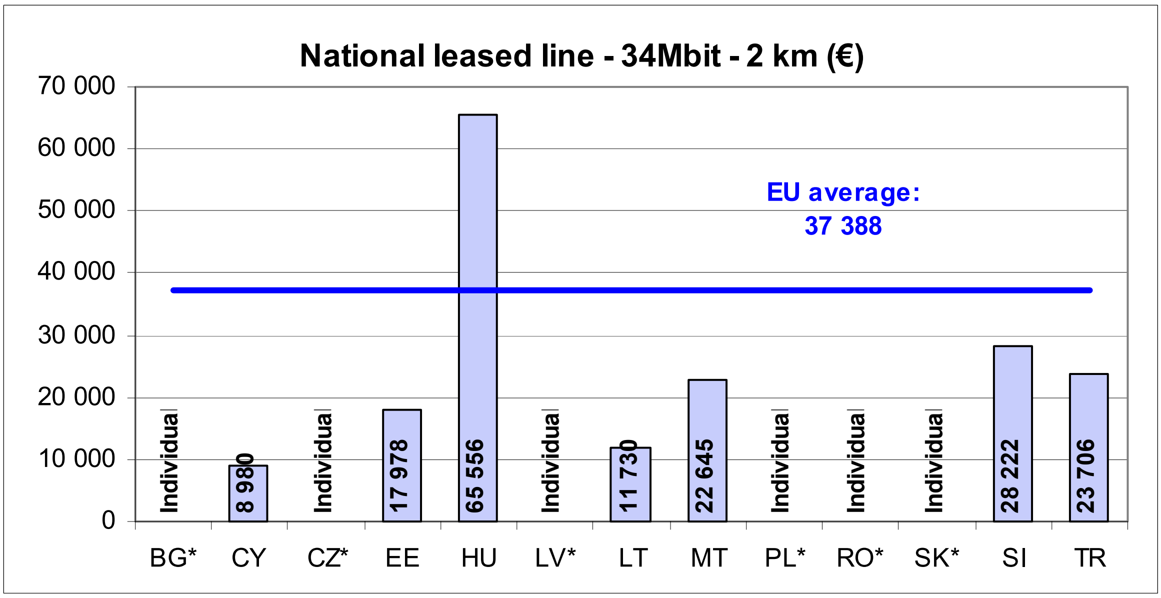
Source: NRAs, Prices are basic per year

Chart 36: Price for 2 Mbit/s, 200 km national leased line as of 30 June 2003



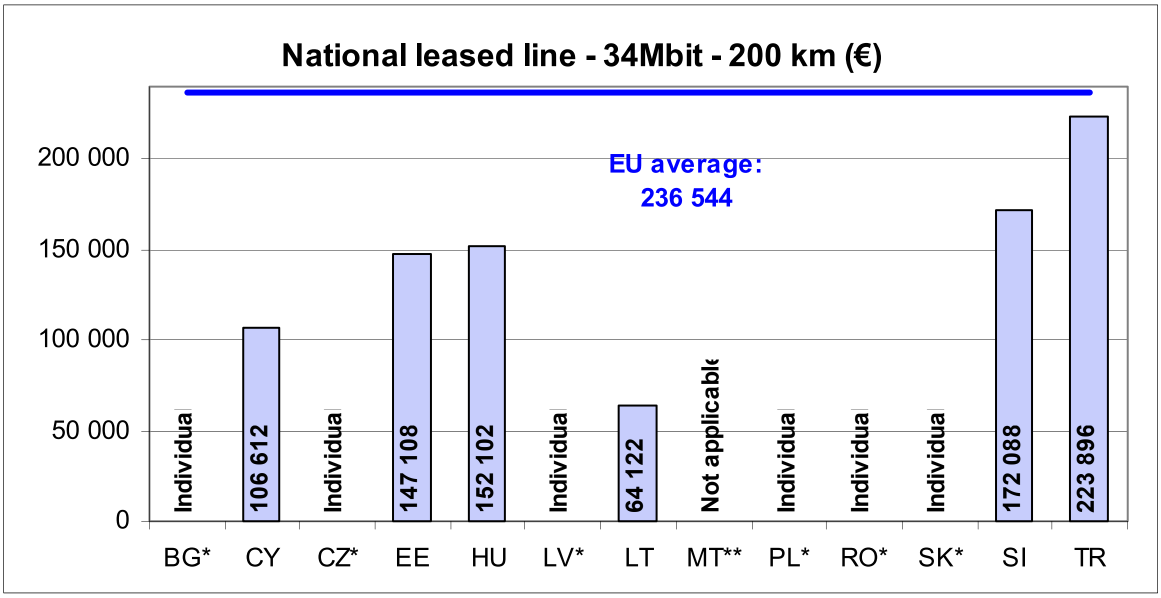
Source: NRAs, Prices are basic per year
* Not applicable due to the geographical size of the country

Chart 37: Price for 34 Mbit/s, 2 km national leased line as of 30 June 2003



Source: NRAs, Prices are basic per year
* List price not established, prices are set individually

Chart 38: Price for 34 Mbit/s, 200 km national leased line as of 30 June 2003



Source: NRAs, Prices are basic per year
* List price does not exist, prices are set individually
** Not applicable due to the geographical size of the country

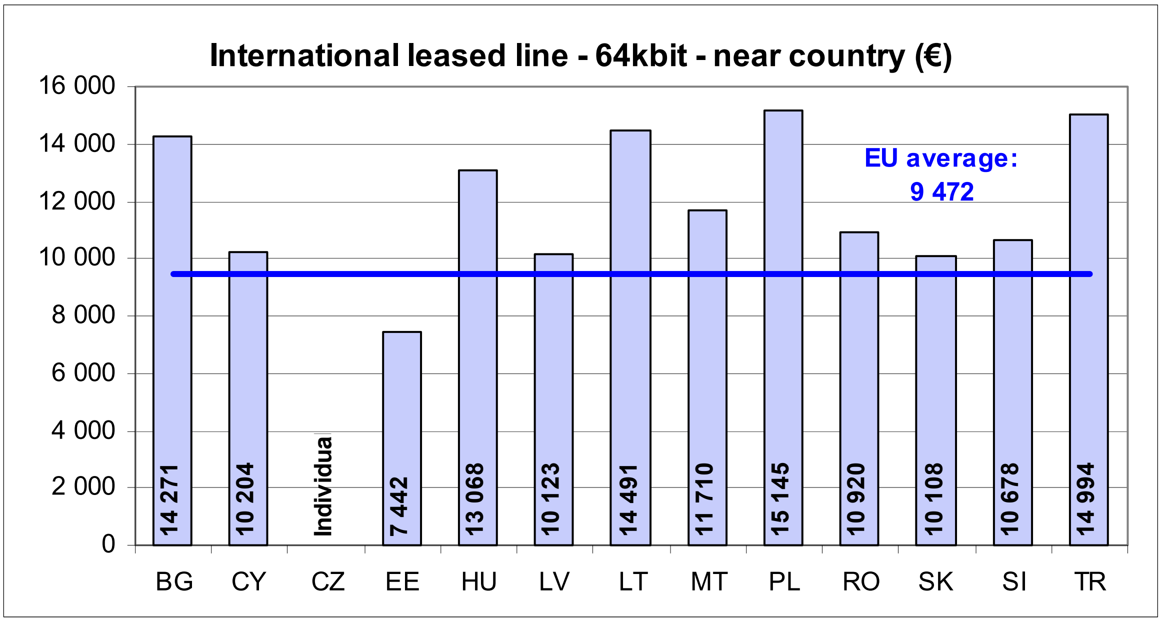
4.9.2 International leased lines

For international leased lines, two destinations were chosen, near country and distant EU country (United Kingdom), and two bit rates: 64 kbit/s and 2 Mbit/s. The provided prices relate to basic one-year prices of a half circuit provided by the fixed incumbent operator.

In most EUCCs, prices for the leased lines to a near country are the same for all neighbouring countries. In countries where the prices are not the same the lowest price is displayed in the charts below. This is valid for Estonia (ranging from 7 442 € to 8 358 € for 64 kbit/s lines and from 59 501 € to 66 724 € for 2 Mbit/s lines), Slovenia (ranging from 10 678 € to 11 978 € for 64 kbit/s lines and from 66 309 € to 705 868 € for 2 Mbit/s lines) and Turkey (ranging from 14 994 € to 16 619€ for 64 kbit/s lines and from 224 916 € to 249 906 € for 2 Mbit/s lines).

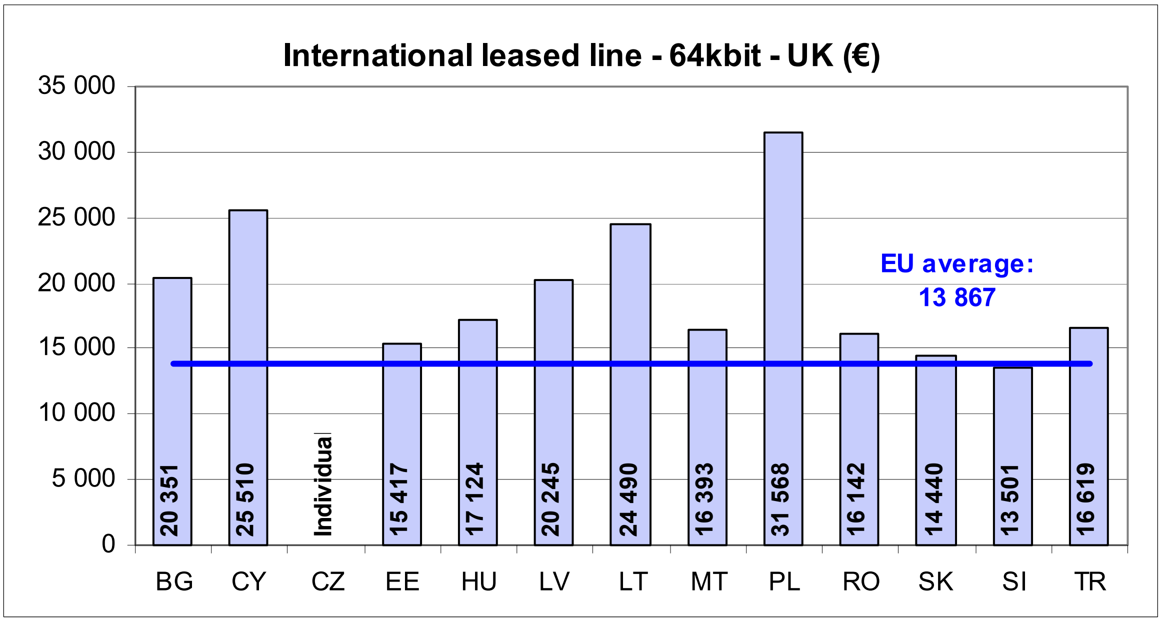
The charts also indicate the EU average charges (taken from the EU 9th implementation report, i.e. as of August 2003) in the form of a blue line. The definition for near country in the 9th implementation report is presented for each EU Member State separately. The 9th implementation report provides information on leased line "to distant EU country" (Greece or Denmark for individual countries). In this report the information for leased line to the United Kingdom is presented similarly, but all charges for international leased lines are not fully comparable due to different distances applied.

Chart 39: Price for 64 kbit/s international leased line to near country as of 30 June 2003



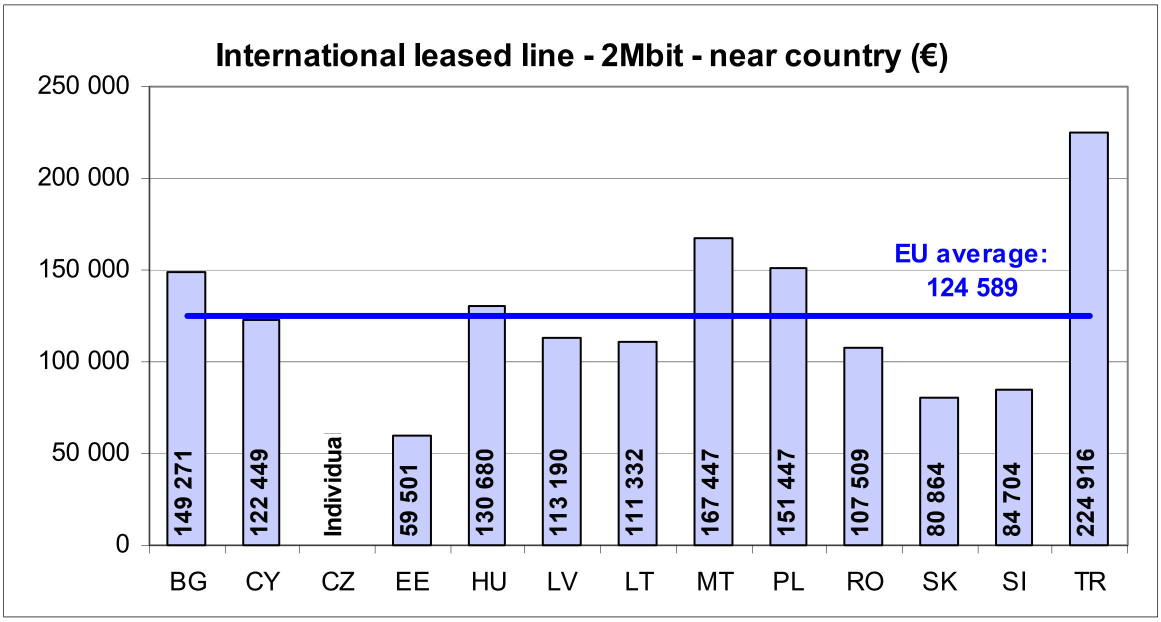
Source: NRAs, Prices are basic per year
* Charges not unified for calls to all neighbouring countries, the lowest charge is presented

Chart 40: Price for 64 kbit/s international leased line to United Kingdom as of 30 June 2003



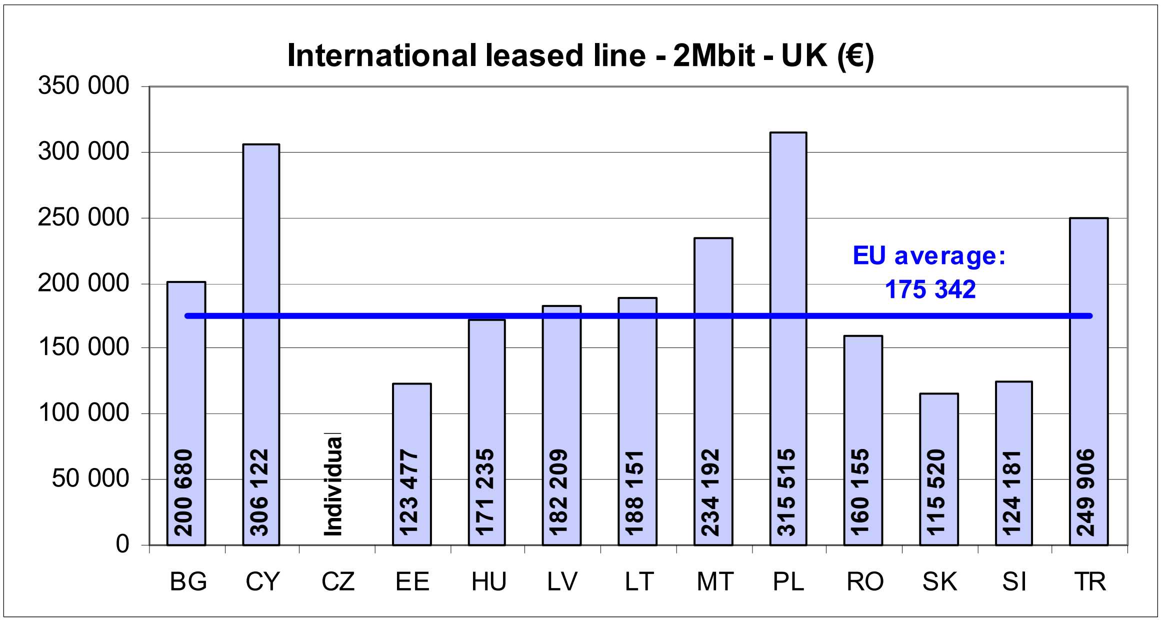
Source: NRAs, Prices are basic per year

Chart 41: Price for 2 Mbit/s international leased line to near country as of 30 June 2003



Source: NRAs, Prices are basic per year
* Charges not unified for calls to all near countries, the lowest charge is presented

Chart 42: Price for 2 Mbit/s international leased line to United Kingdom as of 30 June 2003



Source: NRAs, Prices are basic per year

The prices of international lines were reduced in Bulgaria and Turkey as of 30 June 2003. Prices are newly fixed individually in the Czech Republic, starting May 2003.

4.10 Local Access

This chapter illustrates the degree of competition in the local access market of EUCCs. These data include the status of obligations of fixed incumbent operators in the area of local loop unbundling (LLU) and Reference Unbundling Offer (RUO) of the fixed incumbent, availability of LLU and the number of unbundled local loops.

The level of liberalization of local access across EUCCs as of 30 June 2003 is still very low, and almost no progress can be reported in comparison with the situation at the end of 2002. In the Czech Republic, RUO is legally binding for the fixed incumbent from 19 September 2003, in Poland from 1 November 2003. RUO is drafted in Latvia where it is legally binding. In Estonia the situation remains the same, i.e. RUO is not obligatory for the fixed incumbent. However, it exists in practice and is available for all the operators (10 operators have agreement for LLU). Another country where alternative operator has LLU agreement is Slovenia (1 operator). Estonia is also the only country that reports fully unbundled local loops (1232 of them). Lines with shared access are reported only in Slovenia (933 lines). High-speed bit stream LLU is applied in Hungary (29 471 lines) and Slovenia (26 212 lines).

The table below describes the situation as of 30 June 2003, and the progress achieved in comparison with the situation of 31 December 2002 is highlighted in bold.

Table 22: Reference Unbundling Offer (RUO) of fixed incumbent operator as of 30 June 2003

Country	RUO legally compulsory	When RUO is expected to become compulsory	Status of RUO
Bulgaria	No	1.1.2005	Not applicable
Cyprus	Yes	**1.5.2004**	**Approved by NRA**
Czech R.	**Yes**	**19.9.2003**	**Published**
Estonia	No [1)]	Not available	Not applicable
Hungary	Yes	Not applicable	Published
Latvia	Yes	Legal effect in Q4 2003	Draft
Lithuania	Yes	Not applicable	**Published**
Malta	No	2003	Not applicable
Poland	**Yes**	**1.10.2003**	No
Romania	No	2003	**Draft**
Slovakia	No	By 1.1.2004	Not applicable
Slovenia	Yes	Not applicable	**Published**
Turkey	No	**2004**	No

Source: NRAs

[1)] RUO is not legally binding but it is established and offered to businesses on equal terms.

An important potential barrier to the introduction of LLU is the presence of party lines (group lines, i.e. lines where one local loop serves more than two subscribers, did not exist in any country at mid 2003). Party lines (i.e. lines where one local loop serves simultaneously two subscribers) still exist in more than half of EUCCs, but their number is continuously falling (in Estonia, the information on existence of party and group lines is not available).

In the following table, the party lines are shown as a percentage of all lines (including ISDN lines). In general, the number of party lines is falling. The party lines have less than 3% share in the total number of lines. The only exception is Bulgaria where the party lines still represent a significant share – nearly 45%.

Table 23: Presence of party and group lines in fixed network in EUCCs as of 30 June 2002 and 30 June 2002

Country	Party lines as of June 2003	
Bulgaria		47,8%
Cyprus	No	No
	1,8 %	
Estonia		Not available
Hungary	1,4%	1,8%
	2,2%	
Lithuania	1,1%	2,9%
Malta	No	No
Poland	No	No
Romania	2,8%	6,3%
Slovakia	0,9%	2,3%
Slovenia	0,5%	1,2%
Turkey	No	No

Source: NRAs (CZ – fixed incumbent operator)

4.11 Interconnection

This chapter describes the most important features of the interconnection regimes in EUCCs. These are the existence of SMP status of fixed and mobile operators and the applied cost orientation for these operators, the status of Reference Interconnection Offer of fixed incumbent operators and the level of interconnection charges.

The table below shows the number of operators notified as having SMP in the interconnection market. In some countries the national law has not yet defined the SMP status. For such countries there are comments provided that the fixed operator is dominant. In Malta the information refers to a number of operators with a Dominant Market Position (DMP, e.g. operators that have more than 25% share in the fixed or mobile market based on gross revenues). This definition is compliant with the SMP definition under the 1998 EU Acquis.

This table also provides information about the imposition of cost orientation of interconnection charges for the SMP operators with the applied cost base and cost standard. Currently only the Czech Republic, Estonia and Latvia have a system based on the current or forward-looking cost base. There are plans to introduce such systems in Hungary (2003) and in several other countries during the year 2004.

Table 24: Operators notified as having SMP on interconnection market and imposition of cost orientation of these operators as of 30 June 2003

Country	Number of SMP operators		Cost orientation imposition for SMP operators			
	Fixed	Mobile	Fixed	Mobile	Cost base	Cost standard
Bulgaria	1 [1)]	0	No	No	Not applicable	Not applicable
Cyprus	**1**	**1**	No	No	Not applicable	Not applicable
Czech R.	1	2	Yes	Yes	Forward-looking, historic [2)]	LRAIC, FAC [2)]
Estonia	1[1)]	1 [1)]	Yes	Yes	Forward-looking	LRAIC [6)]
Hungary	5 [1)]	2	Yes	Yes	Current	LRIC
Latvia	1	2	Yes	Yes	Current	FDC
Lithuania	1	1[5)]	Yes	Yes	Historic [3)]	FDC [3)]
Malta	1	**2**	Yes	Yes	Historic	FDC
Poland	1	3 [1)]	No	No	Benchmarking	Benchmarking
Romania	1	4 [4)]	Yes	Yes [4)]	Benchmarking	Benchmarking
Slovakia	1	2	No	No	Not applicable	Not applicable
Slovenia	1	2	Yes	Yes	**Current**	**LRIC**
Turkey	1 [1)]	2[1)]	No	No	Not applicable	Not applicable

Source: NRAs

1) No operator notified as having SMP on the interconnection market, the number refers to operators defined as "dominant" or "having monopoly" or SMP in the respective telephony market (fixed or mobile)

2) Forward–looking base is applied by the fixed incumbent, and historic base by mobile SMP operators; LRAIC is applied for termination in the fixed network and FAC for termination in the mobile network

3) Cost base and cost standard applied by the fixed incumbent operator. CRA decision concerning the mobile SMP operator was suspended by court

4) 4 operators notified as having SMP on their own interconnection markets, the obligation for cost orientation is valid for the two biggest operators (Mobifone and Orange)

5) After the CRA decision was suspended, no obligations were applicable in practice for the mobile operator

6) Operators having SMP in the mobile market have no LRAIC obligations

The following table describes the status of the Reference Interconnection Offer (RIO) of fixed incumbent operator in each of the EUCCs and also the number of interconnection agreements in place (fixed-to-fixed mean agreements with the fixed incumbent operator).

The countries where RIO is already published or exists in a draft form are marked in blue. The countries where progress has been made in comparison with the 3rd report are marked in bold. In comparison with January 2003, the RIOs have been published also in Latvia and Malta and drafted in Bulgaria.

Table 25: Reference Interconnection Offer of fixed incumbent operator and number of interconnection agreements as of 30 June 2003

Country	Status of RIO	Number of interconnection agreements		
		Fixed-to-Fixed	Fixed-to-Mobile	Mobile-to-Mobile
Bulgaria	**Draft**	0	3	3
Cyprus	No	0	0	0
Czech R.	Published	**32**	**24**	3
Estonia	Published	8	3	3
Hungary	Published	3	Not available	6
Latvia	**Published**	0	**3**	1
Lithuania	Published	0	3	3
Malta	**Published**	0	2	1
Poland	Draft	**140**	**15**	**10**
Romania	Published	**11**	**5**	6
Slovakia	Draft	0	**4**	1
Slovenia	Published	**4***	**3**	3
Turkey	No	0	4	6

Source: NRAs
* Negotiations not concluded yet

The following information describes the level of interconnection charges. The figures included are absolute values for the interconnection charges as of 30 June 2003 in Eurocents converted from the national currency using the exchange rate specified in table 2. In Slovakia and Turkey, the interconnection charges were provided to NRA, but should be treated as confidential (i.e. they are not publicly available). In Slovakia, the charges should be available in 2004, and in Turkey, access and interconnection ordinance has been in force since May 2003, but the re-evaluating process of existing interconnections agreements is going on, therefore the information is not publicly available.

Since the 3rd report, charges have been changed or introduced (Cyprus and Latvia) in some countries. However, the differences in the interconnection charges of the individual EUCCs are still significant and further improvement will be necessary in the area of interconnection charges.

As the fixed-to-fixed interconnection is not implemented in all the countries, the mobile-to-fixed interconnection charges are presented as well. For all the countries with a liberalized fixed telephony market the fixed-to-fixed and mobile-to-fixed interconnection charges are equal.

The Hungarian interconnection system does not follow the logic of the network hierarchy, but that of the geographic structure. The used term 'regional interconnection' is closest in meaning to single transit, and 'countrywide interconnection' is in practice more or less equal to double transit.

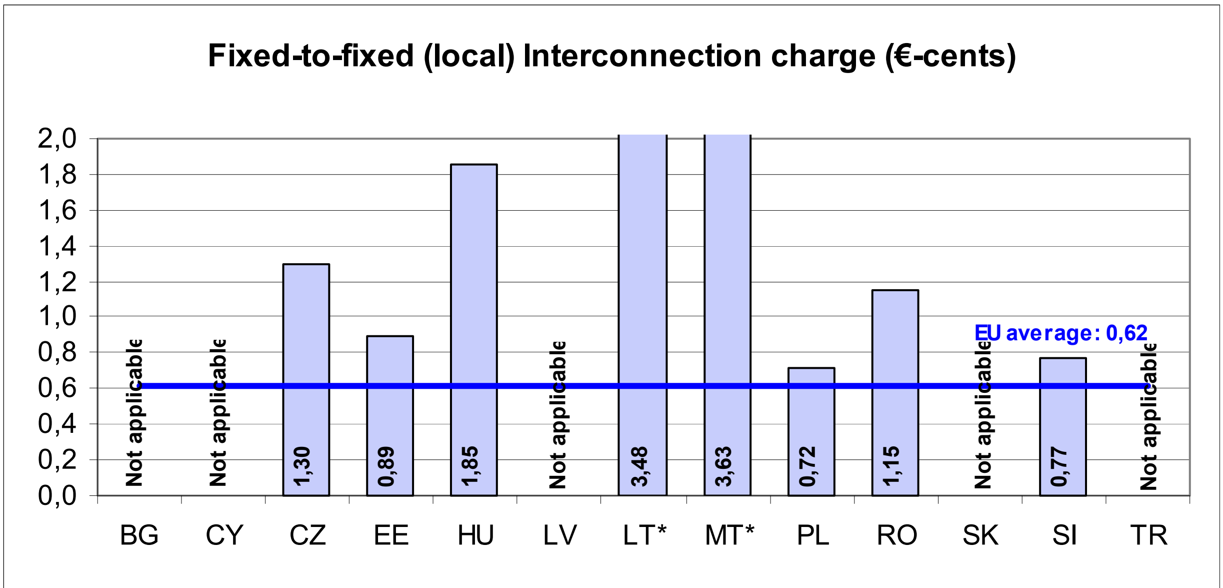
4.11.1 Fixed-to-fixed interconnection charges

The following three charts show the per-minute interconnection charges for call termination on the incumbent's fixed network, based on a three-minute call at peak time (weekdays 11:00).

In three countries (Bulgaria, Slovakia and Turkey), the fixed-to-fixed interconnection has not been provided yet. Not all types of interconnection are applied, e.g. local-level interconnection is not applied in Cyprus or Latvia, in Malta the double transit is not implemented due to the geographical size of the country. In Slovenia the charges are applied for operators that are connected to all the exchanges depending on a specific type of interconnection, in other cases the interconnection charges are higher (this is valid for mobile-to-fixed charges as well).

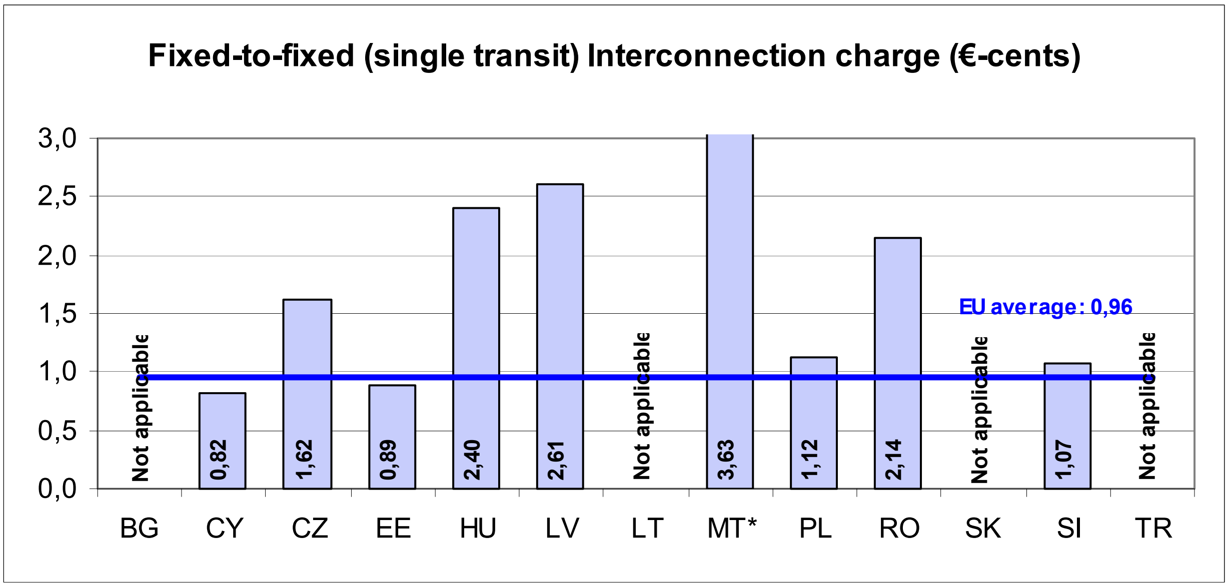
The charts also include the EU average charge (taken from the EU 9th implementation report, i.e. as of August 2003) in the form of a blue line.

Chart 43: Fixed-to-Fixed interconnection charges for call termination on fixed network of incumbent operator – local level as of 30 June 2003



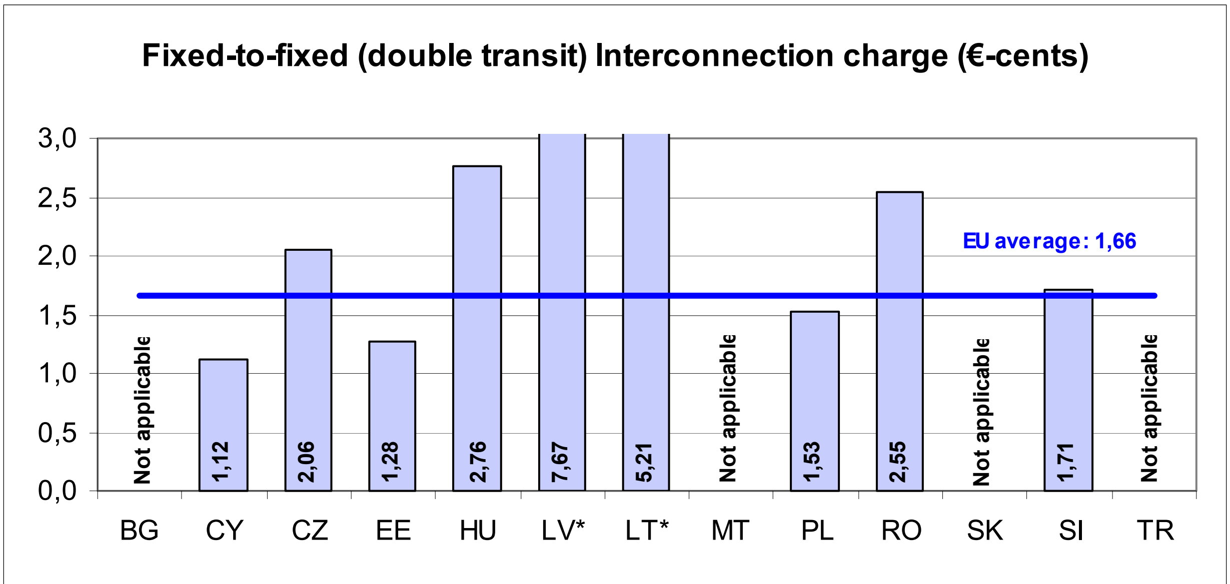
Source: NRAs
* Out of scale

Chart 44: Fixed-to-Fixed interconnection charges for call termination on fixed network of incumbent operator – single transit as of 30 June 2003



Source: NRAs
* Out of scale

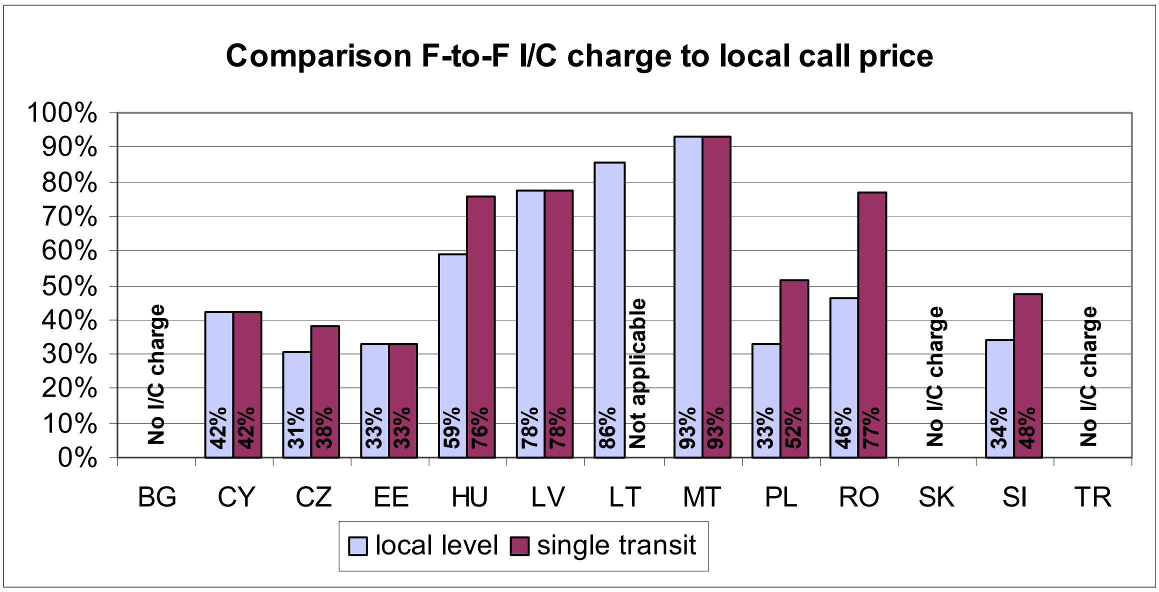
Chart 45: Fixed-to-Fixed interconnection charges for call termination on fixed network of incumbent operator – double transit as of 30 June 2003



Source: NRAs
* Out of scale

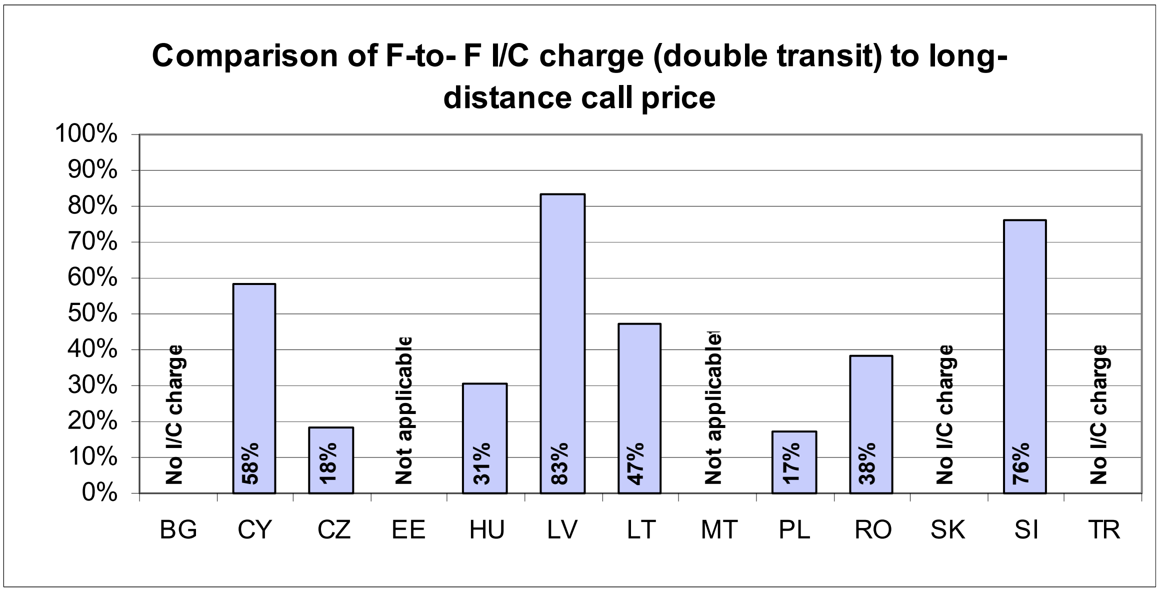
For demonstration of the relation between interconnection charges and prices of national calls applied by the fixed incumbent, the following charts are used. The charts show the ratio between the respective interconnection charge (local level, double transit) and the price of a national call (local, long-distance).

Chart 46: Comparison of fixed-to-fixed interconnection charge (local level and single transit) to the price of a local call as of 30 June 2003



Source: NRAs

Chart 47: Fixed-to-Fixed interconnection charges for call termination on fixed network of incumbent operator – double transit as of 30 June 2003



Source: NRAs

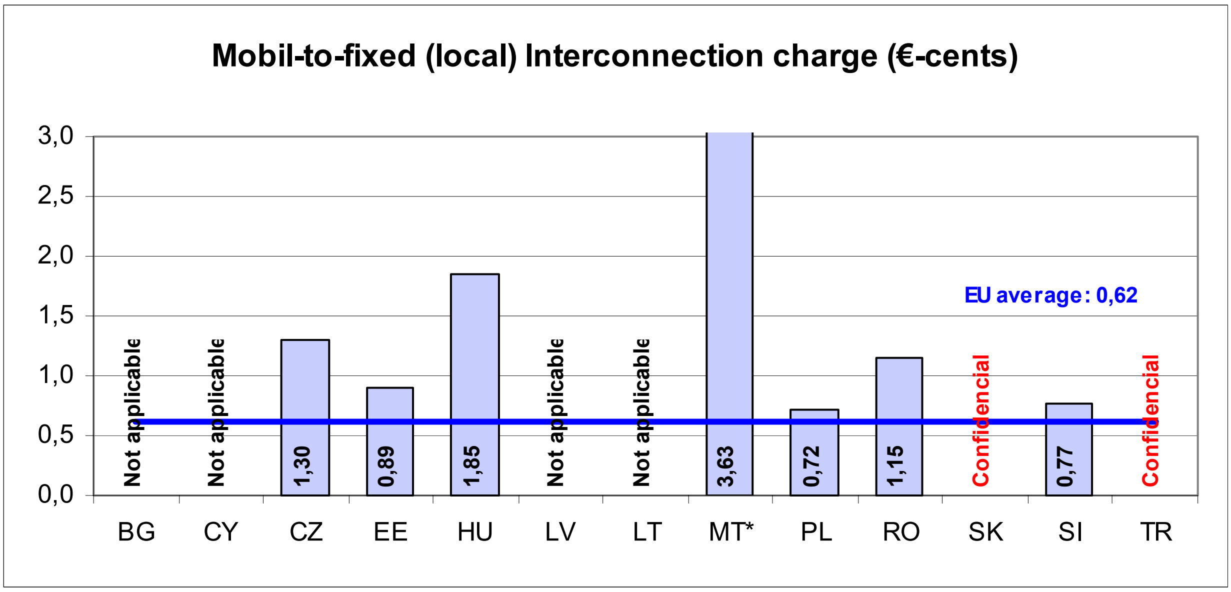
4.11.2 Mobile-to-fixed interconnection charges

The following three charts show per-minute interconnection charges for calls from the mobile networks terminating in the network of the fixed incumbent operator, based on a three-minute call at peak rate.

Mobile-to-fixed interconnection exists in all EUCCs (with the exception of Cyprus) but in some countries not all the three types of interconnection are applied (e.g. in Bulgaria only double-transit is applied, in Malta double transit is not applicable due to the physical size of the country, and in Lithuania and Latvia local level transit is not applied). In Bulgaria the charge is not regulated but it is likely to become regulated after adoption of the new telecommunication law. Data for Slovakia and Turkey are treated as confidential.

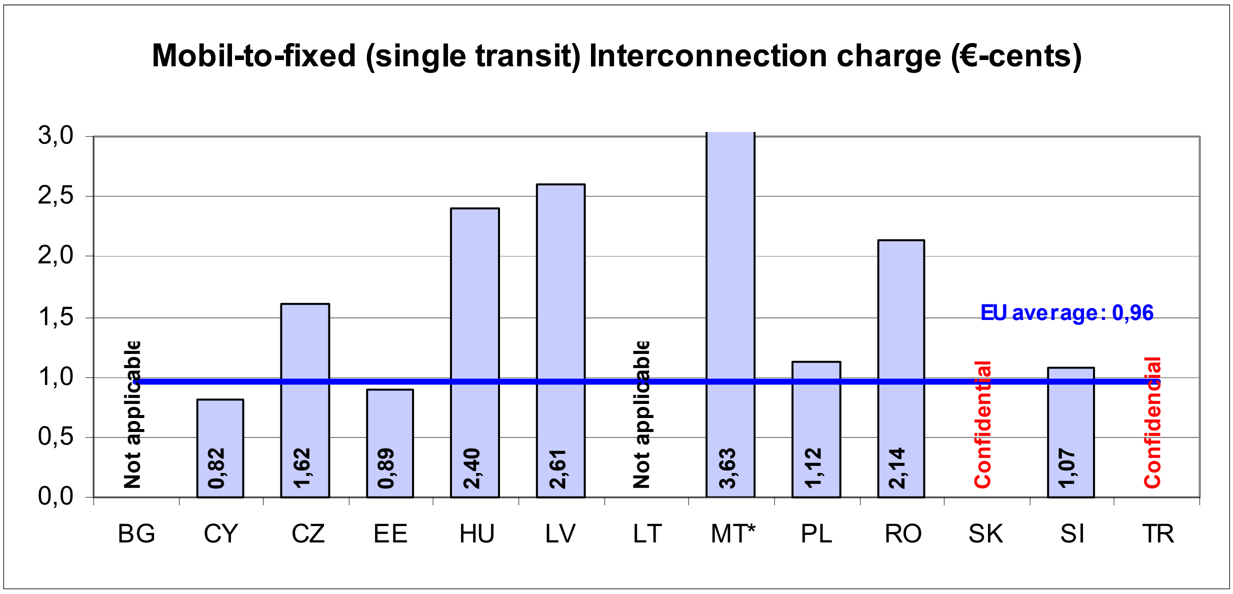
The charts also indicate the EU average charge (taken from the EU 9th implementation report, i.e. as of August 2003) in the form of a blue line.

Chart 48: Mobile-to-Fixed interconnection charges for calls from mobile network terminated in the network of the fixed incumbent operator – local level as of 30 June 2003



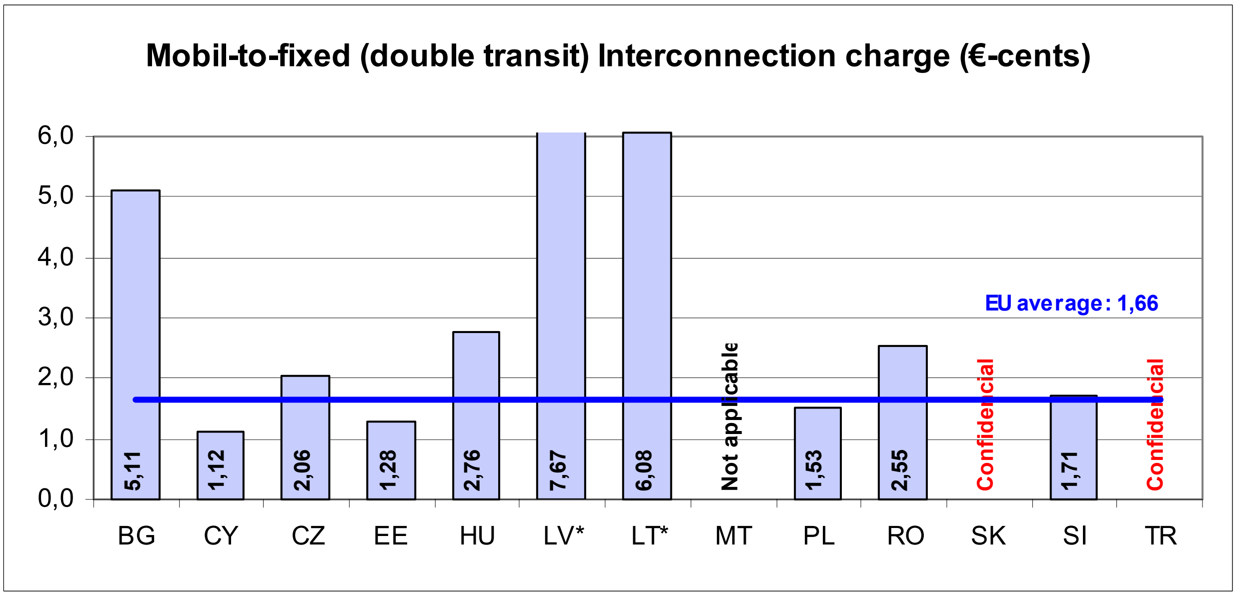
Source: NRAs
*Out of scale

Chart 49: Mobile-to-Fixed interconnection charges for calls from the mobile network terminated in the network of the fixed incumbent operator – single transit as of 30 June 2003



Source: NRAs
* Out of scale

Chart 50: Mobile-to-Fixed interconnection charges for calls from the mobile network terminated in the network of the fixed incumbent operator – double transit as of 30 June 2003



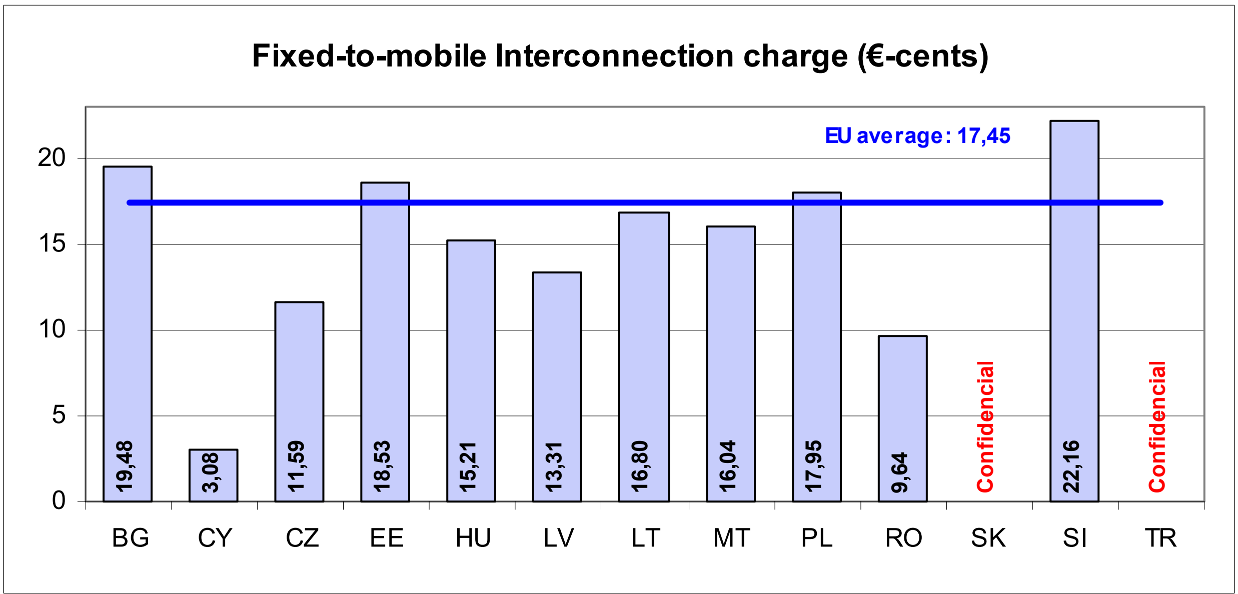
Source: NRAs

4.11.3 Fixed-to-mobile interconnection charges

The chart below shows per-minute interconnection charges for call termination in the network of the incumbent's mobile subsidiary (not applicable in Lithuania, the value refers to the average of all operators, and in Romania, the value is the same for all mobile operators). The charges in the report are calculated on a three-minute call at the peak rate. The chart also includes the EU average charge (from the EU 9th implementation report, i.e. as of August 2003) in the form of a blue line.

The data for Slovakia and Turkey are treated as confidential. These interconnection charges are very similar to the EU average. Only the Czech Republic and Romania applied significantly lower charges in comparison with the EU average. The charge newly set in Cyprus is extremely low. In Poland the charge is reported as not regulated and agreed-upon between the operators (the presented value was valid as of 31 January 2003).

Chart 51: Fixed-to-mobile interconnection charges as of 30 June 2003



Source: NRAs

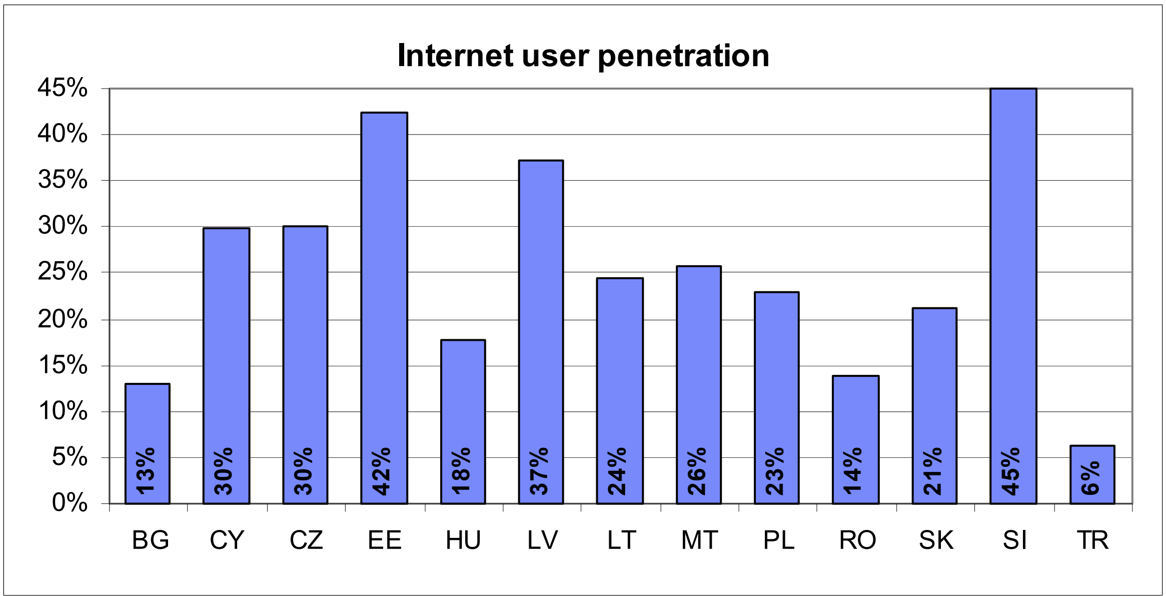
4.12 Internet

This chapter provides an overview of the Internet market by analysing the number of Internet penetration rates, Internet Service Providers (ISP), number of Internet hosts and dial-up and xDSL Internet access costs.

The Internet users' penetration is based on an estimated number of users. Sources of information are not comparable (different methodology of definition of Internet users in terms of age, means of access, time period etc.) and therefore the penetration rates should be regarded as indicative only and definitely not comparable. This reduces the accuracy of rates comparison across EUCCs.

The positive correlation between the level of liberalization of fixed telephony market and the Internet penetration rate can be observed through the whole evaluated timeframe. The highest levels are reached in the most liberalized post-communist markets in Estonia and Slovenia, (the level in Malta is high due to the historical development of market even though it is still not liberalized). Generally, in all countries where the updated data were available the penetration rate has increased (average 3%) in comparison with the 3rd report, with the exception of Cyprus and Malta. The highest growth was observed in Latvia, compared with the 3rd report, it was 23%.

Chart 52: Internet users' penetration in EUCCs as of 30 June 2003

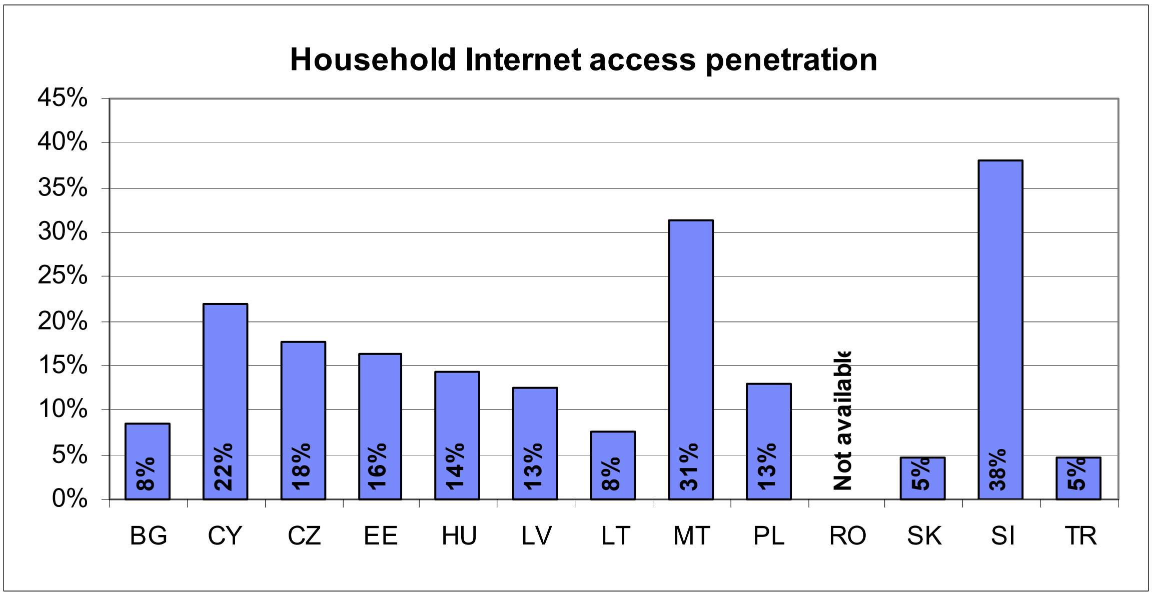


Source: NRAs

An important indicator on Internet usage is residential household penetration, i.e. the percentage of households connected to the Internet. This number is rather estimated and the data are not absolutely comparable across EUCCs like in the case of Internet users' penetration. Updated data for Latvia, Malta and Poland are not available. The presented values are taken from the 3rd report (as of January 2003). Information for Romania is not available at the moment, but NRA has concluded a contract with a market research company for conducting a survey over the whole telecom market.

In comparison with EU member states the penetration is lower than the rates of most EU member states as of June 2003).

Chart 53: Household Internet access penetration in EUCCs as of 30 June 2003



Source: CZ – fixed incumbent operator, other EUCCs - NRAs

Most of the Internet connections in EUCCs are dial-up connections. On the other hand, the broadband connections (ADSL, cable, wireless) are becoming more and more popular and used. The development of ADSL lines is shown in the table below.

The number of lines in EUCCs is given in table 26 and the trends are documented by the data as of 30 June 2003, 31 December 2002 and 30 June 2002. ADSL lines in Hungary, Malta, Slovenia and Turkey are not distinguished between business and residential lines. In Slovakia all the lines are business lines. The numbers of lines increased in all countries as of 30 June 2003.

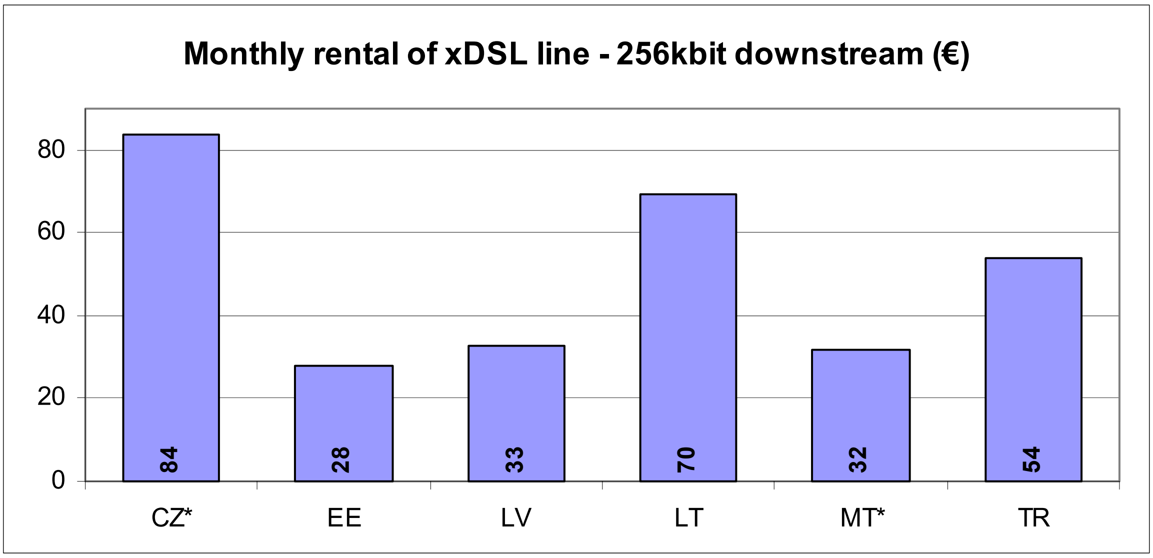
Table 26: Number of xDSL lines in EUCCs

Country	As of 30 June 2003			All lines as of 31 December 2002	All lines as of 30 June 2002
	Residential lines	Business lines	All lines		
Bulgaria	0	0	0	0	0
Cyprus	7 593	510	8 103	6 312	4 200
Czech R.	2 593	6 340	8 933	0	0
Estonia	28 000	17 600	45 600	31 406	22 500
Hungary	Not available	Not available	65 156	44 341	28 118
Latvia	7 024	6 592	13 616	10 012	5 585
Lithuania	6 887	8 405	15 292	10 522	6 129
Malta	Not available	Not available	10 527	9 906	7 858
Poland	32 163	6 250	38 413/148 000 1)	116 673	87 530
Romania	318	2510	2828	0	0
Slovakia	0	425	425	0	0
Slovenia	Not available	Not available	26 212	16 735	7 956
Turkey	Not available	Not available	6 120	2 999	0

Source: NRAs (CZ – fixed incumbent operator)
1) The first figure represents only xDSL lines; the second figure represents xDSL and also SDI lines with 115 kbps bandwidth (about 110 000 of these lines as of 30 June 2003).

The charts below provide information on the monthly rental charges of xDSL lines provided by fixed incumbent operators. In Bulgaria, xDSL lines are not provided. In Romania, there is no standard offer; the prices usually vary depending on the bit rate and the leased line length and are set individually. The listed fees include ISP connectivity charges. The provided charges are valid as of 30 June 2003 and include fees for usage and for equipment rental where applicable.

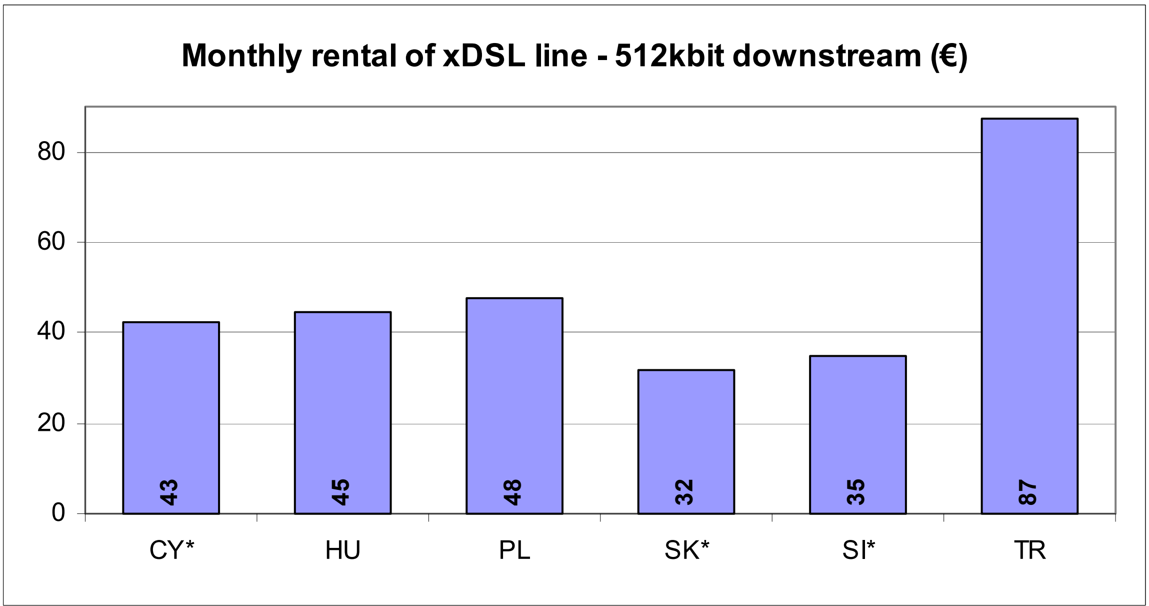
Chart 54: Monthly line rental charge for xDSL line (256 kbit downstream bit rate) of fixed incumbent operator for residential users in EUR as of 30 June 2003



Source: NRAs

Note: CZ – offered bit-rate is 320/128 kbps, MT – offered bit-rate is 128/64 kbps

Chart 55: Monthly line rental charge for xDSL line (512 kbit downstream bit rate) of fixed incumbent operator for residential users in EUR as of 30 June 2003

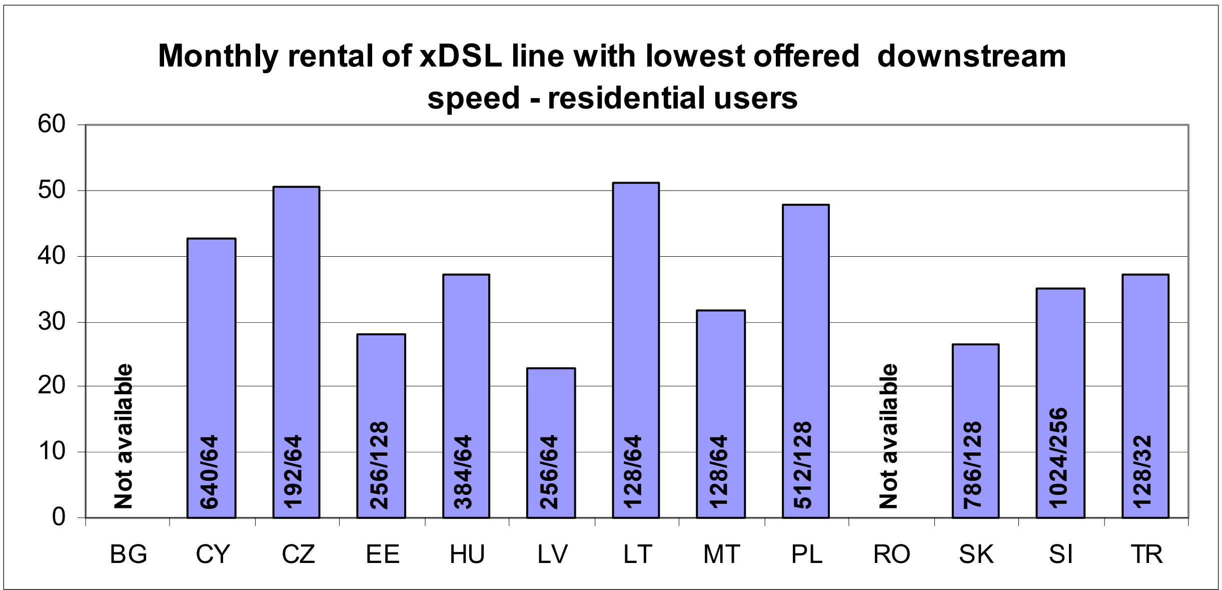


Source: NRAs

Note: CY – offered bit-rate is 640/128 kbps, SK – offered bit-rate is 768/128 kbps, SI – offered bit-rate is 1024/256 kbps

The chart below shows the comparison of the prices of xDSL lines with the lowest offered downstream bit rate. The chart displays the applicable bit rate (downstream/upstream) for each country.

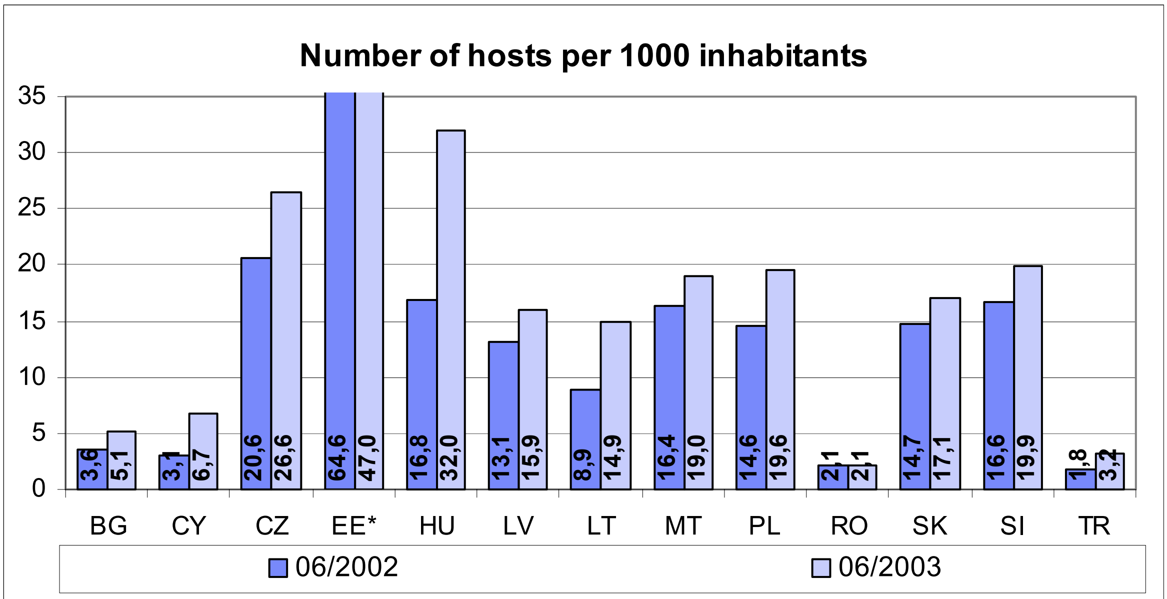
Chart 56: Monthly line rental charge of xDSL line (lowest offered downstream bit rate) of fixed incumbent operator for residential users in EUR as of 30 June 2003



Source: NRAs

An additional indicator that describes the level of development of the Internet market is the number of Internet hosts in the EUCCs. The number of hosts is provided by RIPE and the ratio in the chart below is calculated using the number of inhabitants as presented in table 3. The ratios are calculated for the number of hosts in June 2002 and June 2003.

Chart 57: Number of Internet real hosts per 1000 inhabitants in June 2002 and June 2003



Source: ISC – RIPE (http://www.ripe.net/)
* Out of scale

The other way of describing competition on the Internet market is the number of Internet service providers (ISP). This information and an estimate of the market share of ISP that is part of the fixed incumbent operator in terms of number of subscribers are included in the table below.

Table 27: Number of ISPs and estimate of market share of ISP of fixed incumbent operator as of 30 June 2003

Country	Number of ISPs		Estimate of market share of ISP of fixed incumbent operator
	National	Local	
Bulgaria	11	**159**	**9%**
Cyprus	18	0	60%[1)]
Czech R.	8	132	**24%**
Estonia	**55**	**65**	**64%**
Hungary	90	65	**32%**
Latvia	**38**	**71**	**est.33%**
Lithuania	40	**35**	**67%**
Malta	**17**	0	**24%**
Poland	**700**		92%[1)]
Romania	**360**		Not available
Slovakia	**143**		**48% of customers, 25% of revenues**
Slovenia	**25**	**37**	Biggest [1)]
Turkey	**95**		25%

Source: CZ – fixed incumbent operator, other EUCCs - NRAs

[1)] Data as of 31 January 2003

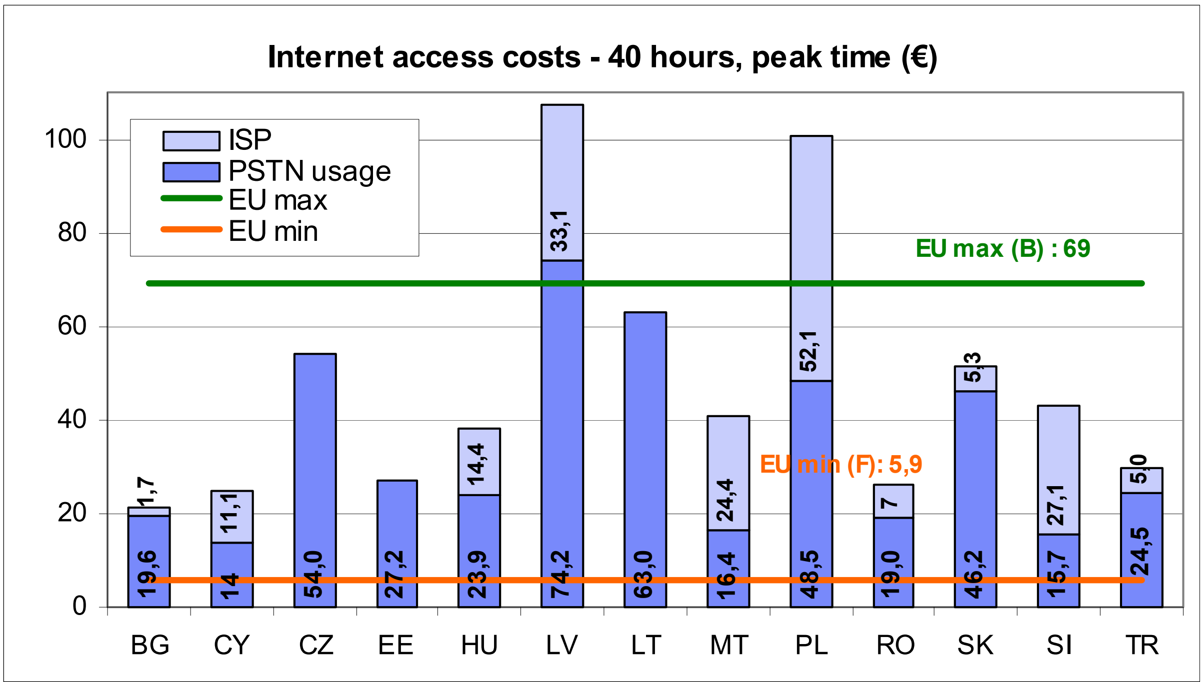
Residential users in EUCCs predominantly use dial-up to access the Internet, so the level of Internet usage is generally connected with the level of dial-up Internet access costs. Two components are analysed below:

1) PSTN usage charge: the price of local telephone calls to an ISP (the best one available). Calculated as the equivalent of 40 calls of one-hour duration at peak (representing a business customer) and off-peak time (20 calls, i.e. 20 hours, representing a residential customer);
2) ISP charge: the lowest price of Internet access charged by the ISP (the best available rate for the duration of the service concerned).

The charges include VAT for residential users (20 hours off-peak) and exclude VAT for business customers (40 hours peak). Peak time refers to 11:00 o'clock on weekdays and off-peak rate to 20:00 o'clock on weekdays.

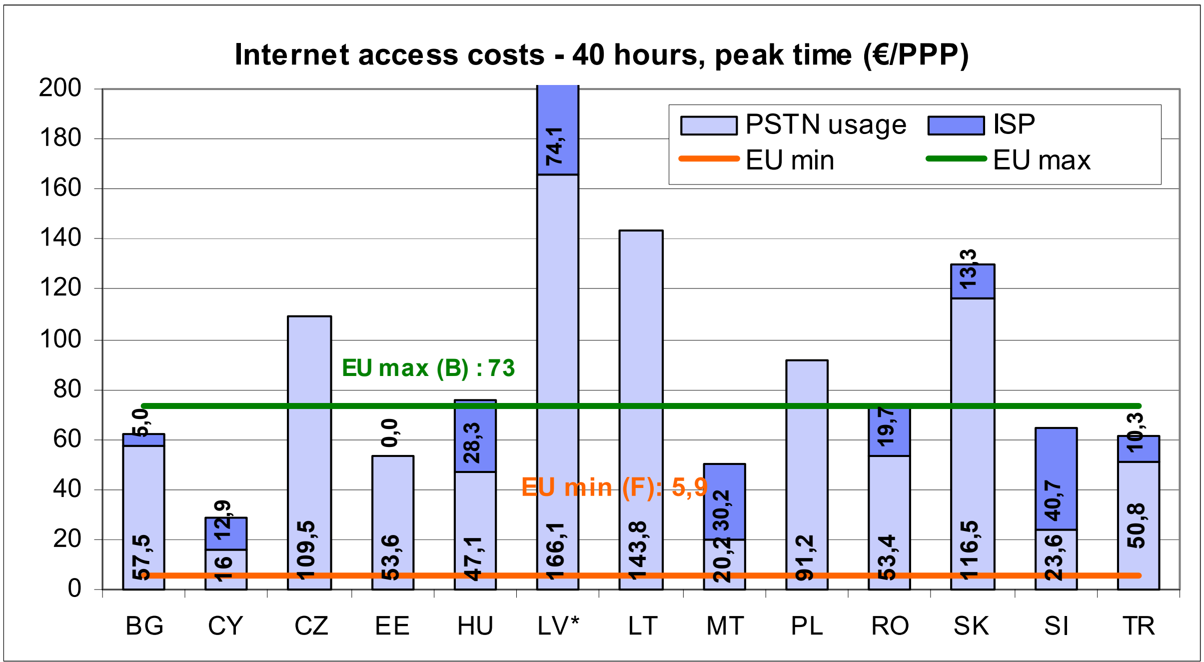
The charts below are expressed in nominal Euro and in PPP terms. Charts also indicate the EU minimum and maximum charges. Nominal charges are taken from the EU 8th implementation Report, because no such data were presented in EU 9th Implementation report

Chart 58: Dial-up Internet access cost – 40 hours at peak time in nominal EUR as of 30 June 2003



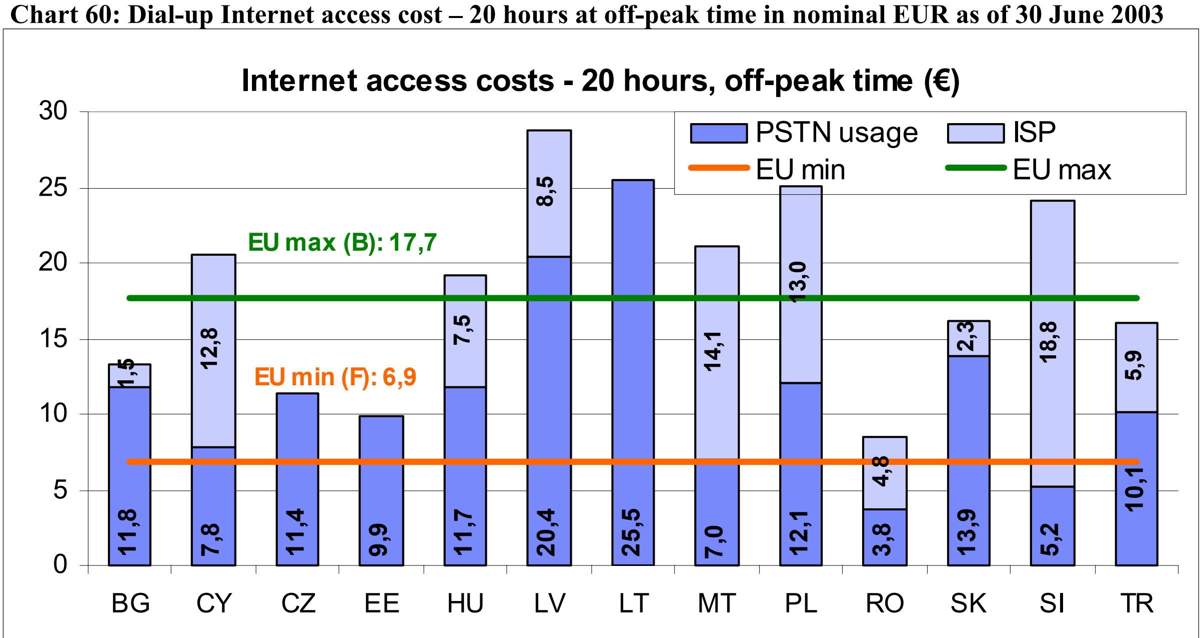
Source: NRAs

Chart 59: Dial-up Internet access cost – 40 hours at peak time in EUR/PPP as of 30 June 2003



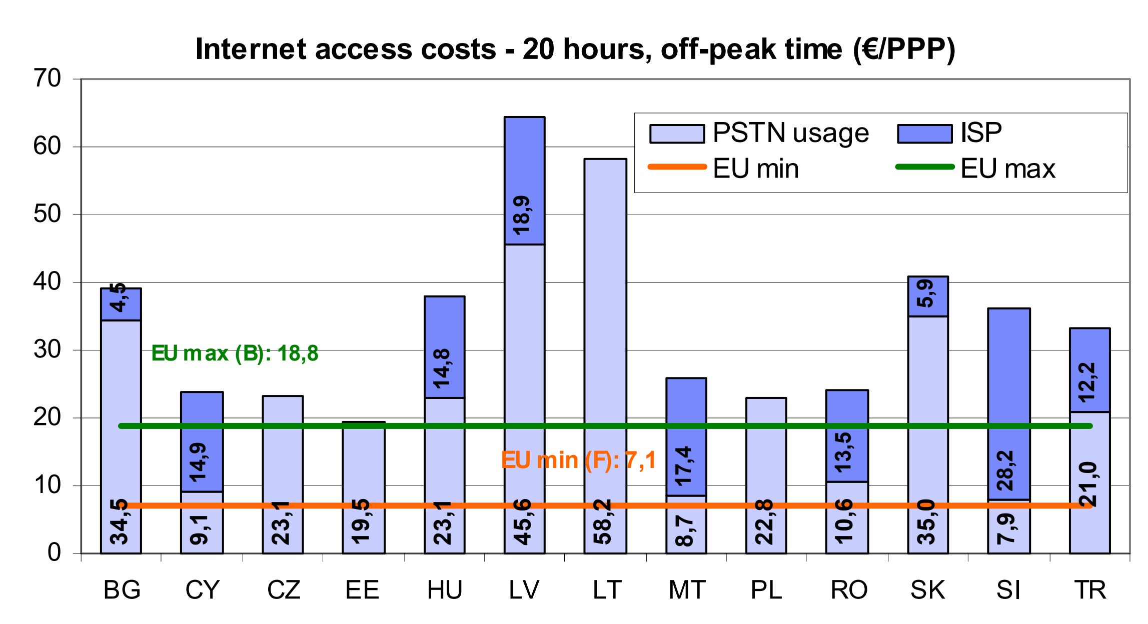
Source: NRAs, PPP exchange rates - European Commission DG ECFIN
*Out of scale

Chart 60: Dial-up Internet access cost – 20 hours at off-peak time in nominal EUR as of 30 June 2003



Source: NRAs

Chart 61: Dial-up Internet access cost – 20 hours at off-peak time in EUR/PPP as of 30 June 2003



Source: NRAs, PPP exchange rates - European Commission DG ECFIN

4.13 Financial indicators of fixed incumbent operators

Three most important financial indicators of the fixed incumbent operator in each country have been gathered. All are described as margins in percentage:
ROCE = Net Profit before Interest and Taxes / Total Capital Employed
EBITDA margin = EBITDA / Operating Revenues
EBIT margin = EBIT / Operating Revenues

EBITDA stands for “Earnings before Interest, Taxes, Depreciation and Amortization”
EBIT stands for “Earnings before Interest and Taxes”

Table 28: Most important financial indicators of fixed incumbent operator for year 2002

Country	ROCE	Inflation rate	EBITDA margin	EBIT margin	Average number of employees
Bulgaria	35%	4%	46%	37%	23 047
Cyprus	13%	3%	53%	25%	2 417
Czech R.	2%	2%	49%	7%	14 322
Estonia	12%	4%	40%	13%	2 022
Hungary	17%	5%	36%	13%	9 150
Latvia	10%	2%	45%	11%	4 203
Lithuania	5%	-1%	52%	13%	4 751
Malta	18%	2%	45%	32%	1050
Poland	10%	2%	44%	20%	49 451
Romania	3%	23%	25%	5%	33 966
Slovakia	8%	3%	50%	21%	9 804
Slovenia	3%	7%	39%	8%	2 896
Turkey	62%	30%	33%	25%	63 598

Source: CZ – fixed incumbent operator, other EUCCs - NRAs

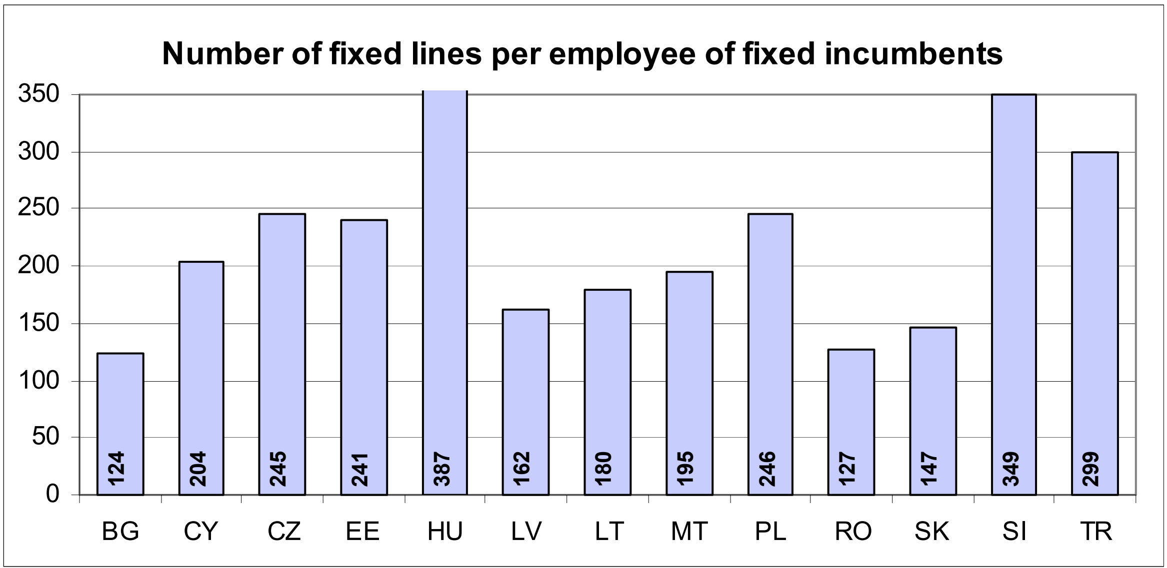
All three indicators are based on nominal values (i.e. EBITDA, EBIT and revenues of the respective operator). Hungarian data refer to the fixed lines segment of Matáv group and ROCE refers to Matáv group as a whole. Data for Cyprus incumbent are for fixed and mobile segments together.

ROCE is compared to the inflation rate in each country to put the indicator to the relevant position in each country. In Romania and Slovenia the inflation rate in 2002 was higher than ROCE. This led to a relatively low valuation of the incumbent’s assets. The figures of ROCE are not directly comparable between operators.

The EBITDA figures range from 33% to 52%, which is in line with the performance of a standard telecommunication operator. If applicable, comments for each of the EUCCs are included in the country report below.

Additionally, one non-financial indicator was chosen to illustrate the efficiency of fixed incumbent operators. This is the number of fixed lines per employee. This indicator is presented in the chart below. The updated information was received as of 30 June 2003 from all EUCC countries for year 2002.

Chart 62: Number of fixed lines per employee of fixed incumbent operators in EUCCs in 2002



Source: CZ – fixed incumbent operator, other EUCCs - NRAs

5 Country by country overview

Based on the information collected, an overview of the telecommunication sector has been prepared for each candidate country separately. Information was provided by NRAs, except where stated otherwise. The relevant date of reference is 30 June 2003 for static data and year 2002 for cumulative data, unless stated otherwise.

Bulgaria

Telecommunication market

The Bulgarian telecommunication market in 2002 amounts to 910 million EUR based on the actual data (compared with 800 million EUR in year 2001). This increase has been mainly caused by the growth in the mobile segment, although it has only a 46%-share. The fixed telephony segment has a 45%-share and the rest consists of data services (no assessment of Internet market revenues is available; the value of this market is included in the fixed telephony segment value). The mobile market is one of the less developed markets among EUCCs, with only 35% mobile penetration as of 30 June 2003.

Bulgarian fixed network is characterized by relatively high and stable penetration rates (36% inhabitants and 83% household penetration as of 30 June 2003). This situation is caused by opposite trends, when the number of residential lines is slightly decreasing while the number of business lines has increased compared with the situation at the end of 2002. The number of ISDN lines is slowly increasing in both segments. The penetration of ISDN technology is still very low, which fact is probably connected with low digitalisation of the fixed network (only 22% as of June 2003) and high number of party lines (more than half of all residential lines!). ADSL services are not provided by the fixed incumbent operator either. However, the digitalisation is increasing, and based on the installed capacity the rate is 27,5% as of 30 June 2003.

The fixed market has been liberalized since 1 January 2003 when the monopoly of the incumbent operator ended. First three alternative operators were licensed in July 2003 and it is expected that before the end of the year the number of alternative operators for provision of fixed voice telephone service will grow to five.

Ownership of fixed incumbent and mobile operators

No change in ownership structure of the fixed and mobile telecommunication operators has been observed since January 2003. As of 30 June 2003 the fixed incumbent operator is fully owned by the state. Mobile operators have 100% private owners. Mobiltel is owned by MobilTel Holding (Austria) and "Cosmo Bulgaria Mobile" is owned by OTE (Greece). The incumbent holds 39% of RTC, an operator with an NMT license, 49% of this operator is owned by Cable & Wireless (UK).

National Regulatory Authority

NRA in Bulgaria, Communications Regulation Commission (CRC, www.crc.bg), is an independent regulatory authority. CRC works in the area of preparation of secondary legislation, licensing and authorization management, spectrum monitoring, numbering, local access, interconnection and general competition on the market.

The NRA is an independent authority financed from the fees paid by operators (for licenses, numbers, spectrum etc.). As of 30 June 2003 the number of CRC employees decreased to 210 (220 as of 31 January 2003) out of which 20 are handling directly the regulatory tasks.

Licenses

No change in the licensing regime has occurred; individual licenses in Bulgaria

are issued for development and operation of public networks and provision of fixed voice telephony services. The services to be provided on the network are indicated in the individual licenses issued. Individual licenses for the operation of private networks are issued in case of usage of scarce resources, i.e. frequency spectrum and/or numbering capacity.
Fees for licenses are set, single payments are set in accordance with the level of served population and annual fees are set as a percentage of the income from regulated activities. Licenses are granted only to fixed incumbent operators and to two companies that provide payphone services. No license has been granted to an alternative fixed operator as of 30 June 2003.
Licenses in the mobile market were issued only to analogue and GSM operators (both 900 and 1800). No UMTS license has been granted as of 30 June 2003.

Numbering

According to the new telecommunication act that is supposed to be in force in October 2003, CS should be compulsory for SMP operators on the fixed voice telephony market as of 7 October 2003, CPS as of 1 January 2005, NP for fixed numbers as of 1 January 2009 and NP for mobile numbers as of 1 January 2007.
The situation of CS is not in line with the fact that no alternative operators were licensed as of 30 June 2003. All numbering resources are allocated only to the fixed incumbent, but they are available to all operators. Only the single fees for fixed numbers are set; fees for access codes and signalling points are not defined.

USO and Quality of Service

The fixed incumbent operator is the only operator having USO according to the individual license granted to him, and all basic features of USO are covered. According to the new telecommunication act, a fund for compensating the net costs from provision of universal service shall be created.
QoS obligations are set to all public operators and service providers in the individual licences issued. QoS is measured by the fixed incumbent according to ETSI EG 201 standard. Values for year 2002 were provided to CRC, but the fixed incumbent has no obligation to publish the results.

Fixed Tariffs

Fixed tariffs are still undergoing rebalancing and the tariffs will have to be further rebalanced. The requirement for cost-oriented pricing is included in the new Telecommunications Act. Tariff rebalancing shall be completed with the introduction of cost-oriented prices by 1 January 2004 due to commitment to acquis. The regulation is carried out in form of a price cap.
In accordance with the plan, the fixed incumbent has increased the prices of rental charges and national calls as on 30 June 2003, compared with January 2003. Despite this step, the residential monthly rental charges are the lowest among EUCCs. Prices of local calls are very low even after the increase (about 30% of EU average); prices of long-distance calls are comparable with the EU average. Prices of international calls have been decreased but the price of a call to the USA is still significantly above the EU average.
The fixed incumbent has applied two different charging systems, pulse-based for national calls and time-based for international calls. The minimum charge of a call is set (one unit charge).

Mobile services There are two mobile operators with GSM/DCS licenses and one with analogue license. The biggest operator serves about 70% of the market in terms of subscribers and 85% in terms of revenues. The value of the market in 2002 was about 420 million EUR. 55% of subscribers are pre-paid but generate only about 7% of revenues.

The growth of mobile penetration is slowing down. The penetration as of 30 June 2003 was only 35% compared with 33% at the end of 2002 and 25% as of 30 June 2002.

UMTS license has not been granted to any operator. GPRS services are also not provided by any of the operators, but one of them has announced the intention to start providing GPRS services by the end of 2003.

Leased lines Prices of leased lines are available for lines with bit rates up to 2 Mbit/s (prices of leased lines with higher bit rates are set individually). The fixed incumbent has decreased prices of national lines as of 1 July 2003, and they are below the EU average with the exception of the price of 200 km 2 Mbit/s line.

The prices of international lines are quoted in SDR and were reduced by 20% as of July 2003. Due to changes of exchange rates, the prices in EUR as of July 2003 are 7% lower on average. Prices of all the evaluated international lines are above the EU average prices.

Local access Local access has not been liberalized. According to the new telecommunication act, RUO shall become compulsory for SMP operators in public fixed networks from 1 January 2005.

Interconnection As of 30 June 2003, no SMP operator was defined. The new telecommunication act does not define SMP in the interconnection market. It defines SMP in the following markets:
- fixed telephone networks and provision of fixed voice telephone services;
- leased line service;
- mobile telecommunications networks and provision of voice telephone service through them.

According to the new telecommunication act, there is a requirement for cost orientation of the interconnection charges of SMP operators on the fixed voice telephony market. These operators will be obliged to implement a cost-oriented system for the interconnection charges by 7 January 2004.

Fixed-to-fixed interconnection is still not applicable in Bulgaria. For mobile-to-fixed interconnection, only double transit is applied. The level of this charge is above both the EU and EUCCs average. Fixed-to-mobile charge was slightly decreased as of 1 July 2003 and the current level is above EUCCs average but similar to the EU average.

Internet Internet segment is developing in Bulgaria, which fact can be demonstrated by the growing penetration rates. As of 30 June 2003 the Internet user's penetration rate reached 13% and the Household penetration rate reached 8%. The number of hosts is increasing as well (5 hosts per 1000 inhabitants), but it is still below EUCCs average.

The most common way of connection of households to the Internet is dial-up, but the percentage of other means is relatively high (about 25% despite ADSL services are not available). The dial-up prices were increased but are still average, compared with other EUCCs, and in line with the prices applied in EU Member states. The number of ISPs (11 national and 159 local providers) is relatively high.

Cyprus

Telecommunication market

The value of the telecommunication market in Cyprus is not available as of 30 June 2003 and the estimated value of 348 million EUR in year 2001 presents the market as one of the smallest among EUCCs. The dominant segment is the historically very well developed fixed market with 46% (excluding the 5% Internet revenues). This can be illustrated by one of the highest fixed network penetration rates among EUCCs: 69% inhabitants and 130% household penetration, which fact is unprecedented in EUCCs. Nevertheless, the operator was showing an increase of residential lines as of 30 June 2003 and facing a decrease of business lines, which fact has resulted in a slight increase of the overall number of fixed lines as of 30 June 2003.
The situation in the mobile market is not so unique, but the mobile penetration rate grew up to 67% as of 30 June 2003.
The main aspect of the telecommunication market in Cyprus is the position of the incumbent operator, which has a monopoly not only in the fixed market but also in the mobile one! This shapes the situation in all the areas evaluated, since many indicators are not applicable. The liberalization of both markets started on 1 January 2003, but no alternative operators were active on the market as of 30 June 2003.

Ownership of fixed incumbent and mobile operators

Cyprus Telecommunication Authority (CYTA) is the incumbent operator fully owned by state. The company is the monopoly provider of services on both the fixed and mobile markets.

National Regulatory Authority

The Office of the Commissioner of Telecommunications and Postal Regulation (OCTPR), the Regulatory authority in Cyprus, became operational at the beginning of 2002. OCTPR is involved in telecommunication areas such as Licensing, Numbering, Interconnection, Universal Service, Local Access, and also Postal Services etc.
NRA will be financed from license fees since 2003, but as no licenses have been granted so far, the budget is financed provisionally by a state loan. As a new office, OCTPR is still growing: as of 30 June 2002 there were 10 employees, as of 30 June 2003 already 20 employees and the plan is to grow to 33 employees in 2003. 13 employees (from OCTPR and from the Ministry of Communications and Works) are dedicated directly to telecommunications regulatory matters.

Licenses

Due to the monopoly position of the incumbent operator, other licenses have not been issue so far in Cyprus. However the process for granting additional GSM and UMTS licenses has already started. The auction for the 2nd GSM license was to take place in October 2003
Fees for licenses are set in terms of single payment (about 850 EUR) and annual fee (set as a percentage of gross revenues).

Numbering

Carrier selection and pre-selection for national and international calls were

planned to become available to the public (as part of the RIO) on 10th October 2003, but for calls to mobile and to non-geographical numbers they will not be available sooner than in 2004. Number portability is supposed to be available by the end of 2003.
All three facilities will be of any use to end users only if alternative operators are available on the market, so this will be the basic necessary change to be done on the market.
Since the last report (as of June 2002) numbering fees have been set for standard fixed numbers (one-off fee of 17 EUR and annual fee of 14 EUR per block of 1000 numbers) and carrier selection codes (one-off fee of 8503 EUR and annual fee of 6802 EUR). No fees are set for signalling point codes.

USO and Quality of Service

USO is imposed on the fixed incumbent operator (CYTA), which meets all the basic criteria set to a Universal Service Provider. Although CYTA was the only operator present on the market in June 2003, the respective law on recovering USO costs is in force. Due to the current situation on the market, the date and form of introducing of the mechanism has not been decided yet.
Regulations on Quality of Service have been published by OCTPR, defining that all QoS indices conform to ETSI EG 201 769-1. The values of QoS indicators for CYTA for year 2002 are available.

Fixed Tariffs

The time-based charging system is applied to the fixed network with a minimum charge per call. Tariffs are reported as rebalanced already in 2001 and the incumbent also revised some tariff groups during the second half of 2002. No regulation is applied to fixed tariffs, but the operator is obliged to submit the tariff changes to NRA one month prior to their effective date, and the changes should be publicly available 14 days in advance.
The level of rental charges for business and residential fixed lines does not significantly differ from the EU countries and are slightly below the EU minimum. The prices of national (charges for all national calls are unified) calls have been among the lowest ones in EUCCs and well below the EU average since 2002.
The international calls are the lowest in comparison with other EUCCs and the EU average as well. Prices of international calls have been lowered by almost 50% since October 2002. The prices are extremely low even despite non-existence of any alternative (both traditional and VoIP) operators.

Mobile services

There is only one monopoly mobile operator (CYTA) with licenses for analogue, GSM and DCS networks. The penetration rate of 67% is average in comparison with other EUCCs at the end of 2002, but the growth since the end of 2001 has been significant (46%) and some potential for future growth exists.
Licensing of additional GSM and UMTS operators has already started, but no additional licenses have been issued by 30 June 2003. The auction process for granting of 2nd GSM license was postponed until the 30th of October 2003 after the possible bidders had asked for an extension so that they could reassess their business plans. The government of Cyprus has informed the EU and got the permission to move the date of the GSM auction process to the

end of October.

Leased lines Leased lines with all evaluated bit rates up to 34 Mbit/s for national and international lines and for all lengths (up to 200 km for national) are provided and prices are available. The prices of leased lines are generally low in comparison with other EUCCs, but some 200 km lines prices are higher than the EU average (mid 2002).

Local access Local access is under the full monopoly of CYTA. However, the regulation on local access exists and Reference Unbundling Offer is compulsory for the fixed incumbent operator, but RUO will be drafted by CYTA and will be approved by the NRA. RUO will be published in May 2004

Interconnection Due to the persisting monopoly position of CYTA in the fixed and mobile markets as of 30 June 2003, the interconnection is not applicable in Cyprus.

Internet As per the latest updates on 30 June 2003 the Internet is not a so well developed segment in terms of Internet user penetration (11%) and household Internet access penetration (22%).
Broadband access offered by CYTA is popular as 1,3% of all licenses have ADSL installed (this is one of the highest rates among EUCCs). Dial-up Internet access costs at peak time are relatively, low but the off-peak time access costs are above the EU maximum charge and also above the EUCCs average.

Czech Republic

Telecommunication market

The estimated value of the telecommunication market in the Czech Republic is about 3,5 billion EUR in 2002. This market is the fourth biggest market among the 13 accession countries and the third largest one among the 10 acceding countries.

The structure of the market is showing the same trend over the last two years with a growing share of the mobile segment (estimated share of 57%) and decreasing share of the fixed telephony segment (about 35%). The number of mobile subscribers is still growing, while the number of fixed lines is stagnating.

The number of lines of the fixed incumbent operator (Český Telecom) is continually decreasing, but new fixed lines are provided by alternative operators. This reflects in the fixed network penetration rates in mid 2003; 39% inhabitant penetration and 66% household penetration (compared with 38% and 71% at the end of 2001) show the focus on business customers as the residential penetration rate has decreased.

Since 2001 when liberalization of the telecommunication market started the fixed incumbent operator has been continuously loosing its share in the national and international calls market, the comparison of mid 2003 to end 2002 shares in terms of revenues according to the information provided by the fixed incumbent is as follows:

- 83% compared with 96% of local calls market,
- 63% compared with 71% of long-distance and international calls market,
- 68% compared with 80% of calls-to-mobile market,
- 94% compared with 98% of dial-up Internet calls market.

71 alternative operators are present on the market as of 30 June 2003, 43 of them are licensed for provision of voice telephony services (2 of them operate only in local conditions).

Ownership of fixed incumbent and mobile operators

No change has occurred in the ownership structure of the fixed incumbent operator since 2002. 51,1% of shares are owned by the state (National Property Fund); the main strategic partner (Telsource) is planning to sell its 27% share in the fixed incumbent. Privatisation of the incumbent is planned not sooner than in 2005. The fixed incumbent also has a majority in the biggest mobile operator (51%) and is currently acquiring the remaining 49%. The other two operators have private owners, the second biggest operator T-Mobile (called Radiomobil before May 2003) is controlled by Deutsche Telekom, the smallest operator (Český Mobil) is owned by TIW.

National Regulatory Authority

NRA in the Czech Republic, the Czech Telecommunication Office (the CTO, www.ctu.cz), was established in 1993 and on 1 July 2000, it was transformed into an independent Regulatory Authority. Activities of the CTO are financed from the state budget (the CTO budget for year 2002 was about 8 million EUR). The CTO engages in the areas of licensing, prices and charges of telecommunication services, interconnection rules and charges and access to networks, management of the frequency spectrum, number allocation, approval of telecommunication equipment, USO, inspection etc. The CTO

has 476 employees as of 30 June 2003, out of whom 22 handle regulatory tasks.
Part of the telecommunication-related responsibilities is also vested in the Ministry of Informatics (www.micr.cz) that is involved in preparation of the legal framework (6 employees).

Licenses

No change in licensing has occurred since the last report, licensing in the Czech Republic is defined for the provision of public telephony services over the public fixed telecommunication network, for the provision of public telephony services over the public mobile telecommunication network and for the establishment and operation of the public telecommunication network. For all these licenses only a one-off administrative fee of about 3,200 EUR is charged.

Numbering

CS, CPS, and NP for fixed geography numbers are in operation as of 30 June 2003. In total, 29 operators have been allocated an access code, and 10 of them are providing the services to customers via CS. NP for mobile numbers have not been set yet. According to the agreement of operators approved by the CTO, the delivery period for CPS is set to 25 days and for NP it is set to 35 days.
The numbering fees for standard telephone numbers, CS and National and International Signalling Points codes are set. They all consist of a fixed single payment of about 160 EUR for all types and an annual payment different for each type.
Numbering resources are provided to the incumbent operator and alternative operators, which about 30% of all allocated fixed numbers are assigned.

USO and Quality of Service

USO is imposed by law on the fixed incumbent operator, which provides all the basic services generally required by USO and reported in the report above.
The mechanism for recovery of the loss caused by provision of USO is stipulated by the law and applied in practice as well. The level of loss in 2002 was calculated at the amount of 230.000 EUR, while in 2001 it was 8,4 million EUR. The decrease in the amount is caused by the evidence for the major part of the loss, which has not been approved, and the fixed incumbent may ask for compensation of the rest of 2002 loss in 2004. The loss is financed by all operators (fixed, mobile, cable) proportionally to the level of their revenues.
The number of payphones has been continuously decreasing over the evaluated period. The penetration rate (2,57 payphones per 1000 inhabitants as of 30 June 2003) is controlled by the CTO and therefore it is one of the highest rates among EUCCs.
Quality of Service is guaranteed and controlled according to ETSI EG 201 standard by the CTO. The values of fixed incumbent operator for year 2002 have been provided to the CTO but not published yet. They show a significant improvement in all areas with the exception of “Response time for directory enquiry services” where the average time is slightly worse compared with 2001 results.

Fixed Tariffs The tariffs of the fixed incumbent operator are not reported as fully rebalanced yet. The CTO is applying the regulation in the form of a price cap (the last report on tariffs development was published in January 2002).

Time-based charging system is applied in the network of the fixed incumbent operator as a unit charge system with an applied minimum charge for a call. Both business and residential customers may choose from several calling plans; new plans were introduced in April 2003 for both types of users. The price level of the calling plans does not significantly differ from that of EU countries (it is lower in fact). The fixed incumbent also offers a plan for low-end residential users. The monthly fee for standard and frequently used plans and also for low-end residential users also includes a free calling credit (about 30% for standard residential plan). No change in the prices of standard calling plans has occurred since the beginning of 2002.

The prices of national calls of fixed incumbent have remained unchanged since the beginning of 2002 and are very similar to the EU average (mid 2002). Prices of alternative fixed operators are lower; a more significant difference is in case of long-distance calls.

Prices of international calls as of 30 June 2003 have not changed compared with the end of 2002. These prices are low in comparison with other EUCCs but the incumbent is facing strong competition from alternative operators, when charges of less expensive alternative operators are about half of the price of the incumbent.

Mobile services Licenses for all types of networks (analogue, GSM, DCS, UMTS) have been already issued in the mobile market. The oldest operator (Eurotel) is the holder of all types of licenses, the second oldest operator (T-Mobile) has GSM, DCS and UMTS licenses, and the last entrant (Český Mobil) holds only GSM and DCS licenses.

Mobile services in the Czech Republic are highly developed. The three operators are competing on the mobile market with estimated revenues of about 1.9 billion EUR in 2002. The total number of subscribers has reached almost 9 million and the penetration rate grew to about 88% by mid 2003 (compared with 84% at the end of 2002 and 68% at the end of 2001). This is the highest rate among EUCCs and well beyond the EU average of mid 2002 (75%). On the other hand, the growth is driven by pre-paid packages and the ARPU is therefore decreasing. This happens also due to the strong price competition.

All three operators provide GPRS services (the number of GPRS users is treated as confidential by all operators). The two biggest operators have been also granted UMTS licenses (end 2001). The launch deadline has been set to the beginning of 2005 when 90% of the capital area has to be covered.

Leased lines Leased lines of all evaluated speeds and lengths are provided in the Czech Republic, but the pricing is based on individual approach in most cases. List prices exist only for national lines with speeds of up to 2 Mbit. Starting May 2003, prices of international lines are calculated individually.

Compared with the end of 2002, the list prices remained unchanged, but they are highest ones or one of highest among EUCCs and significantly above the

EU average. The CTO is currently investigating the pricing policy of the fixed incumbent.

Local access Local access had not liberalized until mid 2003. It happened in September 2003 when the RUO of the fixed incumbent became compulsory and was published. In mid 2003, there was no significant competition in the local area, there are more than 120 cable TV operators and one of the biggest operators (UPC) provides voice telephony services (reporting 3000 users as of 30 June 2003) and Internet access (reporting 19 900 subscribers as of 30 June 2003) to end users.

Interconnection Interconnection is regulated by the CTO that reported the fixed incumbent and 2 biggest mobile operators as having SMP in the respective telephony market, and set some obligations in the interconnection area as well. The interconnection charges of these operators must be cost-oriented; the cost base applied is historic for mobile operators and forward-looking for fixed operators. Interconnection charges are calculated using LRAIC methodology for call termination in fixed network and FAC for call termination in mobile network.

The RIO of the fixed incumbent was published already in 2002 but may be subject to change by the CTO in stipulated cases. 32 fixed alternative operators have an interconnection agreement with the fixed incumbent.

The interconnection charges for termination in fixed network are the same for origination in both fixed and mobile networks. These charges remain unchanged in comparison with the end of 2002, and still significantly above EU average charges. The fixed-to-mobile charges are the lowest among EUCCs and below the EU average charge. Access deficit charge was drafted but not approved by the CTO and has not been applied in practise yet.

Internet The Internet segment is well developed. No up-to-date information is available for Internet users penetration (the last available is 30% as of January 2002). Based on the estimates provided by the fixed incumbent, the household penetration as of June 2003 is 18%. The indicator of hosts per capita has increased and is the third highest among EUCCs (27 hosts per 1000 inhabitants as of July 2003).

Dial-up is still the prevailing mean of access to the Internet. Dial-up access costs have not changed in comparison with the end of 2002, and as of 30 June 2003, they are high in peak time but relatively low in off-peak time. The principle of sharing revenues is applied, when the telecom operator passes part of the Internet access revenues to ISPs, so there are many ISPs that provide the service to end-users free of charge. The fixed incumbent operator also offers several Internet packages for higher Internet users, but no FRIACO offer exists, although it is being prepared.

Broadband means of access are becoming popular. Fixed incumbent introduced ADSL services in March 2003 with relatively low bandwidth provided to residential users (192/64 and 320/128) without nay data limit. In the second half of 2003 the bandwidth was increased to 512/128 and 1024/256 kb/s with a set limit of transferred data included in the monthly fee

(10 GB and 20 GB). Flat-rate connection is offered also by CaTV and one of the mobile operators.

Estonia

Telecommunication market	The Estonian telecommunication market is one of the smallest among EUCCs. The estimated value of the market (excluding Internet dial-up revenues) in 2002 is about 418 million EUR. According to the estimate, mobile telephony dominates the market with a 49% market share, which is the highest share among EUCCs with the mobile penetration rate of 68% (as of 30 June 2003) that is not the highest one. The fixed telephony segment follows the decreasing trend present also in other EUCCs. The fixed line inhabitant's penetration rate as of 30 June 2003 is estimated at 37%, as the ISDN lines are not distinguished between BRA and PRA. Due to this fact, the rate is probably even higher. The number of ADSL lines is, together with Malta, the highest in comparison with the number of inhabitants. Digitalisation of the fixed network as of 30 June 2003 has grown up to 8% compared with 31 December 2002, and reached the digitalisation level of 82%, which is the highest growth among EUCC countries. The fixed telephony market was liberalized already on 1 January 2001. The fixed incumbent (Elion Enterprises Ltd, former Eesti Telefon) has lost some market share as there are 31 alternative operators providing public telephony services as of 30 June 2003. 99% of the population have a choice of operator for nation and international calls.
Ownership of fixed incumbent and mobile operators	No change has occurred in the ownership structure of the main telecommunication players. The state does not have a majority in any of these operators. The fixed incumbent operator Elion and one of three mobile operators, EMT, are both 100% owned by the holding company AS Eesti Telekom, of which 49% is owned by TeliaSonera, 27% is owned by the state and the rest is public. The two other mobile operators are TELE2 and Radiolinja. TELE2 is owned by TELE2 AB and Radiolinja belongs to Radiolinja (Finland).
National Regulatory Authority	NRA in Estonia (Estonian National Communications Board, www.sa.ee) has been operating since 1991. Its original technical regulation functions were supplemented with regulation of the market and competition during 1998 – 2000. The budget of the Board is financed from the state budget. As at 30 June 2003, NRA had 136 employees out of which 96 were handling directly the regulatory tasks. According to the plan, the number of employees should increase to 146 during 2003.
Licenses	A license is required for operation of a public telecommunications network if the operation is based on use of allocations of radio frequency bands from the national radio frequency allocation plan, or on use of allocations of number series from the national numbering plan. A license is also required if a telecommunications network is interconnected with a public telecommunications network or located in the territory of a foreign country. NRA issues licenses for ten years, unless the applicant requests a shorter

term. The payment for the registration/license is only one-time and insignificant, annual payments are not set.
As of 30 June 2003, there are 23 operators with a license for provision of telephone network service and 47 service providers (the license is not needed, registration only) for provision of public voice telephony services (22 nationwide and 31 local).
Licenses in mobile market have been issued for GSM and DCS. UMTS licenses were granted to operators in August 2003.

Numbering Changes to numbering were brought by the liberalization of the fixed telephony market on 1 January 2001. Carrier selection was introduced already in 2001, introduction of number portability is not decided and carrier pre-selection will be introduced in 2004.
As of 30 June 2003 there were 14 operators with allocated access codes and all of them were using the code for provision of services using carrier selection.
12% of all the allocated numbers were allocated to alternative operators. Numbering fees are set for fixed numbers, access codes and signalling points annually, no single payment is charged.

USO and Quality of Service USO is imposed by the law on operators offering public telecommunications services, i.e. all the fixed operators. An operator can apply for temporary exemption from USO requirement, which will be granted by NRA in case that at least two operators are active in the geographical area for which operator’s license is valid, and the relevant investments required for USO would exceed such investments by other operators. The mechanism for financing of USO is not applied.
Required Quality of Service is defined according to ETSI standards (ETSI ETR 138) even though not all of them are available.

Fixed Tariffs As of 30 June 2003, real-time charging system with set-up charge is applied in the network of the fixed incumbent operator. All tariffs of the fixed incumbent operator (business and residential monthly rentals and national and international calls) are lower compared with both other EUCCs and the prices in EU member states. Prices of national and international calls for alternative operators are available and are up to 6% -12 % lower than those of the fixed incumbent.
Fixed tariffs have been already rebalanced and no regulation is applied, there is only an announcement obligation for operators.

Mobile services Mobile services in Estonia are well developed. Three operators with GSM/DCS licenses are competing on the mobile market with estimated revenue of about 200 million EUR in 2002. The penetration rate reached 68% as of 30 June 2003, which represents and enormous growth in comparison with 54% at the end of 2001.
Two mobile operators provide the GPRS service and the number of users (about 23 000) of this service is the third highest one among EUCCs compared with total numbers of subscribers.

Leased lines Leased lines of all the evaluated bit rates and lengths are provided in Estonia and all prices are available. All prices of leased lines are below the EU average, and one of the lowest among EUCCs as well. This holds true for both national and international lines.

Local access Local access has been already liberalized in Estonia, although RUO (Reference Unbundling Offer) is not compulsory for the fixed incumbent. Estonia is the only EUCC where local loops are fully unbundled (there were 1323 of them) as of 30 June 2003.

Interconnection Interconnection is regulated by the Telecommunication act and for SMP operators in the leased line or interconnection service markets (as of 30 June 2003 the only SMP operator was the fixed incumbent operator), the interconnection charges must be cost-oriented. Top-down LRAIC cost standard with forward-looking cost base is used; bottom-up model is planned.
RIO of the fixed incumbent is published and there are 11 interconnection agreements with the fixed incumbent in force as of 30 June 2003. The interconnection charges for termination in the fixed network are the same for fixed and mobile operators and their level is similar to EU average charges. Fixed-to-mobile interconnection charges are slightly below the EU average. Access deficit charge is not applied.

Internet Internet segment is very developed in comparison with other EUCCs. Estonia has the second highest Internet users' penetration among EUCCs (42% as of 30 June 2003) The number of ISPs has grown from 69 in middle of 2002 to 120 (55 operating nationally and 65 locally) in June 2003. Estonia also has the highest number of hosts per capita (in June 2003 it was about 64 hosts per 1000 inhabitants), although a significant decrease occurred during the period 2002-2003.
Estonia has also one of highest broadband penetration rates: almost 7% of all fixed lines have ADSL. Estonia has also one of the lowest dial-up Internet access costs for both peak and off-peak times, which fact increases the affordability of Internet access.

Hungary

Telecommunication market

The Hungarian telecommunications market value estimate for year 2002 is about 3,7 billion EUR. The fixed and mobile segments account for about 41% and 48% of the market respectively. Data segment is also well developed with about 8%.

The Hungarian telecommunications market is still undergoing a process of liberalization. Until December 2001 there were five fixed operator groups with concessionary exclusive rights (the formerly state-owned Matáv Group and four others) to provide local telephone services in their respective service areas, whereas only one operator (Matáv) had the right to provide fixed-line national and international long distance call services. In December 2001, Matáv's exclusive rights to local, national and international services, as well as to calls to mobile networks came to an end. Since then any telecommunication operator has had the right to provide these services.

Currently there are about 20 licensed operators in total with the right to provide fixed line telephony. The alternative operators mainly compete in the business communication markets. The fixed penetration rates have been slightly decreasing over the evaluated period, reaching 35% inhabitants and 73% household penetration rates by mid 2003.

Although Hungary historically has five concession operators, the figures for the incumbent operator presented in this report apply to Matáv only, unless stated otherwise.

Ownership of fixed incumbent and mobile operators

There was one significant change in the ownership structure in the first half of 2003: the AIG Emerging Europe Infrastructure Fund L.P. („EEIF") and the GMT Communications Partners Ltd. purchased 50-50% of Vivendi Telecom Hungary.

The strategic partner of the major incumbent Matáv, Deutsche Telekom, has a 59,5% share in the group, with 40,5% of the shares being traded in public. The Hungarian state has one golden share.

Westel Radiotelefon Ltd belongs to the Matáv Group, (The NMT-450 service provider Westel Mobile Telecom Ltd. gave up providing the services at the end of Q2. 2003.) Other notable foreign players in the mobile market are Telenor Mobile, which fully owns the second largest operator Pannon GSM Telecom Co, and Vodafone AirTouch Plc, whose stake in V.R.A.M Co. has grown from 83.8% in 2002 to 87.9% in June 2003.

NRA

In 1993, the unified communications authorities, the Communication Authority and the Regional Communication Inspectorate, were established, commencing their activities as legal successors of the Postal and Telecommunication Authority, the Frequency Management Institute and its Regional bodies.

The Communications Authority (HIF - www.hif.hu) is a central state administration organisation with legal personality and nation-wide powers, operating independently of the market players, reporting to the Government and the Minister, performing the duties assigned to the Authority by law or by Government decrees. The Authority is pursuing its own financial

management, covering the expenditures of the performance of its duties from its revenues. The Authority generates revenues from the fees paid for the assignment and use of frequencies, for the reservation and use of identifiers, for the procedures of the authority and the Arbitration Committee.
The Authority - which has 496 employees - consists of the following organisations: Chief Communications Inspectorate, Communications Regional Office and the Communications Arbitration Committee. The authority is responsible for matters related to reporting of communications services, frequency management for civil purposes, identifier management, market regulation, individual licensing, interference prevention, market surveillance and other matters assigned to the competence of the communications authority, such as registration of notifications of communications services, registration of interfaces, licensing constructions (telecommunication structures). 125 of all employees are handling telecommunication regulatory tasks.

Licensing

Licensing in Hungary is defined for provision of telephony services over public fixed telecommunication network, and provision of services over public mobile telecommunication network. The way in which the operators organise their service offerings (through a self-operated or rented network) has no effect on the type of the license.
A company wishing to provide telecommunications services has to submit its request for the NRA's approval. Only a small one-time administrative fee is charged, but there are no annual fees for licenses.
Offering telecommunications services over a non-public network requires no license, only a notification to the Communication Authority is needed 30 days before the start of service provision.
In the mobile market, licenses for GSM and DCS have been issued; no UMTS licences have been issued so far.

Numbering

Carrier selection and pre-selection for long-distance, international calls and calls-to-mobile have been available since December 2002. Availability for local calls and calls to non-geographical numbers is also planned, but the deadline has not decided yet. Number portability for fixed number should be available in 2004 and the National Reference Database is in the pilot phase. The NRA has already set the maximum delivery period for CPS in the length of 5 days.
As of 30 June 2003 there are 8 operators with allocated access codes, but not all of them are using the codes to provide services.

USO

USO is imposed by law on the five concession service providers. The mechanism for financing USO costs is stipulated by law (however, it is currently being modified and it is not applied in practise). The new law will come into force from 2004, introducing an absolutely new regulation.
Quality of Service is monitored by the operators and reported to the NRA. Not all the evaluated indicators are available, as the operators do not measure QoS pursuant to ETSI standard.

Fixed Tariffs Fixed tariffs are still not reported as rebalanced; they are regulated using the price cap mechanism. Real-time charging system is applied on the network of the fixed incumbent operator, with a set-up charge applied. The price-cap regulation will be changed from 2004 by the new law.

The monthly rental charges were increased in the first half of 2003 and are the highest among EUCCs, but they are in line with rental in EU Member states. Prices of national calls of the fixed incumbent have been decreased as of 30 June 2003 and are average, compared with other EUCCs, and below EU average prices. Prices of evaluated international calls have been reduced by the fixed incumbent operators as well, and are also similar to or lower than EU average prices.

Mobile services The Hungarian mobile telecommunications market is well developed; three operators compete in the GSM/DCS market. All the three operators are offering GPRS services. The mobile penetration rate is about 72% (the third highest among EUCCs), which represents a significant increase in comparison with mid 2002, when only 58% penetration was reported. 78% of the subscriptions are pre-paid.

Leased lines All the evaluated leased line bit rates are available in Hungary and prices are available for all the evaluated leased lines. Matáv was identified as having SMP in the leased line service market. The LRIC-based RIO prices have been approved by the NRA. Generally, the prices of leased lines are relatively high and in most cases above the EU average rates.

Local access Local access was liberalised at the end of 2001 in Matáv's local areas and in 2002 in the service areas of the other four concession operators. It is compulsory for all operators charged with local loop unbundling to provide a Reference Unbundling Offer. All the fixed incumbent operators submitted its RUOs and they have been approved and published by the Arbitration Committee. At the end of June 2003, there were 59 fully unbundled local loops and 421 loops with shared access. On the other hand, more than 29 000 ADSL Internet connections are provided by non-incumbent Internet service providers (based on bit stream access interconnection, mainly at ATM level).

Interconnect ion An operator is reported as having SMP, if it has at least a 25% share in any of the markets (fixed or mobile telephony, leased line or interconnection market). 2 mobile operators (Pannon and Westel) but no fixed operator were identified as having SMP in the interconnection market (but all 5 fixed incumbents have SMP in the fixed telephony market, and Pannon and Westel have SMP also in the mobile market). SMP operators must present cost-oriented interconnection charges.

As of 30 June 2003 there were 3 fixed-to-fixed interconnection agreements based on RIO. The RIO interconnection charges are based on LRIC cost standard and current cost base (the cost of the capital used was 15% for Matáv and 17% for the smaller LTOs in 2003). The LRIC standard was approved later in 2003, but the interconnection charges are valid retrospectively from 1 January 2003. All the applied charges for termination in the fixed network are relatively high and above EU average charges. On the other hand, the fixed-to-mobile charges are below EU average and one of the lowest among EUCCs (they are currently subject to regulation). Local access deficit surcharge has decreased from 2 to 1 HUF.

LRIC-based charges are prescribed for the SMPs (on the interconnection market, combined with a wholesale price-cap regulation. As Westel has been identified as SMP, its termination prices have decreased by 10%.

Internet

The Internet market is relatively developed according to the estimated 18% Internet users and 14% household Internet access penetration. The number of ISPs grew to 90 national and 65 local service providers by the end of 2002 compared with June 2002, but the incumbent's ISP market share remains about 44%. The number of hosts has grown significantly, reaching 32 hosts per 1000 inhabitants in comparison on year-to-year basis in July 2003 (the second highest rate among EUCCs).

Dial up is the prevailing method of accessing the Internet, but broadband is gaining share. Prices of dial-up access are relatively low compared with the other EUCCs.

Latvia

Telecommunication market

The telecommunication market in Latvia belongs to the smallest ones among EUCCs. The estimated value for 2002 is about 496 million EUR. Despite this fact, the mobile penetration showed a slow but continuous growth of 10% during year 2002. Internet and data segments still stay the same and relatively low. The number of fixed lines reached the lowest number by mid 2003 after biggest growth in two years at the end of 2002.

In the fixed segment, the number of lines of the fixed incumbent, Lattelekom, is still the largest in the fixed segment, but the trend shows that the number of fixed lines is continually decreasing in both residential and business segments, as of 30 June 2003. The fixed market was liberalized starting on 1 January 2003, and by 30 June 2003 there were about 40 alternative operators (17 of them intending to provide fixed voice services) that had several thousand fixed lines at this date as well. The total penetration rates have registered a minor decrease compared with the end of 2002, 1% inhabitants and 3% household. The penetration rates are still among the lowest in EUCCs. Lattelekom continuously increases the level of digitalisation of its own network from 74% in the mid of 2002 to 84% in the mid of 2003. This is significant for making the competition possible, as alternative operators are present on the market.

Ownership of fixed incumbent and mobile operators

No change in the ownership structure of the main telecommunication operators has occurred until June 2003. The majority in the fixed incumbent is still held by the state (51%), and 49% are held by Sonera Holding via the company Tilts Communications.

The older of the two mobile operators, LMT, is public-owned (Digital Latvian Radio and Television Centre has 23% share, Lattelekom has 23% share, and the remaining 49% are held equally by Sonera Holding and Telia). The state holds only 5% via the Ministry of Transport of the Republic of Latvia. The second operator, Tele2, is a subsidiary of Swedish Tele2.

NRA

NRA, the Public Utilities Commission (PUC, www.sprk.gov.lv), was established in 2001. PUC is a unified regulatory body responsible for regulating the energy (except heat supply), telecommunications, post and railway. PUC is responsible for supervision of the telecommunication market, is involved in preparation of telecommunication laws and in regulation of all the relevant telecommunication areas like interconnection, USO, local access etc. PUC is financed from regulatory fees paid by the companies operating in the regulated areas. The annual regulatory fee is set to 0,2% of the company's previous financial year’s turnover. At the end of June 2003 there were 82 employees in PUC responsible for regulation of the above-mentioned sectors, out of which 23 are responsible for telecommunication regulation. PUC is planning to grow up to 93 employees in 2003.

Licensing

According to the legislation, there are two types of authorisations in Latvia – licence and general authorisation. Licences are issued for establishment and operation of public telecommunication networks and provision of public

telecommunication services in case scarce resources (numbers or frequencies) are used. In other cases, general authorisations are registered.
A single administrative fee of 100 LVL (approximately 160 EUR) is charged for issue of a license. An annual fee is applied to regulation for operators with both license and general authorisation. Due to liberalization of the fixed market, there are 39 fixed operators as of 31 January 2003 (33 are licensed for provision of network services and 17 for provision of voice telephony services). Both mobile operators have been granted GSM, DCS and UMTS licenses. The 3G licenses were granted on 1 January 2003 and the deadline for launching the services was set to the end of 2004.

Numbering Since 1 January 2003, when fixed telecommunication services market was liberalised, numbering resources have been allocated to 34 telecommunication operators (October 2003). In 2002, PUC published a technical regulation on carrier selection, and it plans to adopt regulations on carrier pre-selection and number portability in the course of 2003. Carrier selection for international calls has been available in some parts of the country since 1 January 2003, and it will be finished for national and international calls in the whole territory by 1 January 2006. Similarly, carrier pre-selection will start for international calls on 1 January 2004, and the whole country will be covered by 1 July 2006. Number portability should be available for both fixed and mobile numbers on 1 January 2005.

USO The Telecommunications Law defines the universal service; however, PUC shall define the scope of the universal service. At the end of 2002, PUC issued a regulation on universal service obligations defining the contents of the universal service that meets the requirements of the Directive 2002/22/EC of the European Parliament and the Council. The regulation defines the scope of services to be provided and the geographical scale. By a decision of PUC, the fixed incumbent operator, Lattelekom, has been designated as the universal service provider for 2003. It is planned to review the decision by the end of 2003.
QoS of operators identified as having a significant market power (the fixed incumbent and mobile operators) were measured by PUC. QoS parameters for the fixed incumbent were measured according to ETSI EG 201 769. QoS reports for 2002 are available.

Fixed Tariffs Fixed tariffs are not rebalanced as of 30 June 2003, and the regulation is performed via a price cap. Monthly rentals for residential users are low in comparison with the other EUCCs, while rental for business users is similar to the maximum charge applied in EU member states.
Since 1999, real-time charging system with applied set-up charge has been applied on the network of the fixed incumbent operator. Prices of national calls are almost equal to EU average prices, but international calls are rather expensive in comparison with both EUCCs and EU average (the price for a call to the UK is the most expensive one among EUCCs). No change to the evaluated prices has been made since June 2002.

Mobile services There are two operators (LMT and Tele 2) with both GSM and DCS licenses competing on the market, and a service provider (ZetCom) that provides pre-paid services via a leased capacity of one of the operators. Information in the mobile market is usually treated as confidential (due to legislative limitations). However the number of subscribers has been provided and the mobile penetration rate is rather low among EUCCs, amounting only to 40% in mid 2003. Both major operators were granted UMTS license on 1 January 2003, and the planned deadline for launching the services is 31 December 2004. Rollout obligations are relatively low, as only 45% of the population should be covered by the end of 2007. LMT completed the test regime of GPRS service at the beginning of 2003. The data as on mid 2003 show that 13% of handsets in the network use the GPRS service.

Leased lines All the leased lines evaluated are provided in Latvia, but prices are available only for the lines with bit rate up to 2 Mbit/s. Prices of lines with higher bit rates are set individually.
National leased lines are priced without regard to the length of the line. Due to this fact, the charges for the evaluated lines with length of 200 km are much lower than the EU average charges, but for 2 km, the prices are similar to the EU values as of mid 2003. If slightly higher, the prices of international lines are also similar to the EU average.

Local access Local access was not liberalized as of 30 June 2003, but RUO is legally compulsory for the fixed incumbent and exists in a draft form. It is expected that it should come to legal effect in the 4th quarter of 2003. No lines were unbundled in any form in mid 2003.

Interconnection As of 31 January 2003, the fixed incumbent and both mobile operators are identified as having SMP in the interconnection market. SMP operators are obliged to present cost-oriented interconnection charges using FDC cost standard and the current cost base (the applied level of cost of capital is 14%). There are many alternative fixed operators but none of them has concluded an interconnection agreement with the fixed incumbent operator as of 30 June 2003. After RIO was published, there were 13 fixed-to-fixed IC agreements on 1 November 2003. The interconnection charges are agreed upon between operators so far, and treated as confidential. Therefore no interconnection charges are available.

Internet Usage of the Internet is growing very fast in Latvia. The estimated Internet users' penetration rate increased from 11% in mid 2002 up to 37% in mid 2003. Broadband access is relatively developed in comparison with EUCCs (1,4% of lines and 0,6% of residential lines have ADSL installed) but the most common way of connecting to the Internet is dial-up. A significant barrier to further growth of the Internet seems to be the very high Internet access costs. For both evaluated peak and off-peak times, the costs are the highest ones among EUCCs and far above the maximum charges applied in EU member states.

Lithuania

Telecommunication market

The value of Lithuanian telecommunications market in 2002 was approximately 470 million EUR. This means approximately 6% growth in comparison with year 2001 (440 mil EUR). This growth is driven by the mobile segment while the value of fixed telephony segment is constantly decreasing. The pace of decreasing is the highest among EUCCs and the fixed penetration rates are the second lowest among EUCCs - 25% inhabitants and 50% household penetration as of 30 June 2003 in comparison with the inhabitant penetration of over 33% inhabitants as of end 2001.

On the other hand, the mobile penetration rate has shown a substantial growth from 30 % in the end of 2001 to 54 % as of 30 June 2003. The mobile market share in 2002 grew to 49% with more than 1,9 million subscribers.

The fixed telecommunications market in Lithuania was liberalized starting 1 January 2003, and 14 alternative fixed operators have submitted notifications concerning telecommunications activities as of 30 June 2003 and 12 operators have started the activities by that date. Digitalisation level of the fixed network of the incumbent reached 90% as of 30 June 2003 (at the end of 2001 the level was 66%).

Ownership of fixed incumbent and mobile operators

There is a slight change in ownership structure of the fixed incumbent, where 1% of state shares have been devolved to the public. As of 30 June 2003, the fixed incumbent (Lietuvos Telekomas, LT) is in 60% owned by Amber Teleholding, a consortium of TeliaSonera, 9% are owned by the state, 26.3% are traded in public, and the remaining 4.7% of shares are held by Lintkom, a company owned by LT.

Omnitel, the largest mobile operator, is in 55% owned by Amber Mobile Teleholding (also a consortium of TeliaSonera), in 35% owned by Motorola Inc., and the remaining 10 % are owned by private persons. Bite GSM, the second largest mobile provider, is 100% controlled by TDC Mobile International (Denmark), and Tele 2 is 100% owned by Tele 2 (Sweden).

National Regulatory Authority

The Lithuanian NRA, the Communications Regulatory Authority (CRA, www.rrt.lt) was established in May 2001. CRA is active in the telecommunications regulatory area and other tasks, such as radio spectrum management, postal regulation, etc. CRA is involved in the areas of numbering (a new numbering plan is being implemented), tariff regulation, dispute resolution, drafting the necessary legislation. CRA is also involved in the area of interconnection (RIO of the fixed incumbent was published, fixed-to-fixed charges established), local access, definition and analysis of market, SMP designation, USO, etc.

As of 30 June 2003, CRA has 120 employees; the number of persons that directly handle the telecommunications regulatory tasks is 27. CRA plans to increase the number of employees to 135 in year 2003.

Licenses

As of 1 January 2003, licensing regime was replaced with a general authorization system. Individual authorizations are necessary only for the use of radio frequencies and telephone numbers.

A one-off administrative fee of about 63 EUR is charged for activities in the area of fixed voice telephony. For all operators and service providers in areas like provision of public fixed telephony network and/or services, public mobile network and/or services, leased line services, a prior notification is required to be made to the CRA 28 days before commencement of the activities. Due to this obligation, it is known that none of the alternative operators started its activity as of 30 June 2003.

Numbering

In 2002 a new numbering plan was implemented that significantly extended the numbering range. Fixed numbers were allocated to alternative operators in February 2003 (71 000 numbers that represent about 3% of all allocated fixed numbers).

Access codes have been allocated to 14 alternative operators as of 30 June 2003 and 4 were in use. Carrier pre-selection and number portability is expected to become available as of 1 January 2004.

Single payments and annual fees for numbers and access codes are set.

USO and Quality of Service

USO has been defined by law, which fact means a change to the situation as of June 2002, when the corresponding obligations were included directly in the licence of the incumbent. The fixed incumbent meets all the basic USO parameters. The principle of funding of USO services is stipulated in the law, but it is also addressed to a certain extent in the Government Resolution on the Rules for Provision of Universal Telecommunications Services that was adopted in June 2003.

The number of payphones is constantly decreasing and the number per capita is one of the lowest among EUCCs (1,65 payphones per 1000 inhabitants, although this indicator is higher in cities).

Measuring of Quality of Service indicators is an obligation for public fixed telephony operators, but the target values have not been set. This obligation came into force as of 1 January 2003; therefore the provided data are as of the 1st quarter of year 2003.

Fixed Tariffs

Fixed tariffs are reported as rebalanced as of 30 June 2003. CRA applies a price cap (the highest limits of individual tariffs are set by the CRA) on regulation of the tariffs and 30-days announce deadline for the notice prior to implementation of changes to these tariffs.

A real-time charging system with a call set-up charge is applied in the network of the fixed incumbent operator. Residential and business customers may choose either standard or other calling plans. The standard calling plan does not include a free credit, but in other plans free credit is included. Monthly rental charges for both business and residential customers are average among EUCCs and below the lowest charge applied in EU member states.

Charges for national calls are very similar to the charges in other EUCCs and to EU average charges. Charges for international calls are relatively high in comparison with other EUCCs (however, the charges of international calls offered by the alternative operators are much lower) and significantly above the EU average charge.

Mobile services The mobile market is characterized by competition of three mobile operators with GSM/DCS licenses. The market was growing as of 30 June 2003 and mobile penetration rate has been characterized by a remarkable growth over the last period and amounted to about 54% (in comparison with 30% rate at the end of 2001). The revenue of mobile operators also grew by about one quarter in 2002 in comparison with 2001.

No UMTS license has been granted as of 31 January 2003. Two of the three operators are providing GPRS services to customers and there are more than 9689 of them (0,52% of the total number of subscribers)

Leased lines Leased lines of all evaluated bit rates and lengths are provided in Lithuania and prices are available as of 30 June 2003. Generally, the available prices of national leased lines are lower than those in the EU (as of mid 2002). Prices of international leased lines are slightly above the EU average, but the prices are not absolutely comparable.

No change to prices of the evaluated lines has been made since June 2002.

Local access Along with the liberalization of the fixed telephony market, the RUO became compulsory for the fixed incumbent operator in January 2003. The incumbent published RUO first on 15 March 2003. However, the publication of the reference does not mean that the RUO is in compliance with the requirements of legal acts, and the operator is obliged to change the RUO if requested by the CRA.

Interconnection The fixed incumbent operator and the biggest mobile operator were notified as having SMP as of 31 January 2003. Both operators are obliged to use cost-oriented interconnection charges. However, the CRA decision concerning identification of the mobile operator as SMP has been challenged in court and the obligation for the mobile operator was suspended by court. The cost base applied by the incumbent is historic and cost standard FDC.

The RIO of the fixed incumbent operator published already in January 2003 but the incumbent is obliged to change the RIO if requested by CRA. Fixed-to-fixed interconnection charges are already set and similar to mobile-to-fixed charges. Compared with the 3rd report, the differences among interconnections were applied as of 30 June 2003. The level of these charges was decreased in comparison with June 2002 but it is still the highest charge among EUCCs. Further regulation of these charges will be inevitable. Fixed-to-mobile interconnection charge as of 30 June 2003 was significantly decreased by 43 % in comparison with the situation as of June 2002. The fixed-to-fixed interconnection tariffs were further decreased in November 2003.

Internet Internet segment shows growing trends, although the penetration figures are low in comparison with other EUCCs (24% Internet users penetration and 7,6% household penetration rates).

Although the number of broadband connections is growing (0,3% of households is connected to Internet via ADSL), the prevailing mean of

connecting to the Internet for a residential user is dial-up. There are about 40 ISPs operating on national level and about 35 on local level (according to the issued authorisations to data transmission in 2003), but the fixed incumbent is the biggest ISP and has about 67% of all internet subscribers.
The possible reason for lower Internet usage can be seen in high dial-up Internet access costs. They are the second highest among EUCCs, in off-peak time above the maximum of EU (mid 2002). On the other hand, Lithuania is one of the few EUCCs offering flat-rate dial-up connection for off-peak time (starting with about 25 EUR/month from 18:00 till 7:00, or 23 EUR/month from 0:00 till 7:00).

Malta

Telecommunication market

The telecommunications market in Malta has grown from 180 mil EUR in 2001 to 190 mil EUR in 2002 (it is the smallest market among EUCCs). The fixed segment of the market is very developed; Malta has the second highest fixed line penetration rate (52% per inhabitant and 160% per household as of 30 June 2003).

The digitalisation of the fixed network was completed already in 1995.

The mobile segment is also well developed with a 69% penetration rate and is driving the growth of the telecommunication market. The levels of penetration in mobile telephony and Internet/data segments are above average for the EUCCs and still have a potential for further growth.

A phased liberalisation of the telecommunication market was initiated in 2000 and completed at the end of 2002. At the end of 2002, the monopoly on fixed telephony and the international gateway was removed and a certain level of competition is anticipated in both markets.

Ownership of fixed incumbent and mobile operators

60% of the fixed incumbent operator is still owned by the state, i.e. no change has occurred in the ownership structure of the fixed incumbent operator (Maltacom) since mid 2002. The plan to privatise the group, preferably by a strategic partner, has been announced. The remaining 40% of the operator are owned by the public (shares are listed at local and foreign exchanges).

There are two mobile operators in Malta:

Vodafone had a monopoly until 2000 and 80% of its shares are owned by Vodafone Group (internationally). The remaining 20% was owned by Maltacom by mid 2002, which was under a legal obligation to dispose of this stake, as the company has its own mobile subsidiary (Go Mobile). Go Mobile is wholly owned by the fixed incumbent operator. Maltacom sold its 20% share in Vodafone to Vodafone on 1st August 2003.

National Regulatory Authority

The Malta Communications Authority (MCA) is the National Agency responsible for the regulation of the communications sector. It was established on 1 January 2001.

The Authority grants licenses, resolves disputes relating to communications, and generally ensures the well being of the communications markets, including the telecommunications markets. It has obligations to the consumer relating to prices, standards and availability of services. The Authority is also responsible for stipulating the quality of service standards, and performing all the functions assigned to it by the Minister responsible for telecommunications. Such functions may only be assigned by an Order or by or under another law.

Key regulatory decisions on Dominance in the Telecommunications Transport Market, Price Control, Accounting Separation, Directory Information Services and Itemised Billing were issued during 2002.

The MCA falls under the responsibility of the Ministry for Transport and Communications. This is different from the Ministry for Information Technology and Investment that is responsible for the state shareholder's

stake in Maltacom.
As of 30 June 2003, MCA has 17 employees out of whom 11 are dedicated to regulatory tasks, and the source of finance for operations is the MCA budget, funds for which are provided by the state. It is planned to grow the number of employees to 23 in 2003.

Licenses At present, only the fixed incumbent operator has a license for provision of public fixed voice telephony, and one additional operator has the license for cable network operations.
Licences cover: scope of licence, system and service implementation, fees, lawful interception capability, and transfer of licence, renewal, termination, reporting, and resolution of disputes. Other regulatory elements, accounting methodologies, cost orientation, USO, interconnection rights and obligations, quality of service, etc., are included in the related legislation. Licences for self-operated networks with voice telephony are available.
Radio frequency licenses in the mobile market are issued on a first-come-first-served basis and currently cover GSM and DCS. No requests for UMTS licenses have been made to date.

Numbering Carrier Selection and Carrier Pre-Selection are not available in Malta, though their implementation is expected at the end of 2003. A decision notice on the subject has to be issued. Number portability is expected to be operational in December 2003 for mobile numbers and in 2004 for fixed numbers. A decision on this subject has to be issued.
Numbering fees for standard telephone numbers are established by law (the respective provision came into force in July 2002) but have not been applied yet. No fee is set for codes.
The fixed numbers have been allocated only to the fixed incumbent operator by 30 June 2003.

USO and Quality of Service The fixed incumbent operator was formally designated as a Universal Service Provider in July 2003. The fixed incumbent operator operates the payphones and the level of penetration (4,38 per 1000 inhabitants as of 30 June 2003) is the highest among EUCCs despite a slight decrease in the number of payphones.
Quality of Service is set for SMP (Dominant Market Position in terms of Malta) operators, but these operators were designated only in May 2002. The QoS indicators ETSI-ETI 201 – 769 are in force as from August 2003.

Fixed Tariffs The fixed incumbent, Maltacom has lost its exclusive rights on the fixed telephony and the international gateway markets on 1 January 2003. The applied charging system is pulse-based with 5 minutes per pulse; an initial charge is applied in the amount of one pulse. A unique situation exists regarding the monthly rental for residential users, where the amount of free calling credit (Lm 2.625, i.e. 50 pulses at Lm 0.0525 each) exceeds the amount paid for the rental (2.1 Lm). The rental for business customers does not include any credit. Due to the geographical size of Malta, only local calls are applicable. Charges for national calls are therefore relatively low among

EUCCs and also below the EU average.
International calls, on the other hand, are the most expensive one for calls to near country and USA and second highest for calls to the UK. Notably, prices of calls to the USA are 6 times higher than EU average as of 30 June 2003.
No changes have been made, therefore tariff rebalancing is still reported as not completed so far, and the cost orientation of tariffs is should occur after 1 January 2004. New tariffs proposed by the incumbent were published for public consultation in November 2003. The fixed tariffs must be approved by NRA and changes announced 30 days prior to their implementation. The MCA should publish a consultation paper regarding the implementation of a price cap regime in May 2003 and a decision on the matter should be taken by the 3rd quarter of 2003.

Mobile services

There are two mobile operators in Malta and a third one may operate after 2005. Competition on this market started in 2002 with a significant influence on the level of charges and the number of subscribers.
The mobile penetration is growing at the fastest pace, but the percentage decreased from 72% as of 31 December 2002, when it was the third highest one among all EUCCs, to the 69 % as of 30 June 2003.
The revenues of the mobile segment grew from 50 mil EUR in 2001 to 65 mil EUR in 2002. There are two operators offering GPRS services to end users as of 30 June 2003. Data have been requested from the operators as of mid 2003, but there is no additional information. 3G licenses are still not issued as of 30 June 2003. Were there any applications?

Leased lines

Leased lines of 64 kbit/s and 2 Mbit/s are available in Malta but the evaluated 200 km length is not applicable due to the physical size of the country. Higher bit rates are offered using ATM technology. Prices of evaluated lines are relatively average among EUCCs and close to the EU average where applicable (with the exception of 2 Mbit/s international lines. These prices are one of the highest).

Local access

The regulations on local loop unbundling came into force in the 1st Quarter of 2003. ADSL was introduced by the fixed incumbent in 2000 and has been widely deployed.

Interconnection

Telecommunications Services (General) Regulations require DMPs to provide interconnection "at charges that are based on principles of transparency and cost-orientation". Cost base methodology was used for calculation of the interconnection charges for 2003. A strategy is being followed where DMP operators are required to adopt FAC Historic; during 2004, this will be followed by a shift to a system based on the current costs. A date for such shift has not been determined yet.
MCA published a decision, which establishes new interconnection charges, in May 2003. The new charges are postponed and will start to apply from 1 October 2003. The charge reduction is 31% for the fixed and 20% for mobile of the current charges.
Fixed-to-mobile interconnection charges are similar to those of other EUCCs

and to the EU average (mid 2003), but mobile-to-fixed charges are much higher than those in the other EUCCs and about 3,5 times higher than the EU average (mid 2003). Fixed-to-fixed charges are set but not used in practise, as no alternative fixed operator is present on the market. These charges are also very high compared with EU average charges, and it is planned to gradually decrease all the charges starting August 2003.

Internet The Internet is very well developed. Internet penetration of 27% as of 30 June 2003 is average among EUCCs. The penetration of households is not applicable due to the reason that business connections are included as well. Separate data are not retained as the same tariffs apply to both business and residential internet connections. The number of ISPs (17) is high for the size of the user population, leading to a strong competition. Dial-up Internet access costs are relatively high; the access costs in off-peak period are above the EU maximum charge. A flat-rate Internet access is offered in Malta (about 18 EUR monthly for unlimited PSTN usage).
Maltacom is the leading provider of ADSL with almost 10 000 lines installed as of end 2002 (most of these are residential, which fact results in more than 5% household penetration).

Poland

Telecommunication market

Polish telecommunication market with the generated revenue of 22,441 billion PLN (about 8,8 billion EUR) in 2002 is the biggest market among the EUCCs. The fixed telephony segment is dominant in the market. Telekomunikacja Polska SA (TPSA), the fixed incumbent, has about 90% of the local calls market (95% of the domestic long distance market, 85% of international outgoing calls, and 75% of international incoming calls). More than 50 alternative operators are present on the market (mainly on local markets). Due to this situation it is complicated to gather the data representing this market. Based on the available information, the fixed penetration rates are similar to the values of other EUCCs with liberalized markets (34% inhabitant penetration and 72% household penetration as of 30 June 2003). Mobile penetration has continued to grow more dynamically and has exceeded 40%. Also a consolidation on the cable TV and internet providers market is expected.

Liberalisation of the market is in progress and amendments to the telecommunication act came into force on 1 October 2003. The new act will contribute to an increased competition in the telecommunication market (in areas of LLU, interconnection, fixed tariffs, Internet access costs etc.). The final step to the liberalisation of the telecommunication market in Poland was the opening of the international calls market. At the moment, only a few percent of TPSA subscribers who are connected to analogy switches are not able to use international call services of alternative telecom operators.

Ownership of fixed incumbent and mobile operators

The fixed incumbent (Telekomunikacja Polska SA) has the following ownership structure: 34% owned by France Telecom, 4% by State Treasury, 13,5% by Kulczyk Holding (a local private company), 11,5% - GDRs held by Bank of New York, 37% others, traded at Warsaw Stock Exchange.

Mobile operators have the following owners: "Centertel" is owned by the fixed incumbent (TPSA – 66%), and France Telecom has 34%. "ERA" is privately owned: Deutsche Telekom (DT) holds 49% of the stock, with Vivendi, Elektrim (a listed Polish holding) and institutional investors holding the remaining shares. DT is trying to purchase the remaining 51% of ERA. "Polkomtel" is in 60% owned by Polish companies controlled by the State Treasury, 20% by Teledanmark and 20% by Vodafone. Like in ERA's case, both Vodafone and Teledenmark expressed their interest in taking control over Polkomtel. Polkomtel is getting ready to sell its 60% of shares to a foreign investor in 2004.

NRA

No significant changes in URTiP (NRA) structure and modus operandi have been recorded. The NRA in Poland, Office of Telecommunication and Post Regulation (URTiP) (www.urtip.gov.pl), was established on 1 April 2002, replacing the Office of Telecommunications Regulations (URT), based on the changes in the telecommunication act. URT was established on 1 January 2001 as a sole regulator in charge of telecommunications, radio bandwidth management and electromagnetic compatibility.

The President of the URTiP is a central – level administration authority. He is appointed by the Prime Minister at the request of the minister responsible for telecommunications. The president of the URTiP discharges its duties through URTiP, which is financed from the state budget.
URTiP is engaged in regulation of the market for telecommunication services, licensing, recommending interconnection settlement rates, interconnection disputes, infrastructure sharing, local loop liberalization, managing the numbering resources, managing the radio frequency spectrum, regulation of the postal market and monitoring the compliance of telecommunications equipment with the essential requirements, including electromagnetic compatibility. URTiP has 614 employees (342 in regional offices), out of which 70 are handling regulatory tasks.

Licensing

No changes were introduced in the area of licensing in 2003. Licensing in Poland is defined for (Art. 3 of the Telecommunications Act) operation of public telephone networks and of public networks intended for broadcasting of radio or television programmes. These activities require a telecommunications authorization. The authorization entitles the holder to provide all telecommunications services in the network covered by the authorisation. For telecommunications authorizations, one-off administrative fee of EUR 2,500 (fixed line) and EUR 5,000 (mobile) is charged; no annual fees are applied. Issuing authorizations for the operation of public networks intended for broadcasting of radio or television programmes is subject to a fee EUR 1000, and the operators of these networks have the obligation to pay annual fees for their authorizations in the amount of EUR 0,12 per one subscriber slot. Licences are granted for a definite period of time, never less than 10 years, but not exceeding 25 years. Private networks are not subject to licensing. Licensing regime is well defined and includes conditions on the owner, planned scope of services, technical conditions etc. Licenses in mobile market have been already issued for all types of networks (analogue, GSM, DCS, UMTS).

Numbering

New telecommunication law came into force on 1 October 2003. Number portability for fixed and non-geographic numbers is ensured. In 2002, carrier selection and pre-selection for long-distance calls was introduced. Carrier selection for international calls was introduced on 1 January 2003.
The numbering fees for numbers and codes are set.

USO

The amendment of the Telecommunication Act has introduced several changes with regard to USO. There is a definition of USO in the Polish Telecommunications Act and the obligation to provide it for the operator with significant market power on the market of telephone services provided in fixed networks (before 1 October 2003 all fixed line operators were obliged to provide universal service). The fixed incumbent provides services in line with the generally required features of USO. There is no mechanism for financing and enforcement of USO and as a result of this, universal service cannot be effectively ensured in fact. The new telecommunication law will result in the amendments, which are to be accepted before accession to the EU.

Quality of Service is generally outlined in the Minister of Communications' decree. There are 9 indicators of quality, which the operators are obliged to report periodically to URTiP. There are no standards set for these indicators. The density of card- and coin- operated public payphones is measured as per 1000 inhabitants (2,32 payphones).

Fixed Tariffs As of the end of 2002, the customers of the incumbent could choose from several tariffs of the pulse-based charging system or a time-based system with a minimum charge for a call.

There have been no changes to the prices of local, domestic long-distance calls since June 2002; however various special offers and promotions have been introduced. Off-peak prices for fixed-to-mobile calls to Centertel (TPSA-owned mobile company) have been reduced. The prices of national calls are below the EU average (mid 2002).

International call prices were lowered for European connections – to 1.20 PLN/min + VAT, and to USA, Canada and Australia – 2 PLN/min + VAT. Despite this step the prices of international calls are still more expensive in comparison with the other EUCCs and with the EU average.

Mobile services All three operators have GSM/DCS licenses. These operators are competing on the mobile market with estimated service revenues of 3,4 billion EUR in 2002 and with more than 15 million subscribers as of mid 2003. The mobile penetration rate as of 30 June 2003 reached the 40% level. The number of post-paid customers is high (about 45%).

UMTS licences are also held by the three current operators. The deadline for launching 3G services for the operators has been already postponed once to January 2005, but the three firms negotiated with the authorities to postpone the deadline further to January 2006.

All three operators are providing GPRS services and the three operators together have several hundreds thousand of subscribers covering most of the population and geographical area (99% of population and 92% of territory are reported by Centertel).

New MVNO (Mobile Virtual Network Operators) have been granted licenses. By June 2003, 17 firms in total were granted the license but none of them has started to offer their services yet.

Leased lines There have been no significant changes in the leased lines and the prices since June 2002. Leased lines of all evaluated speeds and lengths are provided in Poland. However, prices are available only for the lines with speed up to 2 Mbit. Above this bit rate, prices are calculated individually.

The prices of national lines are similar to the EU average. The evaluated international lines are one of the most expensive among EUCCs and above the EU average.

Local access The partial liberalisation of the local market in the 90's resulted in a number of small alternative operators (over 50) having built their own local access networks. They have gained over 1 million subscribers so far (10% of the fixed market). The amendments to the telecommunications law that came into force on 1st October 2003 stipulate that an operator with a significant position on the fixed telephony market will be obliged to make its local loops accessible (on cost-oriented basis) to other operators, with the aim at reducing the price of telephone and internet services. These provisions are to be complemented by secondary legislation (stating inter alia with the requirements for RUO). This constitutes an important change to the situation of TP SA that previously did not have to make local loops accessible to any other operators.

Two cable TV operators provide telephone services over cable networks (in two cities - Warsaw and Gorzow). There are some operators that provide services through wireless local loops, e.g. Sferia which (using CDMA technology) gained 10 000 subscribers in Warsaw area until October 2003 (and plans to expand to the whole of Poland).

Interconnection Interconnection is regulated by URTiP. Mobile operators with SMP on the interconnection market must apply cost-oriented interconnection rates. Interconnection rates are calculated on the basis of relevant cost methods. The fixed incumbent (TP S.A) has prepared its cost model, but it is not accepted by the URTiP. Besides, Telekomunikacja Polska already applies a system based on current costs.

The RIO of the fixed incumbent is in draft stage and about 100 alternative operators are interconnected with TPSA. This is an estimate, because only the dominant operator is obliged to notify the President of the URTiP of interconnection agreements. At the –end of 2002, the URTiP issued decisions to the three mobile operators enabling the SMP in the interconnection market.

All the applied interconnection charges are below but almost equal to EU charges for termination in both fixed and mobile networks. No access deficit charge is applied.

Internet Internet is relatively developed in comparison with other EUCCs in terms of Internet penetration. Dial-up is the most common way of accessing the Internet, but broadband means are also widely used: the fixed incumbent offers broadband (ADSL) and narrowband (SDI) means, cable TV operators offer also broadband access (UPC and Astercity), and wireless means are offered as well.

The price of dial-up Internet connection is one of the highest among EUCCs. The fixed incumbent is offering several calling plans for Internet access including a time-limited flat-rate offer.

Romania

Telecommunication market overview

The value of the Romanian telecommunication market based on the current data in 2002 was almost 2 billion EUR. It is an average market, but it has big a potential for growth in terms of population. Romania is one of the few countries where fixed telephony segment is growing. This segment is still dominating the market with a 48% share, while the mobile segment has only 44% share (with 26% mobile penetration rate, which is the lowest among EUCCs).
The number of fixed lines is growing in both residential and business segments. Despite this, the fixed penetration rates are the lowest among EUCCs (20% inhabitant penetration and 52,7 % household penetration as of 30 June 2003). Starting 1 January 2003 the telecommunication market was fully liberalized; 148 operators are notified for providing public voice telephony service, but only two were actually providing the service as of 30 of June 2003 (there were about 350 business customers of the alternative operator).

Ownership of fixed incumbent and mobile operators

The fixed incumbent has a strategic partner (OTE - Greece), which holds 54% of shares. The rest is still owned by the state. State has also a share in the mobile operator Cosmorom that is a subsidiary of the fixed incumbent operator. The strategic partner of Mobifon is ClearWave Holdings BV (60,3% share), Orange Group has a majority share in Orange Romania (51%). The smallest operator (with CDMA 2000 system) is owned by Inquam (99,5%).

National Regulatory Authority

Romanian NRA, The National Regulatory Authority in Communications (ANRC, www.anrc.ro), has operated since 25 September 2002. ANRC is responsible for supervision of competition and the activity of the operators in electronic communication and postal services. ANRC supervises the efficient use of the numbering resources and ensures the security of public communications networks and protects the consumer's rights. In line with liberalization of the fixed market, ANRC becomes involved in the areas of interconnection, local access, USO, leased lines, QoS, numbering etc.
ANRC is an independent entity with regard to its structure, operations and financing. The budget for year 2002 was funded by a loan from the General Inspectorate for Communication and IT (IGCTI). In the future, the budget will be financed from monitoring fees. As of 30 June 2003 the number of employees grew to 185 (the planned number for year 2003 is 186). 96 out of all employees are involved directly in telecommunication regulatory tasks.

Licenses

The European model of general authorisation is used in Romania. There is a general authorisation for both network operators (for public and private networks) and service providers (e.g. voice telephony, non-voice services and leased lines services), i.e. no fees are required. The licensing procedure remains only for limited resources (assignment of numbers and spectrum). As of 30 June 2003, there were 148 operators notified for providing public voice telephony service and only two were actually providing the services.
Licenses in the mobile market have been already issued for

analogue/GSM/DCS types. No UMTS license was granted by the end of January 2003.

Numbering Regarding CS service, the situation is similar to those encountered in Slovenia (4^{th} Report), Lithuania (3^{rd} Report) or Czech Republic (2^{nd} Report): the data presented in this table, like for all 4 reports, show the moment when the service came into place from the NRA's point of view. In Romania, the required legislative framework is in place, the CS codes have been allocated to 34 operators (as of 2 December 2003) and 12 of them have concluded interconnection agreements with the incumbent and have the right to provide CS service.

Numbering resources are subject to licensing but no fees are set for assignment of numbers, carrier selection codes and signalling point codes. Numbers are assigned to both the fixed incumbent and alternative operators (about 25% of all assigned numbers).

USO and Quality of Service The new Universal Service law entered into force on 31 July 2003. According to this law, the mechanism for recovering the USO costs will be applied in practise in 2004. The fixed incumbent provides all basic services generally required by USO.

QoS is measured according to ETSI EG 201 standards and all indicators for 2002 have been provided by the fixed incumbent operator.

Fixed Tariffs Tariffs of the fixed incumbent operator have not been rebalanced yet. According to the Universal Service Law, the tariffs of the incumbent operator must be approved by ANRC. The last change of the tariffs occurred in October 2003. The new tariffs are defined directly in EUR. The charging system applied in Romania is pulse-based with an applied initial charge of 1 pulse.

Newly the monthly rental charges are differentiated for residential and business subscribers. The standard residential rental includes calling credit in the amount of about 40% of the rental, while the business one does not include any credit. Low-end residential users may choose a lower rental, but this does not include any calling credit. The level of all rentals and the price of national calls are very low in comparison with other EUCCs and the EU average as well. Prices of evaluated international calls have been decreased as well and are now slightly higher than but comparable to EU average values. Prices of national calls of the alternative operator are lower.

Mobile services Mobile services in Romania are developed in terms of competition. There are 4 operators (1 operating in CDMA 2000 system 450 MHz band, 2 with GSM license and 1 with DCS license) competing on the mobile market but the two biggest operators have together more than 95% share of the market. The estimated revenue of all operators amounted to almost 900 million EUR in 2002. However, the penetration rate of about 26% is the lowest among EUCCs and is growing very slowly (compared with 24% at the end of 2002 and 21% as of 30 June 2002) compared with the other EUCCs.

2 operators offer GPRS services that cover about 95% of the population by

each operator. Both operators have together more than 13 thousand GPRS subscribers. UMTS licenses have not been granted yet.

Leased lines Leased lines of all evaluated speeds and lengths are provided in Romania, but pricing is based on individual approach above 2 Mbit/s. Prices of all fixed incumbent operators are quoted directly in EUR, starting October 2003. These prices are lower than the prices converted to EUR as of 31 January 2003. Generally, the prices for both national and international lines are similar to EU average values. Prices of national lines are significantly lower for short distances while for long distances they are even above EUCCs average.

Local access RUO is not compulsory for the fixed incumbent operator and it is expected to become compulsory at the end of 2003 or beginning of 2004. ANRC has already prepared a draft of Guidelines for RUO. Consultations with the fixed incumbent are currently in progress.

Interconnection Fixed incumbent is notified as having SMP in the market for access to the fixed public telephone network for call origination, termination, and transit. Each mobile operator has SMP on its own network for voice call termination. Transparency, non-discrimination, accounting separation and cost-oriented tariffs are mandatory for Orange and Mobifon (the two largest operators having together more than a 95% market share), for the other two mobile operators the only obligation is transparency. The fixed incumbent is obliged to present cost-oriented interconnection charges. RIO was published at the beginning of 2003 and as of 30 June 2003 seven alternative fixed operators had interconnection agreement with the fixed incumbent.

Benchmarking is currently used, but LRIC should be implemented for calculation of interconnection charges by 1 July 2004 (this applies to the fixed incumbent and to the two biggest mobile operators). Interconnection charges are quoted directly in EUR (fixed-to-fixed and mobile-to-fixed) and USD (fixed-to-mobile). Interconnection charges for termination in fixed network are equal for calls originated in fixed and/or mobile network and the level is higher than but comparable to the EU average as of mid 2002. Fixed-to-mobile charges are the lowest among EUCCs and about half of EU average charge.

Internet The updated information about Internet penetration rate (14%), as of mid 2003 demonstrates a growth in comparison with 9% penetration rate as of March 2002. The number of hosts is not growing and stays at 2 hosts per 1000 inhabitants, which is the lowest rate among EUCCs.

Dial-up Internet access cost are newly set directly in EUR and are very low, especially for residential users in off-peak time (it is defined each day from 22 PM till 8 AM next day) in comparison with EUCCs and even EU values. ADSL services are introduced both by the incumbent and by the alternative operators.

Slovakia

Telecommunication market

Based on the updated information, the total size of the telecommunication market in Slovakia in 2002 was 930 million EUR, which represents a solid growth in comparison with 700 million EUR in 2001. Mobile segment is the most rapidly growing and important segment; it had a 47% share on the market in 2002 in comparison with 40% in 2001, while the share of fixed voice telephony segment is decreasing both absolutely and relatively. The data segment is developed very well, with more than 10% share. Internet segment is still underdeveloped but some growth may be observed with the liberalization launched in 2003.

The mobile growth is demonstrated by the penetration that reached 60% at the end of June 2003 (54% at the end of 2002). Despite this situation, fixed line penetration rates are relatively low (26,8% inhabitants penetration and 58,2% household penetration) and the share of the fixed market is unlikely to grow due to mobile services competition. The total number of fixed lines as of 30 June 2003 (1,5 million) has slightly grown in comparison with the end of 2002. This increase has been caused by an increase in the business segment (the number of ISDN lines has increased significantly), while the number of residential lines was decreasing over the whole evaluated period.

The fixed telecommunication market has been liberalized since 2003 in Slovakia but this has had no practical effect. As of 30 June 2003, there were 17 licensed alternative operators but none of them has started operation by this date.

Ownership of fixed incumbent and mobile operators

The ownership structure of main telecommunication players remains unchanged. As of July 2000, Deutsche Telekom acquired a 51% interest in the fixed incumbent operator (Slovenské telekomunikácie, a.s.) in 2000, the rest 49% is still owned by the state.

Eurotel Bratislava, a.s., the first mobile operator present on the market, is owned by ST (51%) and the remaining 49% are owned by Atlantic West B.V. The second operator (Orange Slovensko, a.s.) has a private major shareholder (64% is owned by Orange group).

National Regulatory Authority

The Slovak NRA, Telecommunications Office of the Slovak Republic (TOSR, www.teleoff.gov.sk), was established in 1993 and now it engages in regulation of telecommunication activities and telecommunication networks, limited resources (such as numbers and frequencies) and price regulation of monopoly or SMP operators.

Activities of TOSR are financed from the state budget (the budget for 2002 was about 1,8 mil EUR, for year 2003 it is more than 2,5 mil EUR). As of 30 June 2003 TOSR has 188 employees out of which 9 are handling directly the telecommunication regulatory tasks.

Licenses

Licensing in Slovakia regarding fixed operations is defined for Operation of public network and provision of network services, Public voice telephony on a self-operated network and for Public voice telephony and network services on a self-operated network. For all the licenses there is a set single payment of 2 400 EUR and an annual fee of 4 800 EUR + 0,08% of annual gross sales for each operator. Compared with January, the number of operators has significantly increased to more than 47, as of 30 June. Licenses in the mobile market have been already issued for all types of networks (analogue, GSM, DCS, UMTS).

Numbering Launching of carrier selection and pre-selection, originally planned to 1 January 2003, and had been postponed to the second half of 2003 in case of CS and to the first half or 2004 in case of 2004. Number portability is expected to be introduced starting 1 January 2005 for all types of numbers (according to the new telecommunication law).

17 licensed fixed operators have been allocated an access code and fixed numbers have been allocated to them along with the access code (21% of allocated numbers). The numbering administrative fees (both one-off and annual) for standard telephone numbers and access codes are set.

USO and Quality of Service USO is imposed by law on the fixed incumbent operator that provides all basic services generally required by USO. The mechanism for financing of USO is set by law but the application is planned only with introducing of the expected New Act on Electronic Communications and Decree of the MTPT on USO.

Quality of Services is imposed on SMP operators by NRA and is measured according to its own standards. Some indicators are compatible with ETSI standards, and the values of these indicators for year 2002 were provided to TOSR.

Fixed Tariffs The tariffs of the fixed incumbent operator are still not rebalanced. Price cap is used for regulation of these tariffs and they may be changed only once in 6 months. The last change occurred in mid 2003.

The fixed incumbent offers several calling plans for both business and residential customers (including a low-end users plan). The price of a standard business plan has been increased as of 1 July 2003. Price levels of standard monthly rentals for both types of customers include free calling credit in the amount of 30 minutes. The level of standard rentals is still below the EU minimum charge.

Price of local calls has not been changed and now it is the most expensive among EUCCs and above the EU average; on the other hand, the price of long-distance calls has been decreased and it is below EUCCs and EU averages. The decrease of price applies also to fixed-to-mobile calls.

Prices of international calls have been decreased in the most important way. The prices for calls to near country, UK and USA are therefore below the EU average and one of the lowest among EUCCs.

No alternative operator provides any services as of 30 June 2003; the only indirect competition comes from VoIP operators. The charges are not significantly lower than those of the fixed incumbent. The fixed incumbent has applied the real-time charging system with a minimum per-unit charge of call.

Mobile services Mobile services in Slovakia are developed and are still developing very well. The penetration rate has grown to 60% as of 30 June 2003 (in comparison with 40% at the end of 2001). Mobile market growth can be also demonstrated by the growth in revenues; for year 2002 it was 573 mil EUR in comparison with 378 mil EUR in year 2001.

The two operators with GSM/DCS/UMTS licenses are competing on the market. The deadline for launching UMTS has been already set to April 1, 2006. There are no coverage and rollout obligations. Both administrative and spectrum (per base station) annual fees are set to operators. Both operators also offer GPRS services (more than 30.000 users reported as of 30 June 2003), the service of both operators is available to 97% of population.

Leased lines Leased lines of all evaluated speeds and lengths are provided in Slovakia. Prices are available for all these lines with the exception of 34 Mbit/s national lines, which are priced individually. As of 30 June 2003 no change has been made to the prices compared with January 2003.

The prices of national lines generally belong to the highest ones among EUCCs and all are above average in comparison with the EU average (mid 2002). On the other hand, the charges of evaluated international lines are quite low in comparison with other EUCCs and below the EU average for all evaluated lines.

Local access Local access in Slovakia has not been liberalized yet. RUO is expected to become compulsory after the adoption of the new Act on electronic communications (which should come into force on 1. 1. 2004) but not later than upon accession to the EU in May 2004.

The fixed incumbent is in a monopoly position in the area of local access. The potential can be seen in CaTV operators (125 operators have reached more than 60% of households), other fixed alternative operators already have licenses but have not started any service offers.

Interconnection The fixed incumbent and both mobile operators have been notified as having SMP in the interconnection market and the obligation to comply with cost orientation of interconnection charges has been imposed on them. LRIC costing system stipulated by the licence of the fixed incumbent was not verified by TOSR. Fixed incumbent also provided TOSR with a draft of RIO.

As of June 2003 there were no fixed-to-fixed interconnection agreements. Interconnection charges between the fixed incumbent and mobile operators are in place and have been submitted to TOSR, but they are marked as confidential, i.e. not available for presentation in this report. The first agreement on interconnection between the fixed incumbent operator and an alternative fixed operator was signed at the end of November 2003.

Internet The Internet segment is average in comparison with the other EUCCs. The penetration rates as of 30 June 2003 have grown in comparison with the end of 2002 from 16% to 21% for Internet users penetration and from 4% to 5% for household penetration. The number of hosts has also increased and reached 17 hosts per 1000 inhabitants. The number of broadband accesses to the Internet has grown, but most users are using dial-up. As of 30 June aDSL services were offered with single bit rate, but the price is very high, only about 500 users have reported to date. The price of dial-up connection remains unchanged and is relatively high in both evaluated peak and off-peak times.

Slovenia

Telecommunication market

The telecommunication market in Slovenia, with 615 mil EUR in 2002, is of middle size among EUCCs. The market has grown in comparison with 2001 by about 8%, and has been driven mainly by the mobile segment with 52% share in 2002. Mobile penetration in Slovenia is the second highest among EUCCs (83% as of 30 June 2003).
The fixed segment is relatively stable (this is represented by 51 % inhabitant penetration and an increasing household penetration – 85% at the end of 2001 and 96% as of 30 June 2003). The usage of advanced technologies (ISDN, ADSL) is widespread in Slovenia (65% of business lines and 20 % of residential lines are ISDN-based, which is by far the highest ratio among EUCCs). The fixed voice telephony amounts to about 41% of the total telecommunication market.
The telecommunication market in Slovenia has been liberalized since mid 2001 but no alternative fixed operators are operating in the country as of 30 June 2003. Telecom Slovenia (TS) is facing competition only in the market of international calls where 12 alternative (VoIP) operators are present on the market and 100% of population has a choice of those (VoIP) operators.

Ownership of fixed incumbent and mobile operators

67% of the fixed incumbent operator is owned by the state (62,53 % Republic of Slovenia and National Property Fund 4,25 %) and the remaining 33,5% shares are public.
The biggest mobile operator (Mobitel) is a fully owned subsidiary company of TS. Si. Mobil is in 75% ownership of its main strategic partner (Mobilkom Group, Austria), the smallest mobile operator has private owners.

National Regulatory Authority

The Slovenian NRA, Telecommunications, Broadcasting and Post Agency (ATRP), was established in 2001 and is financed from the fees for numbering, radio frequencies, licenses and notification. ATRP is engaged in telecommunications regulation and in other areas (post and broadcasting) as well. The regulation of telecommunications covers licenses, notifications, interconnection, local access, rights of way, USO, tariffs, and numbering. ATRP has 65 employees as the same number is planned for year 2003 (17 of them handling directly the telecommunications regulatory tasks).

Licenses

Licensing in Slovenia is defined as notification for operation of public network and provision of network services. Licenses are required for fixed public telephone services, broadcasting services or mobile public radio services on a self-operated network. For the notification there is only a fixed one-off fee of 361 EUR, and there are annual fees for licensees (108 190 EUR for SMP operator and 72 127 EUR for other operators). It is necessary to obtain the license prior to launching the telecommunication services. As of 30 June 2003, the fixed incumbent has the license for fixed public telephony services and two other operators have licenses for fixed public telephony services, but they do not provide them yet.
Slovenia is one of EUCCs where UMTS license has already been assigned to

the biggest operator in October 2002.

Numbering Numbering is an area that has been already partly transformed. 6 access codes have been already allocated to alternative operators but no realization is observed by 30 June 2003.

Starting 1 July 2002, carrier selection and carrier pre-selection for long-distance and international calls and number portability for fixed numbers is obligatory for SMP operators but not used by any operator for provision of services as of 30 June 2003. The numbering fees for numbers and codes are set; there are no single payments, only annual fees are required.

All fixed numbers are allocated only to TS, but allocation of numbers to alternative operators is already in process.

USO and Quality of Service In May, a decision was issued to TS on providing USO without cost recovery mechanism. USO fund is set up by the law, if the incumbent has less then 80% of market share or if it is proven that the provision of USO is an unfair burden to the USO operator. The number of payphones was constantly decreasing over the evaluated period, although the inhabitants' penetration is one of the lowest among EUCCs (1,79 payphones per 1000 inhabitants as of 30 June 2003).

Quality of Service is guaranteed and stipulated to SMP by the relevant Ministry according to ETSI EG 201 769-1 standards. All QoS indicators are supplied by TS.

Fixed Tariffs Starting June 2002, the time-based charging system was applied on the network of the fixed incumbent operator, with charging the time unit at the beginning of each time unit.

The tariffs are reported as not rebalanced yet, but the price levels of monthly rentals and evaluated calls are very similar to EU comparative figures. The monthly rentals for both business and residential customers do not include any free calling credit, but they are only slightly below the EU minimum charges.

The prices of national calls are low, compared with the EU average (mid 2003), which fact is also caused the by size of the country (there is no difference between local and long-distance calls). Prices of international calls are very low in comparison with other EUCCs and below the EU average.

Fixed tariffs are directly regulated and the operator has the obligation to make the changes publicly available 7 days in advance.

Mobile services Mobile services in Slovenia are some of the most developed, three licenses for DCS and two for GSM networks ensure good competition. The penetration rate is the second highest among EUCCs and still growing rapidly (83% as of 30 June 2003 in comparison with 70% at the end of 2001).

The 2 biggest operators provide GPRS services. There are 77 510 GPRS users as of 30 June 2003, which is about 4,67% of all mobile subscribers.

3G services should be available by the end of 2003 as UMTS license was assigned to the biggest operator. The obligations for the operator are relatively strong, because the deadline for launching the services has been set to the end of 2003 (more than half of the total population has to be covered at the end of 2004). The operator had to pay a single amount for the license and an additional annual license, numbering and spectrum fees are set to about 350 000 EUR in total.

Leased lines Leased lines of all evaluated speeds and lengths are provided in Slovenia and the prices are listed. The prices are generally low compared with the prices in other EUCCs. They are similar to the EU average as of mid 2002.

Local access Local access has been already liberalized. RUO (Reference Unbundling Offer) is compulsory for the fixed incumbent. It was published in May 2003. There is one alternative operator with an agreement for LLU in place and the second is in the process of negotiations.

Interconnection Interconnection is regulated and all relevant information is available. There are 1 fixed (TS) and 2 mobile operators notified as having SMP and they are obliged to use cost-based interconnection charges (TS uses FDC standard and the historic cost base). The RIO of the fixed incumbent has been already published and there are 3 mobile operators interconnected with TS as of 30 June 2003.

The fixed-to-fixed and mobile-to-fixed interconnection charges are equal. The charges were decreased in August 2003 and are at the EU average. Fixed-to-mobile interconnection charge is almost at the level of EU average. An access deficit charge in the amount of 2.25 Eurocents per minute is applied.

Internet Internet is a very well developed area in terms of high Internet penetration (45%, the highest among EUCCs), household Internet access penetration (38%), number of ISPs and number of hosts per inhabitant (20 hosts per 1000 inhabitants). Dial-up Internet access costs for residential users are high due to high ISP charges (above the EU maximum), but ADSL technology is relatively cheap.

Turkey

Telecommunication market

The Turkish telecommunication market, with nearly 8,1 billion EUR, remained the second biggest market among the EUCCs.

Although the mobile penetration of 36% has exceeded the fixed line penetration (27%) and increased significantly compared with 2001 (26%), it is still significantly below the levels common in Europe. The outlook for the development of mobile services market is very good as the Turkey's population is estimated to grow to 70.5 million by 2005; the Turkish population is young, with the average age of 26, lower than in Europe, and the majority of the population lives in urban areas.

Fixed telecommunication market in Turkey is still not liberalized. Türk Telekom, the incumbent, still holds 100% market share of fixed voice telephony services. Under the Telecommunications Law, Türk Telekom is the monopoly provider of national and international fixed voice telephony services until 31 December 2003, subject to some limitations. However, Türk Telekom will lose its monopoly in all fields, if the government's share in Türk Telekom drops below 50%, even if this happens before the 2003 deadline.

Ownership of fixed incumbent and mobile operators

Türk Telekom, the fixed incumbent operator, is completely owned by the state. There are four mobile operators in Turkey. Three of them have private owners, the fourth youngest mobile operator - Aycell – is a 100% subsidiary of Türk Telekom. The three mobile operators are: Turkcell (its main shareholders are Çukurova Companies Group (63%) and Sonera (37%)), Telsim (Telsim, Rumeli Group, a Turkish Conglomerate – 100%), and Aria (its main shareholders are İş Bankası (51%) and Telecom Italia Mobile (49%)).

National Regulatory Authority

The Telecommunication Authority currently regulates all telecommunication activities in Turkey. The Amending Law to the Telecommunications Law, passed in May 2001, has broadened the responsibilities of the Telecommunication Authority. Under the previous law, the Ministry of Transportation was entitled to grant licenses and general authorizations or conclude concession agreements with private companies for value-added telecommunications services, including GSM systems. This authority was transferred to the Telecommunication Authority in May 2001 pursuant to the new changes to the Telecommunications Law. The Telecommunication Authority was established as an independent telecommunications regulator with financial and administrative independence by the amendments to the Telecommunications Law in 2000. The Telecommunication Authority was formed on 23 March 2000 and its duties and activities are regulated under the Regulation on Structure, Duties and Working Procedures and Principles of Telecommunication Authority that became effective on 17 February 2001.

The main source of funding – unlike in other NRAs in EUCCs – comes from administrative fees such as wireless fees from GSM operators, fines from operators etc.

NRA has 447 employees, out of which 54 are handling directly the regulatory tasks. NRA plans to increase its staff handling telecommunications regulatory tasks to 71 (by another 17 persons) in 2003.

Licensing Licensing in Turkey is defined for provision of (1) public telephony services over public fixed telecommunication network, (2) provision of public telephony services over public mobile telecommunication network and (3) for establishing and operation of public telecommunication network. For all these licenses no administrative one-off or annual fee is charged.
The Turkish government has not established a licensing process for granting third generation mobile licenses in Turkey yet.

Numbering Carrier selection and number portability will not be provided in fixed telephony before 2004 due to the monopoly of Turk Telekom stipulated in the law. No decision has been taken so far in the area of number portability in mobile telephony.
All fixed numbers are allocated to the fixed incumbent operator due to its persisting monopoly position, and no fees for numbering resources have been set so far.

USO and Quality of Service The scope of USO applied in Turkey is limited to the standard. Only emergency calls, payphones and directory inquiries are included in USO, while connection to network, access to voice telephony and directory of subscribers are not covered by USO. The payphone penetration is the lowest among EUCCs and amounts to only 1,09 payphones per 1000 inhabitants.
QoS indicators are not set for the fixed incumbent operator, but Türk Telekom is measuring QoS according to its own standards, and the values for most indicators as of 30 June 2003 are available.

Fixed Tariffs In the network of the fixed incumbent operator, the pulse-based charging system is applied with no minimum charge per call. The business and residential monthly rental price level is significantly lower than in EU countries (about 3 times lower than the EU minimum charge). The monthly fee also includes 100 free units of calling credit for both residential and business customers.
The prices of national calls are average among EUCCs and also similar to the EU average. Prices of international calls are above both EUCCs and EU averages.
The tariffs are still not reported as fully rebalanced, price cap approach is used for regulation of fixed tariffs.

Mobile services 2 operators have GSM and 2 operators have DCS licenses. Mobile penetration rate as of 30 June 2003 was one of the lowest among EUCCs (36%), but Turkey has absolutely the biggest number of subscribers (about 25 million).
Licensing for 3G services has not started yet. All 4 operators provide GPRS services (the number of subscribers is not available).

Leased lines Leased lines of all evaluated speeds and lengths are provided in Turkey and the prices are available. National leased lines prices are among the lowest in comparison with other EUCCs and also below the EU average, while international leased lines are of the most expensive ones, compared across

EUCCs.

Local access Local access has not been liberalized yet and RUO (Reference Unbundling Offer) of the fixed incumbent operator is not mandatory.

There is no competition in local access, due to the monopoly of Turk Telekom.

Interconnection Fixed-to-fixed interconnection is still not applicable in Turkey due to the monopoly of the fixed incumbent operator. Interconnection charges between fixed and mobile operators are handled by the Access and Interconnection Ordinance that has been in force since 23 May 2003.

Determination of SMP operators and handling of interconnection charges will be included in the new Ordinance on Access and Interconnection.

The Authority declared Turk Telekom, the incumbent, to have SMP in the fixed termination area. And the Telecommunication Authority declared Turkcell and Telsim to have SMP in mobile termination market. According to the Access and Interconnection Ordinance, SMP operators have liabilities of cost orientation.

Internet Internet is still underdeveloped in terms of Internet penetration; according to the information of 30 June 2003, only 6% of population has access to the Internet. Its growing importance may be described by the number of ISPs (95 as of September 2003 in comparison with 24 in June 2002) and the number of hosts per capita (3 hosts per 1000 inhabitants in June 2003 in comparison with only about 2 in June 2002).

6 Annex 1

Table A: Licensing fees in fixed market applied in EUCCs, part I.

Country	Public fixed voice telephony services		Operation of public network and provision of network services	
	Fixed (EUR)	Annual (EUR)	Fixed (EUR)	Annual (EUR)
Bulgaria	* 47 000 EUR - fee for individual licensing of PSTN since 25.07.2003 * from 40 to 10 200 EUR - fee for individual licensing of public payphone systems, depending on the population coverage (6000 people to national coverage)	* 0,2 EUR - annual fee for 1 engaged national number from the assigned capacity of the National Numbering Plan - decreased by 70% for USO operators, decreased by 80% for assigned but not engaged numbering capacity * 1,3% of the annual income from the licensed telecommunications activities, VAT excluded - annual fee for control and monitoring	* 2 600 EUR - fees for individual licensing of telegraph and telex networks * from 200 to 10 200 EUR - fees for individual licensing of data transfer fixed networks, depending on the population coverage of the network (6000 people to national coverage)	* 0,2 EUR - annual fee for 1 engaged national number from the assigned capacity of the National Numbering Plan - decreased by 70% for USO operators, decreased by 80% for assigned but not engaged numbering capacity * 1,3% of the annual income from the licensed telecommunications activities, VAT excluded - annual fee for control and monitoring
Cyprus	861	% of gross revenue (0,5% - 2% according to the level of GR)	861	% of gross revenue (0,5% - 2% according to the level of GR)
Czech R.	3 171	0	3 171	0
Estonia	19	0	19	0
Hungary	8	0	8	0
Latvia	159	0	159	0
Lithuania	63	0	63	0
Malta	4270 fixed and 1% of annual turnover	Not applicable	Not applicable	Not applicable
Poland	2 500	0	Not applicable	Not applicable
Romania	Not applicable	Not applicable	Not applicable	Not applicable
Slovakia	1 149 838	300 000 EUR / all telecommunication services	2 395	5 000 EUR +0,08% of annual gross sales
Slovenia	0	0	365	0
Turkey	0	0,35 % of turnover	0	0,35 % of turnover

Table A: Licensing fees in fixed market applied in EUCCs, part II.

Country	Public voice telephony on self-operated network		Public voice telephony and network services on a self-operated network	
	Fixed (EUR)	Annual (EUR)	Fixed (EUR)	Annual (EUR)
Bulgaria	Not applicable	Not applicable	Not applicable	Not applicable
Cyprus	861	% of gross revenue (0,5% - 2% according to the level of GR)	861	% of gross revenue (0,5% - 2% according the to level of GR)
Czech R.	Not applicable	Not applicable	Not applicable	Not applicable
Estonia	32	0	51	0
Hungary	8	0	8	0
Latvia	159	0	159	0
Lithuania	63	0	63	0
Malta	Not applicable	Not applicable	595 400	357 240 EUR + 1% of total gross revenues
Poland	Not applicable	Not applicable	Not applicable	Not applicable
Romania	Not applicable	Not applicable	Not applicable	Not applicable
Slovakia	0	0	0	0
Slovenia	0	0	0	72,991 EUR; 109,486 EUR for SMP
Turkey	0	0,35 % of turnover	0	0,35 % of turnover

Table B: Numbering fees in fixed market applied in EUCCs

Country	Standard telephone number		Carrier selection code		National Signalling Point Code		International Signalling Point Code	
	Fixed (EUR)	Annual (EUR)	Fixed (EUR)	Annual (EUR)	Fixed (EUR)	Annual (EUR)	Fixed (EUR)	Annual (EUR)
Bulgaria	0,10	0,00	0	0	0	0	0	0
Cyprus	17 EUR per block of 1000 numbers	14 EUR per block of 1000 numbers	8 503	6 802	0	0	0	0
Czech R.	158,35	0,03	158	6342 EUR for 4-digit number 3171 EUR for 5-digit number	158	3 167	158	3 167
Estonia	0,00	1,53	0	5113 EUR for 3-digit number, 3835 EUR for 4-digit number 1278 EUR for 5-digit number	0	192	0	192
Hungary	0,08	0,25	0	4 957	0	248	0	2 478
Latvia	0,00	0,00	0	0	0	0	0	0
Lithuania	111 EUR per block of 1000 numbers	0,05	79	1 227	0	0	0	0
Malta	0,35	0,00	Not applicable	Not applicable	0	0	0	0
Poland	0,00	0,07	0	13 000	0	26	0	2 600
Romania	0,00	0,00	0	0	0	0	0	0
Slovakia	36,10	0,05	36	481	36	481	36	481
Slovenia	0,00	0,18	0	721	0	60	0	301
Turkey	0,00	0,00	0	0	0	0	0	0

7 Annex 2

Table C: List of tables

Table D: List of charts

Table E: List of used abbreviations

Abbreviation	Explanation
3G	Third generation mobile services (see UMTS)
ADSL	Asynchronous Digital Subscriber Line
ATM	Asynchronous Transfer Mode
CaTV	Cable Television
CC-10	10 acceding EUCCs (CC-13 excluding Bulgaria, Romania and Turkey)
CC-13	13 EU Candidate Countries
CPS	Carrier Pre-selection
CS	Carrier Selection
DCS	Digital Communications System
DMP	Dominant Market Position (used in Malta – similar to SMP)
EBIT	Earning before Interest and Tax
EBITDA	Earnings Before Interest, Tax, Depreciation and Amortization
EC	European Commission
ETSI	European Telecommunications Standards Institute
EU	European Union
EUCC	EU Candidate Country
FDC	Fully Distributed Cost
FTE	Full Time Equivalent
GDP	Gross Domestic Product
GPRS	General Packet Radio Services
GSM	Global System for Mobile Communications
IMF	International Monetary Fund
ISDN	Integrated Services Digital Network
ISP	Internet Service Provider
LLU	Local Loop Unbundling
LRAIC	Long Run Average Incremental Cost
LRIC	Long Run Incremental Cost
NMT	Nordic Mobile Telephony
NP	Number Portability
NRA	National Regulatory Authority
PPP	Purchasing Power Parity
PSTN	Public Switched Telephone Network
QoS	Quality of Service
RIO	Reference Interconnection Offer
RIPE	Réseaux IP Européens
ROCE	Return on Capital Employed
RUO	Reference Unbundling Offer
SMP	Significant Market Power
UMTS	Universal Mobile Telecommunications System
USO	Universal Service Obligation
VAT	Value Added Tax
VoIP	Voice over IP
xDSL	Digital Subscriber Line (general)

Table F: List of involved institution and their representatives

Country	Institution	Representatives
Bulgaria	Communications Regulatory Committee	Velislava Metodieva
	Ministry of Transport and Communications	Krassimira Dimitrova
Cyprus	Ministry of Communications and Works	Polycarpos Argyrou
	Office of the Commissioner of Telecommunications and Postal Regulation	Antonis Antoniades Markellos Potamitis
Czech Republic	Czech Telecommunication Office	Olga Müllerová
		Jana Kudrnáčová
	Ministry of Transport and Communications	Annelies Vrbová Petr Piškula
Estonia	Ministry of Transport and Communications	Tonu Nirk
	Estonian National Communications Board	Alar Smirnov
Hungary	Communications Authority of Hungary	Akos Juhasz
		Csaba Baboss
	Ministry of Informatics and Communications	Laszlo Toth
Latvia	Public Utilities Commission	Andrejs Dombrovskis
	Ministry of Transport	Tatjana Mihailova
Lithuania	Communications Regulatory Authority	Jurate Masiulionyte
	Ministry of Transport and Communications	Danute Paulikiene
Malta	Malta Communications Authority	Celia Falzon
	Ministry for Transport and Communications	Saviour Fenech
Poland	Ministry of Infrastructure	Marcin Grabek Bogdan Rozycki
	Telecommunications and Post Regulation	Joanna Kencler
Romania	National Regulatory Authority for Communications	Florin Dragomir
		Florin Drobota
	Ministry for Communications and Information Technology	Simona Stanica
Slovakia	Ministry of Transport, Posts and Telecommunications	Eva Sumbalová
	Telecommunications Office of the Slovak Republic	Štefan Kardhordó
Slovenia	Telecommunications and Broadcasting Agency	Janja Varšek
		Albin Poljanec
		Irena Andolšek
Turkey	Telecommunications Authority	Yavuz Göktaylar
		Cihan Aydin