The Norwegian Electronic Communications Market
Year to 30 June 2007

10 October 2007 -

Post- og teletilsynet

KEY FIGURES Year to 30 June 2007	**1st half 2006**	**1st half 2007**	**Change, per cent**
Fixed telephony			
Subscriptions	2 084 455	2 030 282	-3 %
Of which:			
Residential	1 641 624	1 605 278	-2 %
Business	442 831	425 004	-4 %
Number of VoIP customers	278 803	426 211	53 %
Traffic in millions of minutes	6 727	5 379	-20 %
Of which:			
Residential	4 475	3 514	-21 %
Business	2 253	1 865	-17 %
Revenues from fixed telephony (NOK million, excl. termination)	4 538	3 888	-14 %
Of which:			
Residential	2 815	2 306	-18 %
Business	1 723	1 582	-8 %
Mobile telephony			
Subscriptions (including pre-paid cards*)	4 886 755	5 210 608	7 %
Traffic in millions of minutes	3 759	4 558	21 %
Number of SMS mesages (million)	2 503	2 831	13 %
Number of MMS messages (million)	50	51	2 %
Revenues from mobile telephony (NOK million, excl. termination and roaming)	7 008	7 382	5 %
Broadband			
Internet subscriptions via broadband	1 126 921	1 362 542	21 %
Of which:			
Residential	1 017 375	1 226 215	21 %
Business	109 546	136 327	24 %
Revenues, Internet via broadband (NOK million)	2 428	2 842	17 %
Of which:			
Residential	1 756	2 043	16 %
Business	672	799	19 %
Leased lines (transmission capacity)			
Revenues from intra-company sales of leased lines (NOK million)	702	737	5 %
Total turnover for the electronic communications sector	14 676	14 849	1 %

*Beginning in 2006 the Norwegian Post and Telecommunications Authority has defined an active pre-paid card as a pre-paid card that has been active in the past three months. Historical data have been adjusted in view of this definition.

The Norwegian Electronic Communications Market
Year to 30 June 2007

1. INTRODUCTION

The Norwegian Post and Telecommunications Authority (NPT) has issued a half-year report on the Norwegian telecommunications market beginning with the first half of 2001. The half-year report is narrower in scope than the annual report. The purpose of this report is to show the most important trends in the market for public electronic communication (the electronic communications market).

Some changes have been made in the figures from previous years. NPT carries out quality control of the reports submitted by operators. Sometimes, however, we do not uncover erroneous reports until we can compare several years of data. We therefore disclaim any errors that may occur.

2.1 Market information

Changes in the number of providers

At 30 June 2007 there was a total of 206 operating providers of electronic communications services in the form of fixed telephony (including voice over Internet protocol, VoIP), mobile telephony, Internet (broadband) and leased lines. The corresponding number at 30 June 2006 was 158. The number of broadband providers has risen from 149 to 161 from the end of the first half of 2006 to the end of the first half of 2007.

	1st half 2006	31 Dec. 2006	1st half 2007
Fixed telephony	*83*	*83*	*82*
Of which VoIP	*66*	*76*	*75*
Mobile telephony	*31*	*31*	*34*
Broadband / Internet	*149*	*163*	*161*
Leased lines	*40*	*28*	*30*

Table 1 Number of providers

Broadband penetration

There are now more than 1.2 million residential customers with broadband. The number of residential broadband subscriptions rose by 21 per cent from the first half of 2006 to the first half of 2007. In all, 59 per cent of households in Norway have broadband. This is up from 50 per cent in the same period the year before. Figure 1 shows the growth in broadband penetration and increase in the number of providers from 2002 to 2007. In this context, broadband means that the household can receive most services transmitted over the Internet with satisfactory quality.

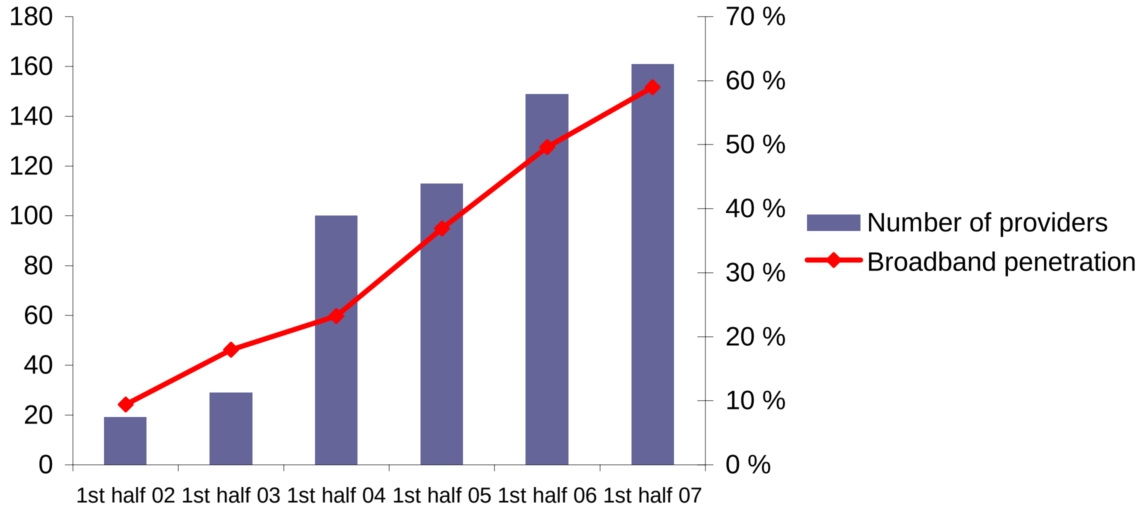

Figure 1 Number of broadband providers and percentage of households with broadband

The current ADSL rollout will result in coverage of nearly 90 per cent of the population. Estimates done by NPT indicate that further rollout on market terms can yield coverage of around 93 per cent, based on current ADSL technology. Further rollout exceeding this will involve a large number of exchanges with a limited customer base. Rollouts here would have to rely on financial subsidies. To some extent, an increase in coverage beyond the aforementioned 93 per cent is possible using other technologies, though this too may depend on construction subsidies.

Mobility in the mobile market

In the first half of 2007 an average of 58,300 mobile subscribers switched to another mobile operator. Corresponding monthly figures in 2006 and 2005 were 47,000 and 41,300, respectively. That is, the number of transfers shows a rising trend. During the year, around 13 per cent of subscribers switched to another service provider. During the pervious period the corresponding share was 11 per cent. Number portability, i.e., the ability to take one's mobile number to another operator, was introduced on 1 November 2001. Since then more than 2.7 million subscribers have switched to another operator.

2.2 NPT actions – first half of 2007

Significant market power (SMP)

In the markets for electronic communication some providers may have what is called significant market power (SMP). Pursuant to the Electronic Communications Act such providers shall have specific obligations imposed on them. Any regulation shall help to foster sustainable competition in the markets for electronic communication. The European Commission and EFTA Surveillance Authority (ESA) have identified 18 different markets that may be relevant for specific regulation. On 3 May 2007 NPT issued a decision in the leased lines markets (Markets 7, 13 and 14). Thus, NPT has issued or made decisions in all 18 predefined markets.

In Market 16 (mobile termination) NPT issued its first decision in September 2005. In 2006 NPT began a new review of this market, and a new decision was issued on 8 May 2007. A further overview of the status of the various markets appears in Appendix 3.

Termination charges in the fixed network

All providers of termination services in the fixed network have been designated as having significant market power and are thus subject to specific regulation, including price controls. Telenor's termination charges are regulated by a price cap, while the other providers are to charge "reasonable" prices. "Reasonable" prices mean that the charges are to be based on Telenor's termination charges, though departures may be allowed if certain circumstances so warrant.

NPT conducted a review of Telio's termination charges and on 28 February 2007 issued a decision that Telio's termination charges were to be reduced to the same level as Telenor's (reciprocal prices) by 1 May 2007, which Telio appealed. After considering Telio's appeal, the Ministry of Transport and Communications upheld the decision on 11 July 2007, except that the price reduction is to take place in two steps, on 1 January and 1 July 2008.

NPT is also reviewing the termination charges of four other providers with higher charges than Telenor: Get, Hafslund, TDC Song and Ventelo. It is expected that NPT will reach conclusions in these cases in October 2007.

2.3 Consumer information

Internet portals

NPT attaches great importance to information on the electronic communications market for consumers and businesses. On NPT's website there is a dedicated consumer service with broad-based information on mobile telephony, fixed telephony, VoIP, the Internet and other topics. On the website there are also links to portals for information in particular areas:

- The website (www.telepriser.no) allows users to compare prices of the various providers of fixed telephony, VoIP, mobile telephony and Internet services. The site also provides other useful information on electronic communications services.
- The portal (www.nettvett.no) offers information, advice and guidance on the secure use of the Internet. The information is aimed at consumers and small and medium-sized businesses alike. The website was created by NPT in collaboration with other authorities, the ICT industry and consumer groups.
- The site (www.bredbandsporten.no) provides information about broadband to consumers, businesses and providers and developers of broadband.

All together, these three websites had more than 438,000 visits in the first half of 2007. In the same period, our website www.npt.no had 340,025 visits.

Consumer Complaints Board

The Norwegian Consumer Complaints Board for Electronic Communications (www.brukerklagenemnda.no) was established on 1 February 2006 following an agreement between the providers of electronic communications and the Consumer Council of Norway. The Consumer Complaints Board handles dispute cases in which the consumer's complaint has been rejected by the service provider in question. Consumers and firms with up to ten employees may bring their cases before the Board. Around 150 providers have entered into an agreement with the Consumer Council of Norway regarding participation. Since its inception and up until 9 October 2007, the Board has received 928 complaints.

3. SUBSCRIPTIONS

3.1 Fixed telephony[1]

Figure 2 shows changes in fixed-line subscriptions (PSTN, ISDN, telephony via cable TV network and VoIP). Since 1996 there has been a decline in the number of subscriptions. PSTN and ISDN subscriptions fell by 11 per cent from 30 June 2006 to 30 June 2007, corresponding to 196,800 subscriptions. The decline from 30 June 2005 to 30 June 2006 was 12 per cent, corresponding to 239,400 subscriptions. The decline from 30 June 2004 to 30 June 2005 was 6 per cent, corresponding to 239,400 subscriptions. There is a total of 54,200 fewer subscriptions at 30 June 2007 compared with 30 June 2006. The decline in the number PSTN and ISDN subscriptions is compensated somewhat by the growth in the number of VoIP subscriptions, which rose by 147,400 from 30 June 2006 to 30 June 2007.

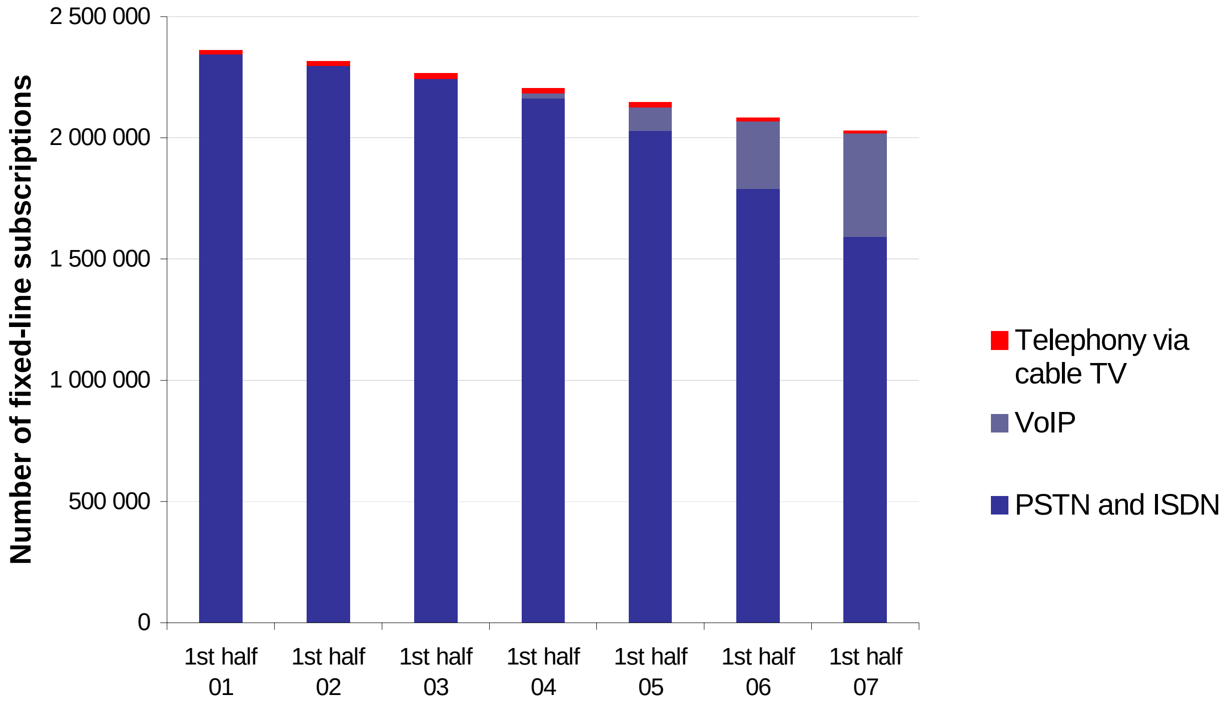

Figure 2 Number of fixed-line subscriptions

From 30 June 2006 to 30 June 2007, 175,200 residential customers cancelled their PSTN or ISDN subscriptions. However, the increase in VoIP customers means that the total decline in residential fixed-line subscriptions is 36,300. By comparison, the decline from 30 June 2005 to 30 June 2006 was 6 per cent.

VoIP was launched commercially during the first half of 2004. At the end of June 2007 there were 75 registered providers of VoIP.

In all, around 421,000 households had adopted VoIP by the end of June 2007. This corresponds to 26 per cent of all residential fixed telephony customers, as opposed to 17 per cent at the end of June 2006.

[1] Figures for PSTN/ISDN telephone service based on WLR are based on data obtained from Telenor.

VoIP requires a broadband connection. At 30 June 2007, 34 per cent of all households with a broadband use VoIP.

	1st half 02	1st half 03	1st half 04	1st half 05	1st half 06	1st half 07
Total number of subscriptions	1 744 285	1 730 139	1 704 246	1 671 528	1 641 624	1 605 278
Of which: PSTN and ISDN	1 724 299	1 705 943	1 661 686	1 552 745	1 347 433	1 172 269
Of which: VoIP			19 402	96 439	277 624	421 190
Of which: Telephony via cable TV	19 986	23 301	23 155	22 037	16 332	11 819
via other type of access		895	3	307	233	0

Table 2 Number of fixed-line subscriptions, residential market

In the business market there were 17,800 fewer subscriptions at 30 June 2007 than at 30 June 2006. The decline from 30 June 2005 to 30 June 2006 was 33,600.

	1st half 02	1st half 03	1st half 04	1st half 05	1st half 06	1st half 07
Total number of subscriptions	573 819	538 044	501 656	476 470	442 831	425 004
Of which: PSTN and ISDN	573 819	538 044	501 186	475 716	441 620	419 963
Of which: VoIP			446	750	1 179	5 021
Of which: Telephony via other type of access			24	4	32	20

Table 3 Number of fixed-line subscriptions, business market

The table below shows the percentage of Norwegians households with a fixed-line subscription. In all, around 23 out of 100 were without a fixed-line telephone at the end of June 2007.

Popularity of fixed telephony	1st half 02	1st half 03	1st half 04	1st half 05	1st half 06	1st half 07
Subscriptions per 100 households	88 %	87 %	85 %	83 %	80 %	77 %

Table 4 Fixed telephony subscriptions as a percentage of the total number of households.

Carrier selection by prefix and carrier pre-selection were introduced in 1998 and 1999, respectively. Pre-selection allows operators without their own subscriber network to offer fixed telephony. However, Telenor will continue to bill these customers for the monthly subscription charge.

Telenor launched Wholesale Line Rental in 2003. This involves Telenor selling via resellers, who then bill customers for both usage and subscriptions.

A few operators provide telephony over their own infrastructure or over broadband lines.

Figure 3 shows that the total number of subscriptions is declining. The number of customers using carrier pre-selection and telephone service based on WLR is also declining. Subscriptions provided on an operator's own infrastructure, including VoIP, are rising. At the end of June 2007 the share of subscriptions that are carrier pre-selection, for service based on WLR or subscriptions provided over own infrastructure, including VoIP, was 38 per cent. By comparison, the share at the end of June 2006 was 34 per cent.

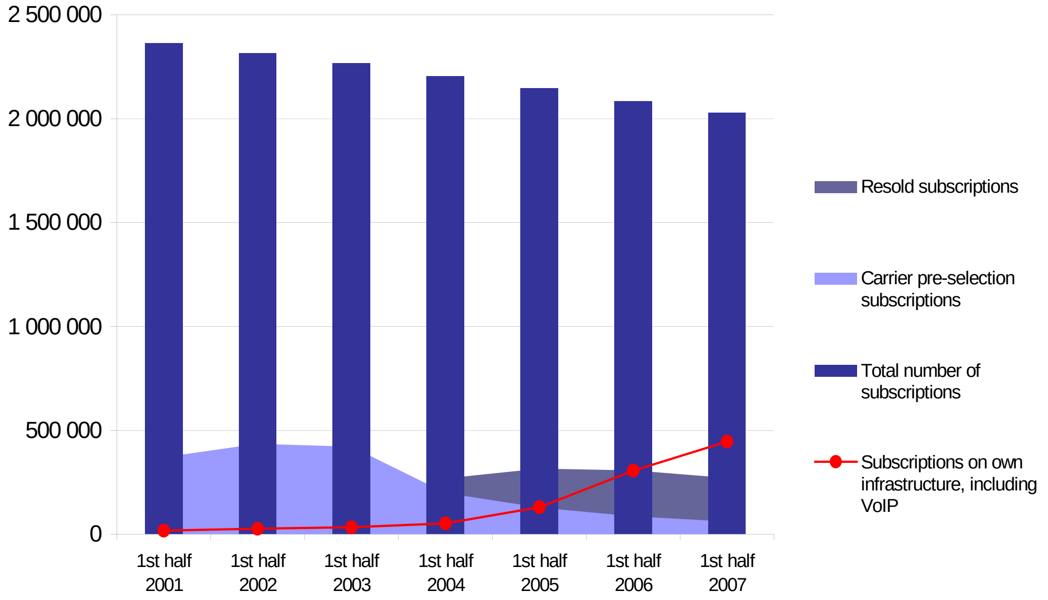

Figure 3 Carrier pre-selection subscriptions in relation to the total number of subscriptions

3.2 Mobile telephony

In the first half of 2007 the growth of pre-paid cards and ordinary mobile subscriptions was around 7 per cent compared to the first half of 2006. Corresponding growth from the first half of 2005 to the first half of 2006 was 6 per cent. The NMT network was closed down on 3 January 2005.

At the end of the first half of 2007 the share of pre-paid cards was 30 per cent, compared with 34 per cent at the end of the first half of 2006. Beginning in 2006 NPT has defined an active pre-paid card as a pre-paid card that has been active in the past three months. Historical data have been adjusted in view of this definition.

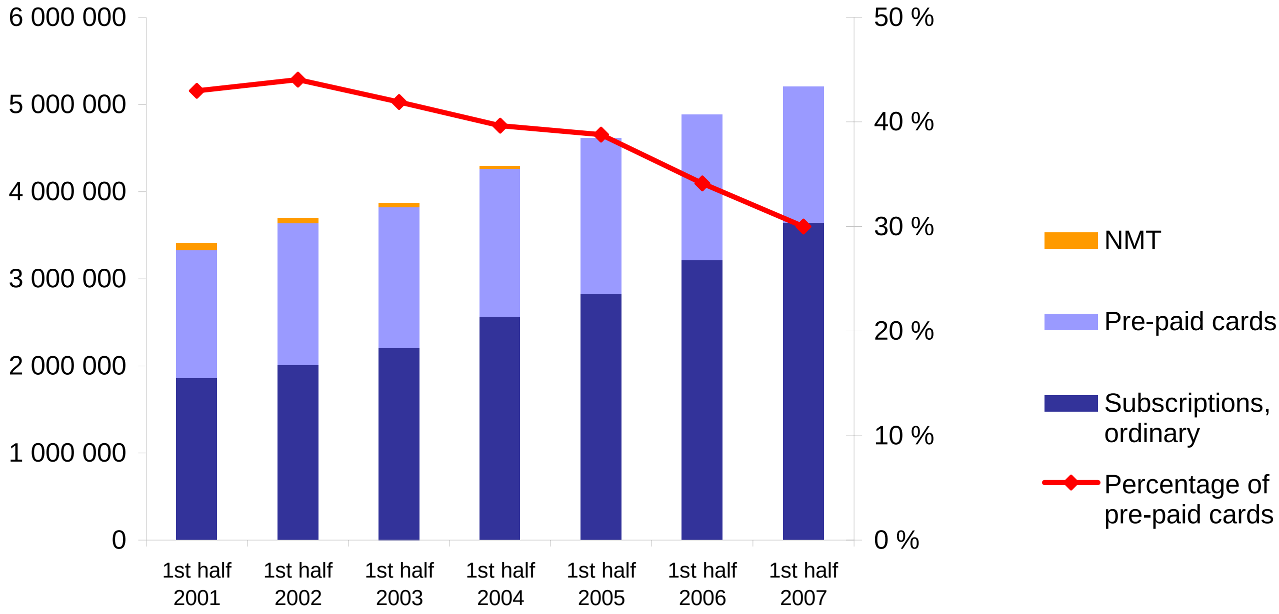

Figure 4 Number of ordinary mobile subscriptions, pre-paid cards and NMT subscriptions

Figure 4 shows that the total number of mobile subscriptions (pre-paid cards and post-paid subscriptions) in Norway has now passed 5.2 million, or 111 per 100 inhabitants, as Table 5 shows. That is, there are more mobile subscriptions than inhabitants. Of the total number of subscriptions around 175,000 are used for alarms, control systems and other non-voice applications. Furthermore, some subscribers have two or more mobile subscriptions. A survey by TNS Gallup[2] revealed that about 10 per cent have two or more subscriptions. If we adjust for these two factors, real mobile penetration is around 96 per cent.

Penetration of mobile telephony	1st half 02	1st half 03	1st half 04	1st half 05	1st half 06	1st half 07
Subscriptions per 100 inhabitants	82	85	94	100	105	111

Table 5 Penetration of mobile telephony relative to the number of inhabitants

3.3 Leased lines (transmission capacity)

Leased lines have a wide range of applications including:

- Connection of local networks for enterprises with geographically separated locations
- Data transmission for points of sale with payment terminals
- Transmission of broadcasting signals
- Production of public telephony service, the Internet, data transmission services and value-added services.

The number of analogue and digital leased lines has fallen each year since 2001. One reason for this may be that several businesses have chosen to go over to xDSL subscriptions instead of leased lines.
In some contexts the high quality of service afforded by leased lines is unnecessary. xDSL is far cheaper than leased lines, and like leased lines, SHDSL provides equal bandwidth in both

2 Norwegian Telecom Index, Q2 – 2006.

directions. It is leased lines with bandwidth under 2 Mbit/s that account for the decline. These are bandwidths that xDSL covers.

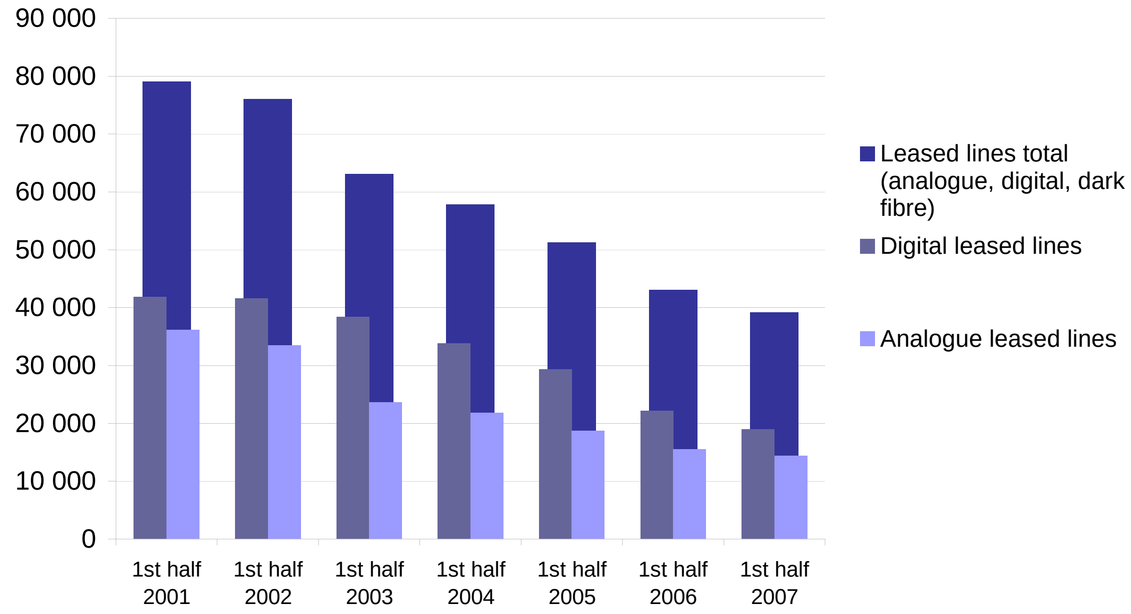

Figure 5 Leased lines, number

Table 6 shows the sale of leased lines at 30 June 2007 broken down by capacity.

	Sale of leased lines
Analogue	14 391
Under 64 kbit/s	291
64 kbit/s	826
Over 64 kbit/s, under 2 Mbit/s	4 880
2 Mbit/s (2048 kbit/s)	9 427
Above 2 Mbit/s, under 34 Mbit/s	1 563
34 Mbit/s	413
Over 34 Mbit/s, under 140 Mbit/s	955
140/155 Mbit/s	368
Over 155 Mbit/s	202
Raw copper, number	0
Dark fibre, number	5 824
Total	**39 140**

Table 6 Number of analogue and digital leased lines bought and sold, all circuit lengths

3.4 Broadband

The most frequently used types of Internet connection besides dial-up are:

- xDSL (primarily ADSL)
- Internet via cable TV (cable modem)
- Fixed access
- Radio access
- Broadband over optical fibre

In all there were 1.363 million broadband subscriptions at the end of June 2007, an increase of 235,600 compared with 30 June 2006. By comparison, the growth for the two previous periods was 291,000 and 318,500. xDSL was launched towards the end of 2000 and is the type of broadband with the biggest market share. At the end of the first half of 2007 there was a total of 1.041 million xDSL subscriptions, up 139,400 from the same period in 2006. 76.4 per cent of all broadband subscriptions are now xDSL. This is a decline of 3.6 per cent from the previous period.

Internet via cable TV is primarily provided by Get and Telenor. This is a service that has existed since 2000 and saw robust growth until the launch of xDSL. Cable TV networks with broadband capacity have less geographic coverage than xDSL. At 30 June 2007 there was a total of 205,300 broadband subscriptions based on cable TV, an increase of 50,700 from the first half of 2006. By comparison, the increase was 39,000 in the period 2005 to 2006.

Another broadband alternative is fixed access over leased lines. A relatively expensive service, it is aimed at the business market. However, there are also residential customers with this kind of fixed access. At 30 June 2007, 2,600 fixed accesses were registered, compared with 3,000 in the previous period.

During the past four years the number of broadband accesses provided over optical fibre and radio has risen. At the end of June 2007 83,200 customers had broadband over optical fibre, while 30,000 had broadband over a radio access, an increase of 32,500 and 13,200, respectively, from the first half of 2006. The biggest growth in percentage terms was enjoyed by broadband via radio access, followed by broadband over optical fibre, 82 and 64 per cent, respectively. Broadband via cable TV has grown 32 per cent, while xDSL has grown 15 per cent. In addition, 800 public WLAN zones (IP zones) were reported, as opposed to 940 in the previous period.

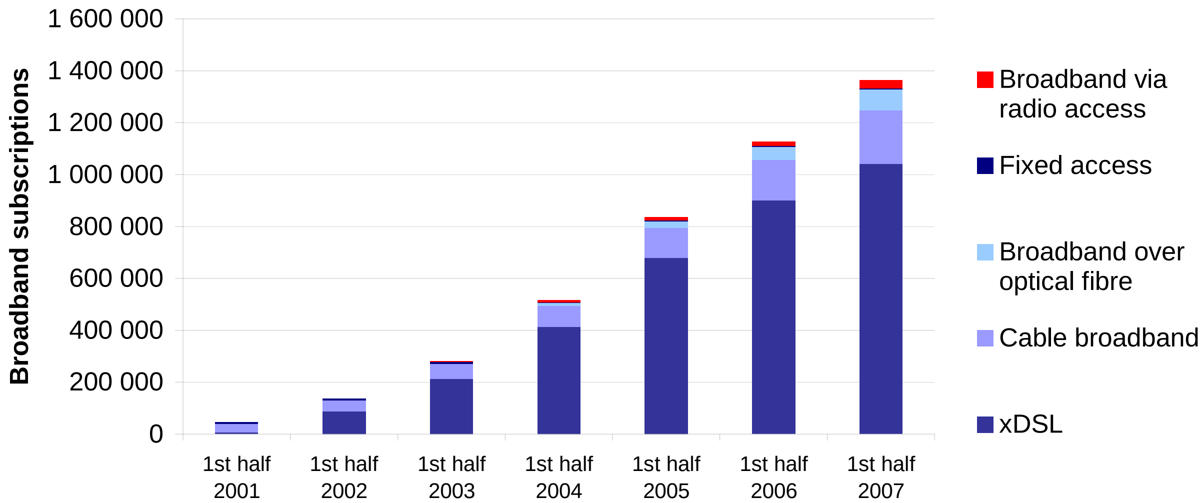

Figure 6 Broadband subscriptions, fixed access, xDSL and connection via cable TV network

Table 7 below shows that it is primarily the residential market that accounts for the volume increase in broadband subscriptions. There were 209,000 more residential broadband subscriptions at 30 June 2007 than at 30 June 2006. The increase in the business market was 27,000.

	1st half 02	1st half 03	1st half 04	1st half 05	1st half 06	1st half 07
subscriptions, residential	121 583	252 510	466 188	746 903	1 017 375	1 226 215
Number of broadband subscriptions, business	14 570	27 601	50 960	88 792	109 546	136 327
Number of broadband subscriptions, total	136 153	280 111	517 148	835 695	1 126 921	1 362 542

Table 7 Number of broadband subscriptions broken down between residential and business

In the residential market 1.226 million broadband subscriptions have been reported. This means that at 30 June 2007 around 60 % of households had broadband.

	1st half 02	1st half 03	1st half 04	1st half 05	1st half 06	1st half 07
Broadband subscriptions per 100 households	6	13	23	37	50	59

Table 8 Penetration of broadband

4. TRAFFIC

For fixed-line telephony traffic is almost exclusively time-charged traffic. In the area of mobile telephony there is also considerably SMS traffic, which is charged by the message, and data traffic, which is charged according to the volume of data in Kb. Traffic figures for fixed and mobile telephony include dial-up Internet and voice.

4.1 Fixed telephony

Figure 7 shows that time-charged traffic from the fixed network has been declining since 2001. Several factors may be causing this decline. There has been a considerable switch from dial-up Internet to broadband, a subscription type that is not time-charged. Mobile telephony has replaced parts of fixed telephony traffic. Moreover, various kinds of messaging services can have replaced this traffic.

From the period first half of 2006 to the first half of 2007 total fixed network traffic was reduced by 1.35 billion minutes (20 per cent). By comparison, the decline from the period first half of 2005 to the first half of 2006 was 1.77 billion minutes (21 per cent). It is traffic from fixed network to fixed network that accounts for the lion’s share of the decline.

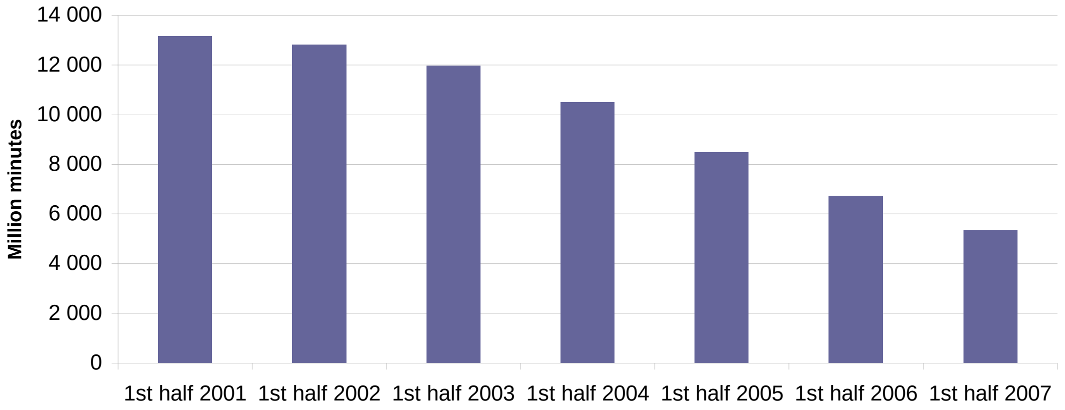

Figure 7 Traffic volume from fixed-line telephones

The table below shows that residential customers account for most of the volume of fixed-network traffic. For the first half of 2007 residential customers’ share of traffic was 65.3 per cent; the corresponding share for the first half of 2006 was 66.5 per cent.

Number of traffic minutes	1st half 02	1st half 03	1st half 04	1st half 05	1st half 06	1st half 07
Residential	8 588	7 861	7 056	5 792	4 475	3514
Of which: VoIP				158	599	843
Business	4 229	4 113	3 445	2 709	2 253	1 865
Of which: VoiP				2	10	26
Total	12 817	11 974	10 501	8 501	6 728	5 379

Table 9 Number of traffic minutes broken down between residential and business. Millions of minutes.

An average residential customer used their fixed-line telephone for about 2,200 minutes[3] during the first half of 2007, a decline of around 540 minutes from the first half of 2006. The decline from the period first half of 2004 to the first half of 2005 was 730 minutes, while the decline in the previous period was 680 minutes.

Average fixed-line telephone use for business customers was 4,300 minutes in the first half of 2007. Business customers saw a decline in the use of fixed telephony of 630 minutes from the first six months of 2006 to the first half of 2007. The decline in the first half of 2006 was an average of 620 minutes per customer.

Figure 8 shows that traffic fixed network to fixed network has decline for both the residential and business markets in the first half of 2007. The decline is 24 and 23 per cent, respectively. In the residential market traffic to the mobile network is down 16 per cent, while traffic abroad is up 6 per cent. For the business market traffic to the mobile network is marginally up by around 2 per cent, while traffic abroad is down 13 per cent. The figure also shows that it is traffic from fixed network to fixed network, originated by residential customers, who account from the biggest share of the reduction. The share of traffic going to the mobile network is rising in both the residential and business markets.

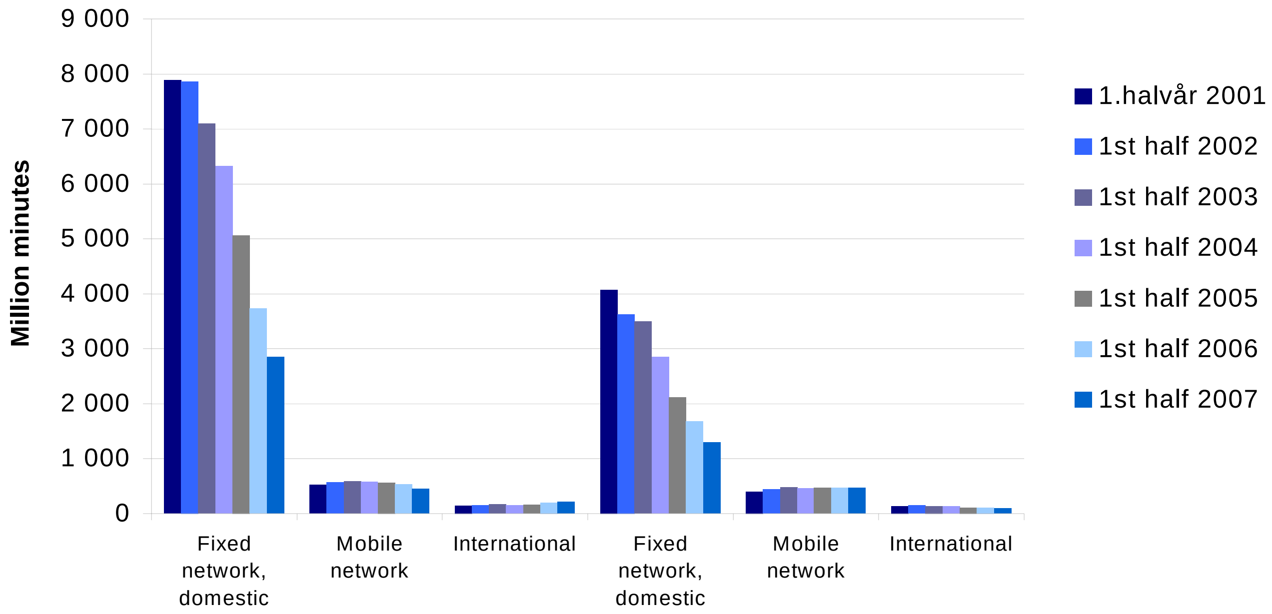

Figure 8 Traffic from fixed network to fixed network, mobile network and abroad. Residential and business markets

4.2 Mobile telephony

In the first half of 2007 mobile-originated traffic increased by over 21 per cent compared with the first half of 2006. By comparison, growth from the first half of 2005 to the first half of 2006 was 19 per cent. In traffic minutes growth was 798 and 594 million minutes, respectively. 76 per cent of mobile traffic was terminated on mobile networks in the first half of 2007. The corresponding share in the first half of 2006 was 73 per cent.

[3] This include minutes for both voice and dial-up Internet

Mobile customers talk on their phones more and more. During the first half of 2007 each mobile customer talked for an average of 889 minutes, an increase of 109 minutes compared with the first half of 2006. By comparison, growth from the first half of 2005 to the first half of 2006 was 87 minutes.

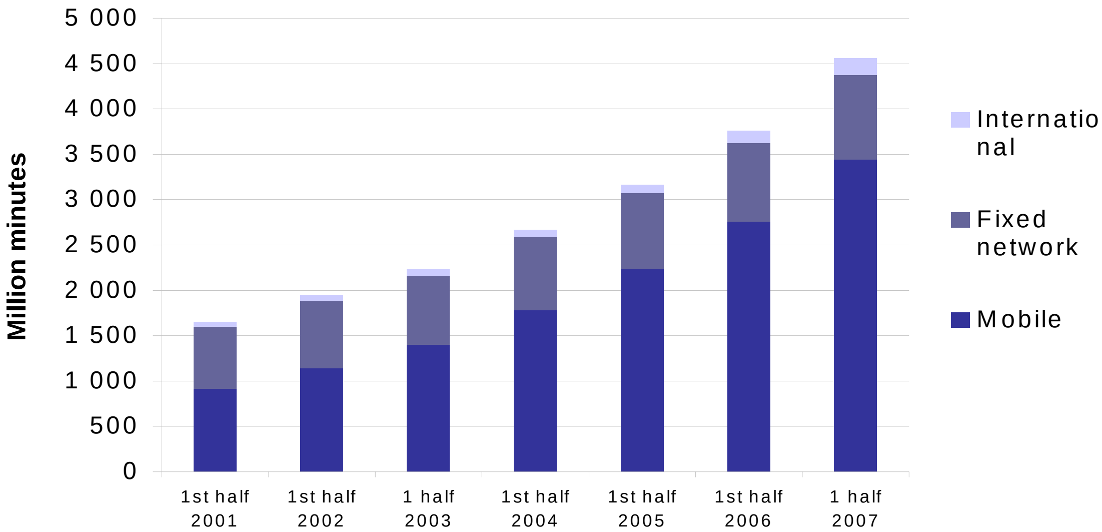

Figure 9 Traffic from mobile phones to fixed networks, mobile phones and abroad

Figure 10 shows the growth in the total number of sent messages. The total number of messages consists of SMSes, MMSes and commercial content messages (ring tones, logos, SMS chatting, etc.).

In all, mobile customers sent almost 12 per cent more messages in the first half of 2007 than the first half of 2006. SMS use rose by 13 per cent. In the first half of 2007 Norwegian mobile customers sent 3.044 billion messages, 2.83 billion of which were SMS messages. The same figures for the first half of 2006 were 2.73 billion and 2.50 billion, respectively.

Mobile customers also sent 51 million MMSes in the first half of 2007, as opposed to 50 million in the first half of 2006. The share of MMS messages in the past two years has been just under 2 per cent.

On average Norwegian mobile customers sent 99 messages per month. This is, on average, five more messages per month compared with the first half of 2006. 93 per cent of the total number of messages are SMS messages.

Data traffic on the mobile network has long been relatively limited, but is now about to climb. In the first half of 2007 data traffic was reported corresponding to around 128,000 Gb.

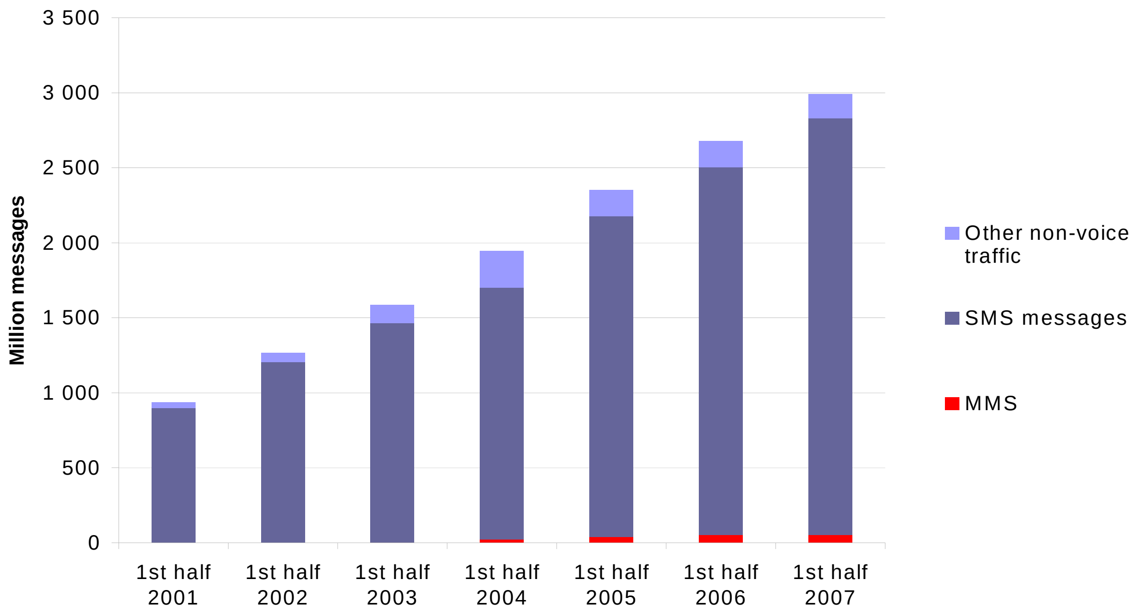

Figure 10 Total number of messages

4.3 Total traffic

Mobile traffic accounts for an ever increasing percentage of overall traffic charged per minute. In the first six months of 2007 mobile-originated traffic accounted for 46 per cent of the total traffic from fixed and mobile telephones, while in the first half of 2006 it accounted for 38 per cent and in the first half of 2005 for 28 per cent.

Mobile-originated traffic contributed to total traffic (fixed-network and mobile) growing somewhat from the first half of 2001 to the first half of 2002. After that, however, the decline in fixed-network traffic was so large that mobile traffic does not compensate for the reduction. Despite the fact that mobile-originated traffic rose by 21 per cent, total traffic declined by 5 per cent compared with the first half of 2006. The reduction from the first half of 2005 to the first half of 2006 was 10 per cent. The traffic from VoIP rose by 43 per cent from the first half of 2006 to the first half of 2007, and accounts for around 16 per cent of total traffic in the first half of 2007.

In numerical terms the decline in total traffic charged per minute was about 550 million minutes from the first half of 2006 to the first half of 2007. From the first half of 2005 to the first half of 2006 the decline was 1.2 billion minutes. In all, traffic from fixed and mobile telephones has declined by about 4.8 billion minutes (33 per cent) since the first half of 2002.

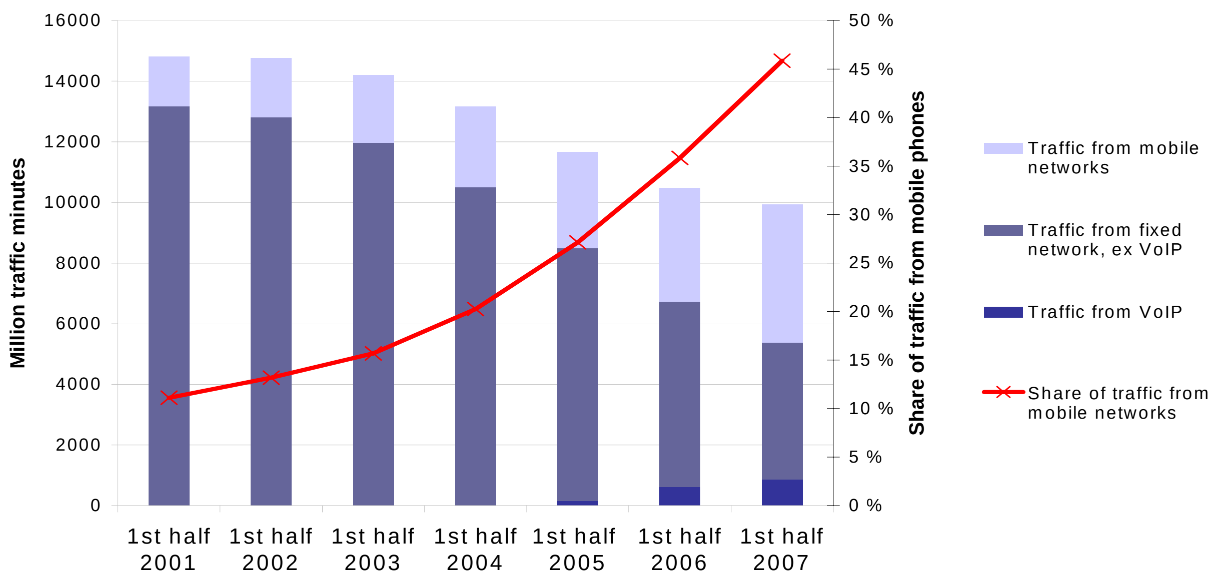

Figure 11 Total traffic volume from fixed and mobile networks

5. TURNOVER

5.1 Fixed telephony

Figure 12 shows the turnover for fixed telephony broken down by traffic directions and subscription type. Total turnover declined by 14 per cent, from NOK 4.538 billion to NOK 3.888 billion (a drop of NOK 650 million) from the first six months of 2006 to the first six months of 2007. The figure shows that the biggest decline in turnover is from traffic between fixed telephones domestically and revenue from subscriptions, installation relocation and ancillary services. Turnover from traffic from fixed to mobile telephones and from fixed telephones to numbers abroad has also fallen.

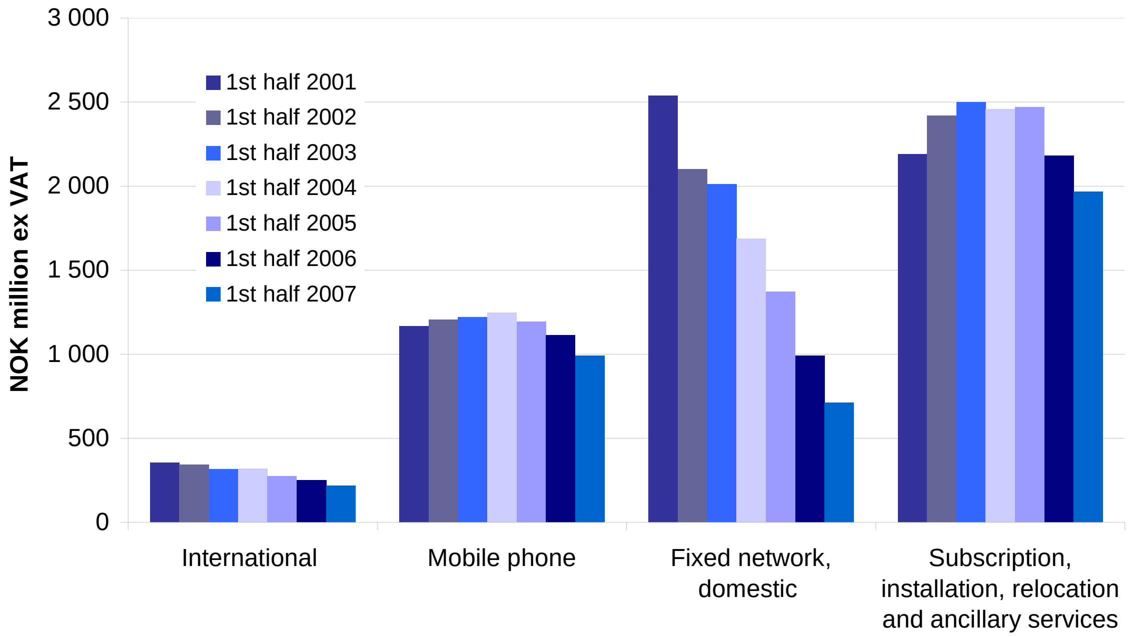

Figure 12 Turnover for fixed telephony for various traffic directions, subscriptions and ancillary services

The decline in turnover is primarily due to lower revenues from residential customers, though also in the business market was there a decline in revenues this past year. Revenues from business customers were reduced by NOK 141 million, while turnover from residential customers was reduced by NOK 509 million.

Number of traffic minutes	1st half 2002	1st half 2003	1st half 2004	1st half 2005	1st half 2006	1st half 2007
Business market	2 204	2 079	1 920	1 936	1 723	1582
Residential market	3 866	3 971	3 795	3 377	2 815	2 306
Total	6 070	6 050	5 715	5 313	4 538	3 888

Table 10 Turnover for fixed telephony in the residential and business markets. NOK million

5.2 Mobile telephony

Total turnover for mobile services was NOK 7.38 billion in the first half of 2007. This corresponds to an increase of NOK 375 million or around 5 per cent, compared with the first half of 2006. By comparison, the increase in turnover from the first half of 2005 to the first half of 2006 was NOK 633 million. This represents a rise of more than 10 per cent.

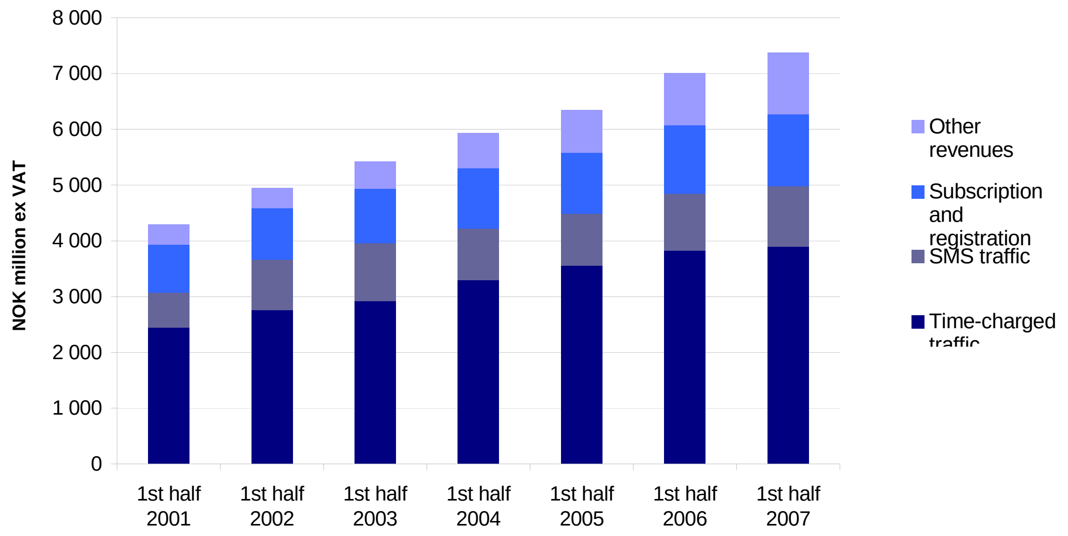

Figure 13 Turnover for mobile telephony

Table 11 shows mobile sector turnover broken down by various revenue areas. Although turnover for time-charged traffic represents the largest share, growth is slight from the first half of 2006 to the first half of 2007.

	1st half 2005		1st half 2006		1st half 2007	
	Turnover	**Share**	**Turnover**	**Share**	**Turnover**	**Share**
Time-charged traffic	3 559	56 %	3 823	55 %	3 897	53 %
SMS traffic	924	15 %	1 023	15 %	1 082	15 %
Subscription and registratior	1 098	17 %	1 230	18 %	1 291	17 %
Other revenues	763	12 %	932	13 %	1 112	15 %
Total	6 344	100 %	7 008	100 %	7 382	100 %

Table 11 Turnover for mobile services broken down by revenue areas

Table 12 shows revenue per customer, minute and SMS. Traffic turnover per minute was reduced substantially. At the same time, total revenue per customer fell somewhat.

	1st half 02	1st half 03	1st half 04	1st half 05	1st half 06	1st half 07
Total turnover per customer	1 358	1 417	1 420	1 388	1 454	1 440
Traffic revenue per minute	1,42	1,31	1,24	1,12	1,02	0,86
NOK per SMS	0,75	0,71	0,54	0,42	0,41	0,38

Table 12 Turnover for mobile services broken down by customer, minute and SMS

5.3 Leased lines (transmission capacity)

Total turnover value for leased lines was NOK 737 million in the first half of 2007, an increase of NOK 34 million from the first half of 2006. For digital lines up to and including 2 Mbit/s there was a decline in revenue of NOK 23 million, while for digital lines above 2 Mbit/s revenues were up by NOK 51 million. For analogue lines there was a revenue decline of NOK 6 million.

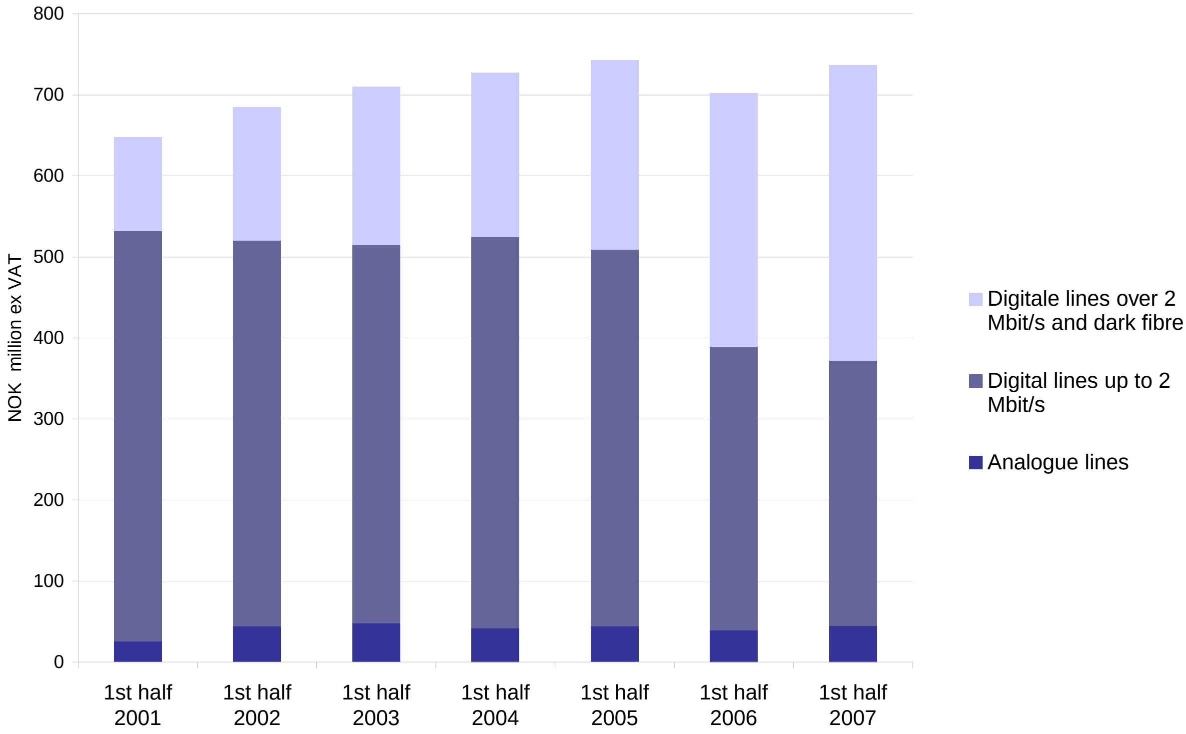

Figure 14 Turnover for leased lines

The table below shows turnover for leased lines broken down by bandwidth in the first half of 2007.

1000	**Sale of capacity**
Analogue	44,4
Under 64 kbit/s	2,4
64 kbit/s	13,6
Over 64 kbit/s, under 2 Mbit/s	109,0
2 Mbit/s (2048 kbit/s)	202,8
Over 2 Mbit/s, under 34 Mbit/s	54,8
34 Mbit/s	40,8
Over 34 Mbit/s, under 140 Mbit/s	50,0
140/155 Mbit/s	36,5
Over 155 Mbit/s	56,4
Raw copper, number	0,1
Dark fibre, number	125,8
Total	**736,5**

Table 13 Sale of leased lines in NOK million

5.4 Broadband

Total turnover for broadband subscriptions was NOK 2.842 billion for the first half of 2007. Broadband revenues increased by NOK 396 million from the first half of 2006. The rise in revenues from the first half of 2005 to the first half of 2006 was NOK 607 million.

77 per cent of total turnover for the first half of 2007 comes from xDSL (NOK 2.186 billion). In the first half of 2006 xDSL accounted for 80 per cent of total broadband revenues.

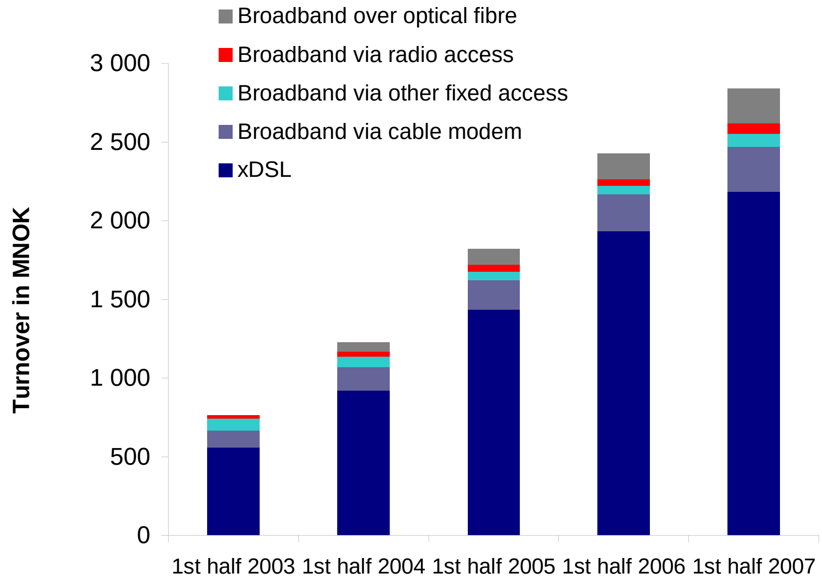

Figure 15 Turnover for Internet services, NOK million ex VAT.[4]

Figure 15 above includes broadband revenue only, not dial-up Internet. For the first half of 2007 NOK 48 million was reported for dial-up Internet, while for the first half of 2006 NOK 66 million was reported.

	1st half 03	1st half 04	1st half 05	1st half 06	1st half 07
Turnover broadband residential	510	807	1260	1756	2043
Turnover broadband business	254	419	561	672	799
Total turnover broadband	764	1226	1821	2428	2842

Table 14 Turnover for broadband broken down between residential and business

5.5 Total turnover in the telecommunications sector

Table 15 shows turnover in the areas of fixed telephony, mobile telephony, leased lines and Internet access. As data services are not included in the information gathered by NPT in connection with the half-year statistics, they are omitted here.

Total turnover has increased by 1.1 per cent since the first half of 2006. By comparison, the increase from the first half of 2005 to the first half of 2006 was 3.1 per cent. Turnover for fixed telephony fell by 14.3 per cent. Revenue from mobile telephony increased by 5.4 per

[4] Revenues include subscription and start-up revenues.

cent and leased lines were reduced by 4.9 per cent. Internet turnover was up by a whopping 15.9 per cent.

It is the turnover from broadband that has risen the most in numerical terms, by NOK 396 million, followed by mobile telephony, where turnover has increased by NOK 375 million.

In the first half of 2007 turnover from mobile telephony accounted for 49.6 per cent of total turnover, while fixed telephony represented 26.1 per cent. Turnover from broadband accounts for 19.4 per cent, while turnover from leased lines represents 4.9 per cent of total turnover for the first half of 2007.

	1st half 02	**1st half 03**	**1st half 04**	**1st half 05**	**1st half 06**	**1st half 07**
Fixed telephon	6 069	6 051	5 715	5 314	4 538	3 888
Mobile telepho	4 950	5 426	5 933	6 344	7 007	7 382
Leased lines	685	710	728	743	702	737
Internet	827	970	1 361	1 903	2 494	2 890
Total	12 531	13 156	13 737	14 303	14 741	14 896

Table 15 Total turnover for telephony, leased lines and the Internet. NOK million ex VAT.

6. MARKET SHARE

6.1 Fixed telephony

Figure 16 shows Telenor's share of traffic, turnover and subscriptions in the fixed-telephony market in the first half of 2007. In the period of the first half of 2007 total turnover was NOK 3.89 billion, the total number of traffic minutes came to 5.38 billion and there were 2.030 million subscribers at 30 June 2007.

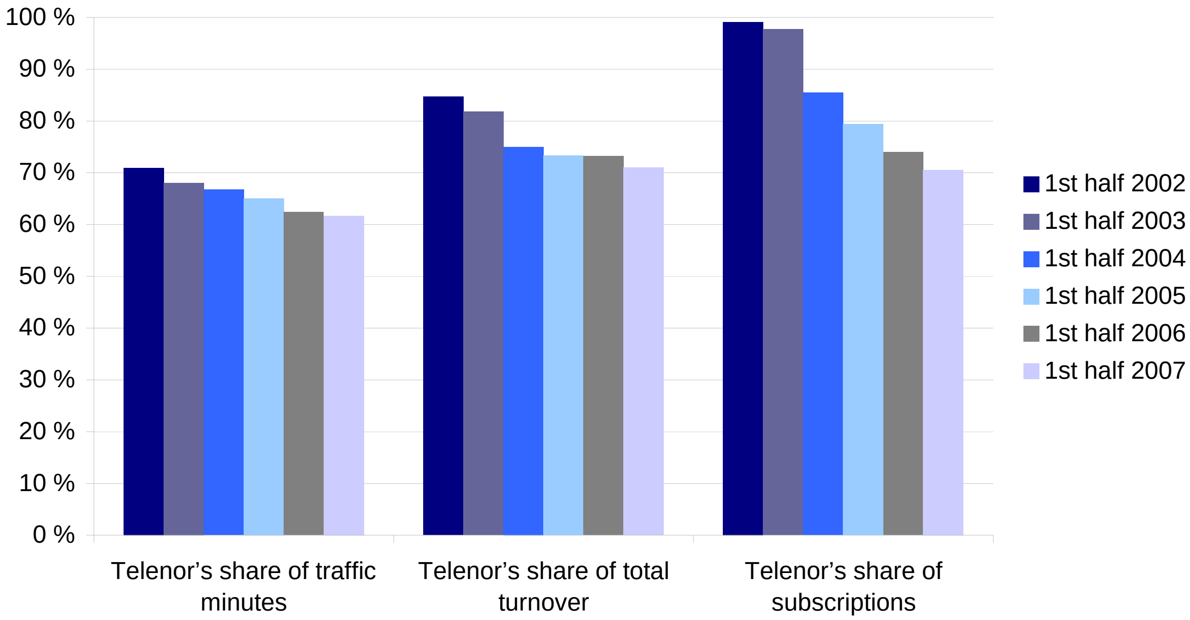

Figure 16 Telenor's market share of traffic, turnover and subscriptions

Tables 16 and 17 show operators' share of traffic and total turnover. Telenor continues to lose market share to the other operators. Tele2 is losing market share on traffic, but in terms of turnover its market share is rising somewhat.

Market share of traffic						
	1st half 02	1st half 03	1st half 04	1st half 05	1st half 06	1st half 07
Telenor	71,0 %	68,0 %	66,7 %	65,0 %	62,4 %	61,7 %
Tele2	17,2 %	16,9 %	15,6 %	15,0 %	13,4 %	11,3 %
Telio Telecom				1,4 %	4,8 %	7,2 %
Ventelo	3,8 %	5,8 %	6,5 %	7,3 %	6,8 %	7,0 %
TDC Song	2,0 %	2,3 %	2,7 %	3,3 %	5,4 %	4,2 %
Get		0,4 %	0,6 %	0,7 %	0,8 %	1,3 %
ACN Norge	1,1 %	1,4 %	1,5 %	1,0 %	1,2 %	1,0 %
Other	5,0 %	5,2 %	6,4 %	6,3 %	5,3 %	6,3 %
Total	100 %	100 %	100 %	100 %	100 %	100 %

Table 16 Operators' share of traffic. From the first half of 2005 and previously Ventelo also contains figures for PGOne and Axiti. From the first half of 2004 TDC Song contains figures for TDC and Song.

	Market share, total turnover					
	1st half 02	1st half 03	1st half 04	1st half 05	1st half 06	1st half 07
Telenor	84,7 %	81,8 %	75,0 %	73,3 %	73,2 %	71,0 %
Tele2	6,7 %	7,2 %	8,8 %	9,7 %	8,8 %	9,4 %
Ventelo	3,3 %	4,5 %	5,5 %	6,7 %	7,0 %	7,5 %
TDC Song	1,9 %	1,8 %	2,7 %	2,2 %	2,4 %	2,3 %
Telio Telecom				0,8 %	1,4 %	1,9 %
Get		0,7 %	0,8 %	0,8 %	0,8 %	1,2 %
ACN Norge	0,8 %	1,0 %	1,0 %	0,6 %	1,4 %	0,7 %
Other	2,7 %	3,0 %	6,3 %	6,0 %	4,9 %	6,0 %
Total	100,0 %	100,0 %	100,0 %	100,0 %	100,0 %	100,0 %

Table 17 Operators' share of turnover. From the first half of 2005 and previously Ventelo also contains figures for PGOne and Axiti. From the first half of 2004 TDC Song contains figures for TDC and Song.

6.2 Mobile telephony

Telenor and NetCom have their own nationwide mobile networks. In addition there are a few operators that have their own networks and that in various ways cooperate with Telenor or NetCom to provide nationwide coverage. Beyond these there are a number of service providers that resell subscriptions, primarily based on Telenor's and NetCom's mobile networks. They have no infrastructure or base stations of their own, but purchase network services from the network operators.

Figure 17 shows changes in market share for the two biggest network operators and the smaller service providers. The figure shows that Telenor Mobil has lost subscriptions to other operators over several years, and had at the end of the first half of 2007 a market share of 53 per cent. NetCom increased its market share until the first half of 2003, but has since lost to the other operators and now has a market share of around 23 per cent.

Together Telenor and NetCom had a share of around 76 per cent of subscriptions at the end of the first half of 2007. At the end of the same period in 2006 this share was 78 per cent, while at the end of the first half of 2005 it was 82 per cent.

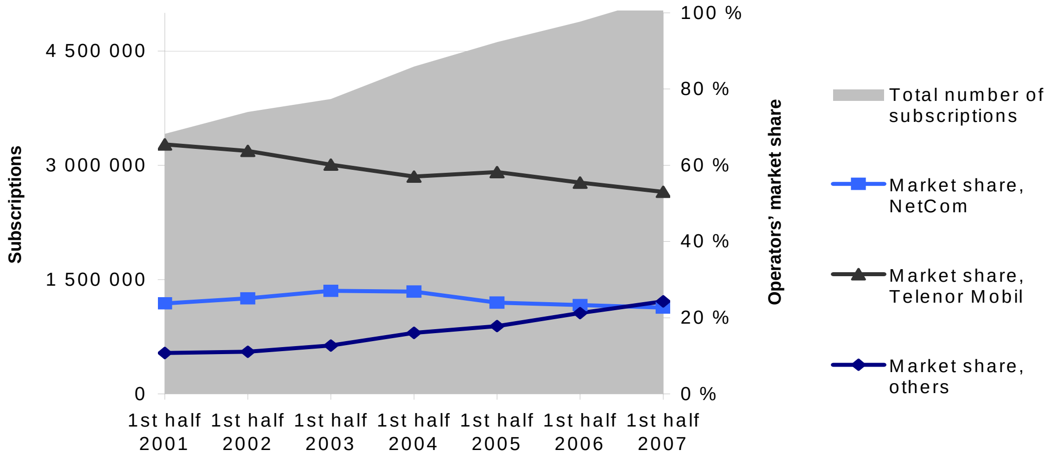

Figure 17 Telenor Mobil's and NetCom's subscriptions in the retail market and their market share in the retail market

Table 18 shows the operators' shares of the retail market for the first half of 2007.

	Telenor	NetCom	Tele2	Chess	Ventelo	Lebara	Other
Subscriptions	53,1 %	22,7 %	8,2 %	7,3 %	2,4 %	1,9 %	4,5 %
Traffic minutes	51,6 %	25,4 %	8,0 %	5,9 %	3,9 %	1,6 %	3,5 %
SMS messages	50,3 %	28,7 %	7,8 %	7,2 %	1,8 %	0,5 %	3,7 %
Revenues	53,0 %	24,7 %	8,6 %	5,6 %	3,3 %	1,5 %	3,4 %

Table 18 Market shares in the retail market for mobile telephony in the first half of 2007

6.3 Leased lines (transmission capacity)

Table 19 below shows Telenor's market share of the turnover for leased lines. Telenor has a falling share of total turnover in the market for leased lines.

Banetele is the next-largest operator, with a market share of total turnover of 20 per cent in the first half of 2007.

	1st half 2002	1st half 2003	1st half 2004	1st half 2005	1st half 2006	1st half 2007
Analogue lines	100 %	100 %	91 %	99 %	100 %	96 %
Digital lines up to 2 Mbit/s	81 %	73 %	68 %	67 %	73 %	72 %
Digital lines over 2 Mbit/s and dark fibre	35 %	34 %	42 %	41 %	35 %	34 %
Total	71 %	64 %	62 %	61 %	57 %	55 %

Table 19 Telenor's share of the market for leased lines

6.4 Broadband

In the broadband market Telenor is still the biggest, with 51 per cent of broadband customers. Developments in market share are relatively stable.

Table 20 shows operators' shares of the number of broadband customers (residential + business).

	1st half 2002	1st half 2003	1st half 2004	1st half 2005	1st half 2006	1st half 2007
Telenor*	51,8 %	57,7 %	55,0 %	53,7 %	51,1 %	50,0 %
NextGenTel	16,7 %	17,1 %	15,3 %	14,5 %	14,6 %	12,8 %
Get	20,1 %	11,7 %	8,2 %	6,6 %	6,3 %	6,8 %
Tele2	0,2 %	2,4 %	5,3 %	5,3 %	5,9 %	6,4 %
Ventelo**	*5,8 %*	*4,6 %*	*5,0 %*	*5,9 %*	5,8 %	5,4 %
Lyse Tele	0,3 %	0,4 %	0,9 %	1,4 %	2,1 %	2,4 %
Tafjord Mimer	0,8 %	1,4 %	1,0 %	1,1 %	1,4 %	1,3 %
BKK Bredbånd	2,4 %	0,7 %	1,0 %	1,0 %	1,2 %	1,2 %
Eidsiva bredb.			0,1 %	0,3 %	0,8 %	*1,2 %*
Other	1,9 %	4,0 %	8,2 %	10,2 %	10,9 %	12,5 %

Table 20 Operators' share of the number of broadband customers
**Market share from Tiscali is included from the first half-year to the first half of 2004.*
***Market shares from Catch and bluecom are included from the first half of 2002 until the first half of 2005.*

7. INTERNATIONAL COMPARISONS

The comparisons NPT has done are based on what are known as OECD baskets, intended to represent a given use of telephones or mobile phones, with a certain number of calls/call minutes to domestic fixed networks, mobile phones and abroad. In the comparison below the price for this combination of the number of calls and minutes is given in USD including VAT (ex VAT for the business market), corrected for differences in purchasing power (PPP: Purchasing Power Parity) and termed USD (PPP). The prices for leased lines apply to all three types, but are otherwise calculated in USD, adjusted for differences in purchasing power.

There may be several operators and several subscriptions for each country. In the overview below the cheapest subscription for each country is selected.

7.1 Fixed telephony

Figures 18 and 19 illustrate the differences in costs for fixed telephony in OECD countries, for residential and business customers. For residential customers Norway is the eighth least expensive country, and for business customers Norway is the third least expensive. In August 2006 the corresponding rankings were seventh and third place.

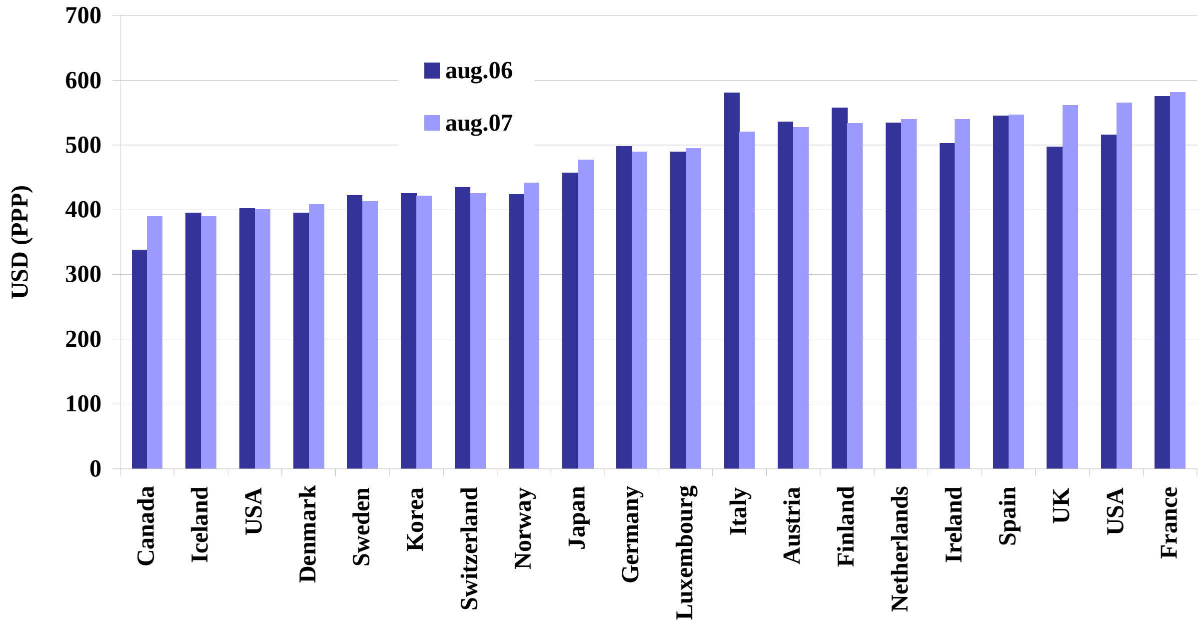

Figure 18 Annual costs for fixed telephony for residential customers in OECD countries, including VAT, August 2007 in USD, adjusted for differences in purchasing power (Source: Teligen)

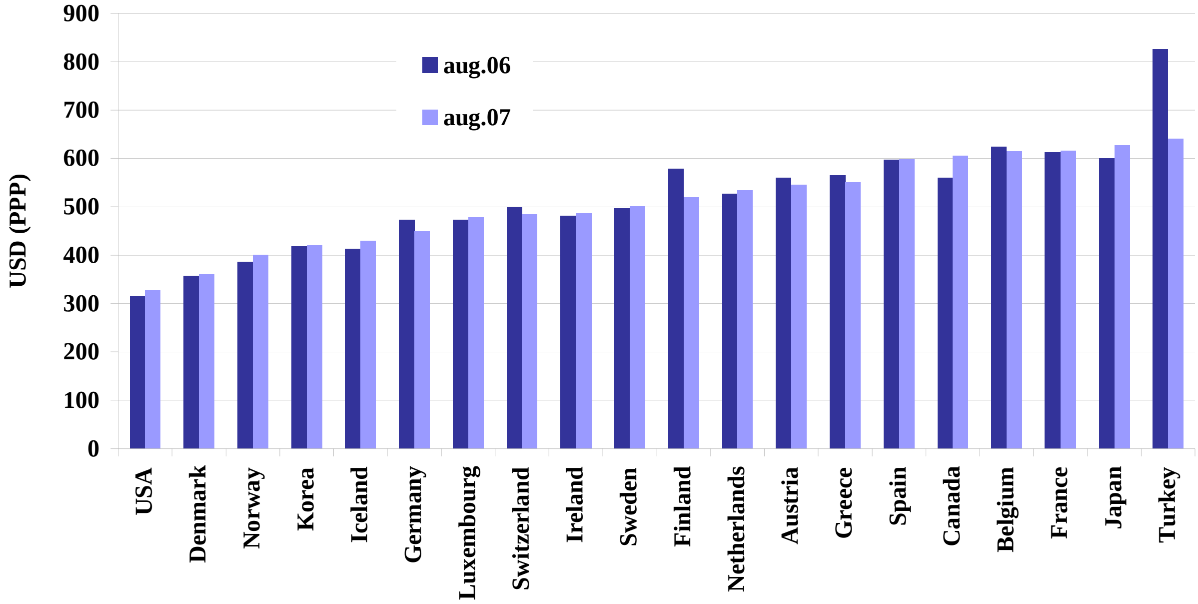

Figure 19 Annual costs for fixed telephony for business customers in OECD countries, excluding VAT, August 2007 in USD, adjusted for differences in purchasing power (Source: Teligen)

7.2 Mobile telephony

Pre-paid cards and post-paid subscriptions are included.

For the category light use Norway is the third least expensive country. For the category average use Norway is the second least expensive, while for the category heavy use, Norway is the fifth least expensive.

In August 2006 the corresponding rankings were fifth, sixth and fifth place, respectively.

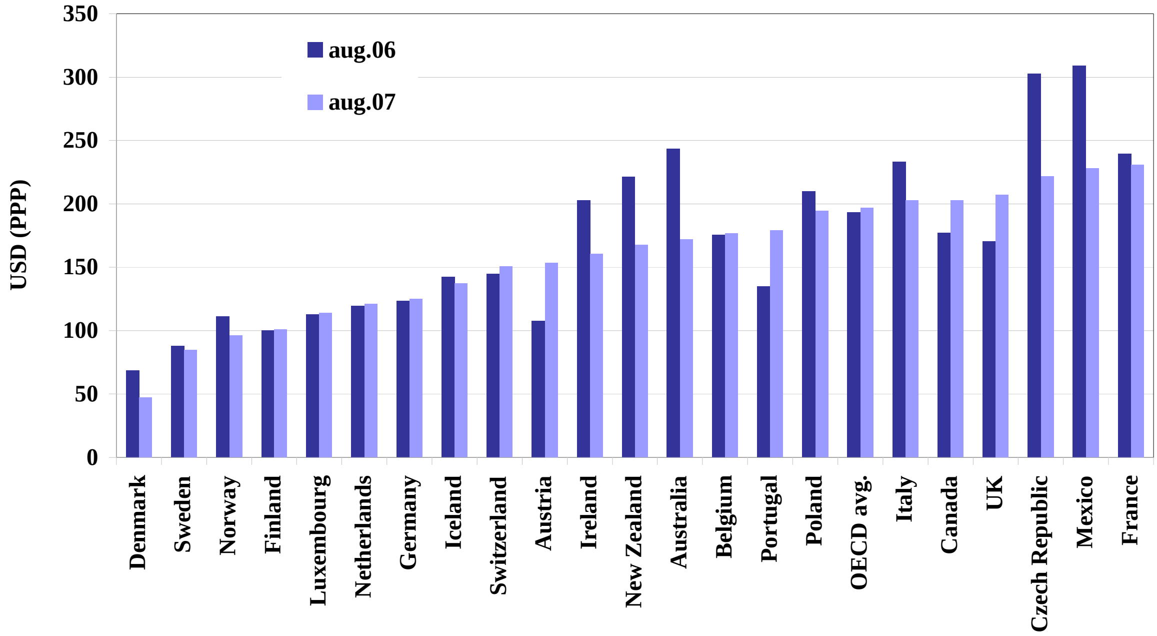

Figure 20 Annual costs for mobile telephony for light users in OECD countries, including VAT, and the OECD

average in August 2006 and August 2007 in USD, adjusted for differences in purchasing power. (Source: Teligen)

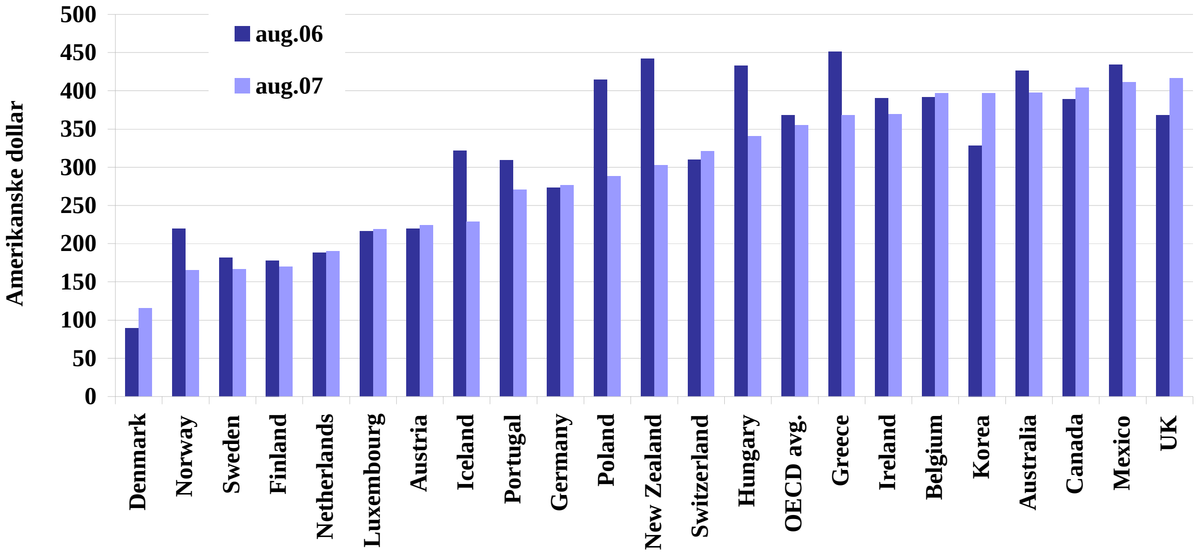

Figure 21 Annual costs for mobile telephony for average users in OECD countries, including VAT, and the OECD average in August 2006 and August 2007 in USD, adjusted for differences in purchasing power. (Source: Teligen)

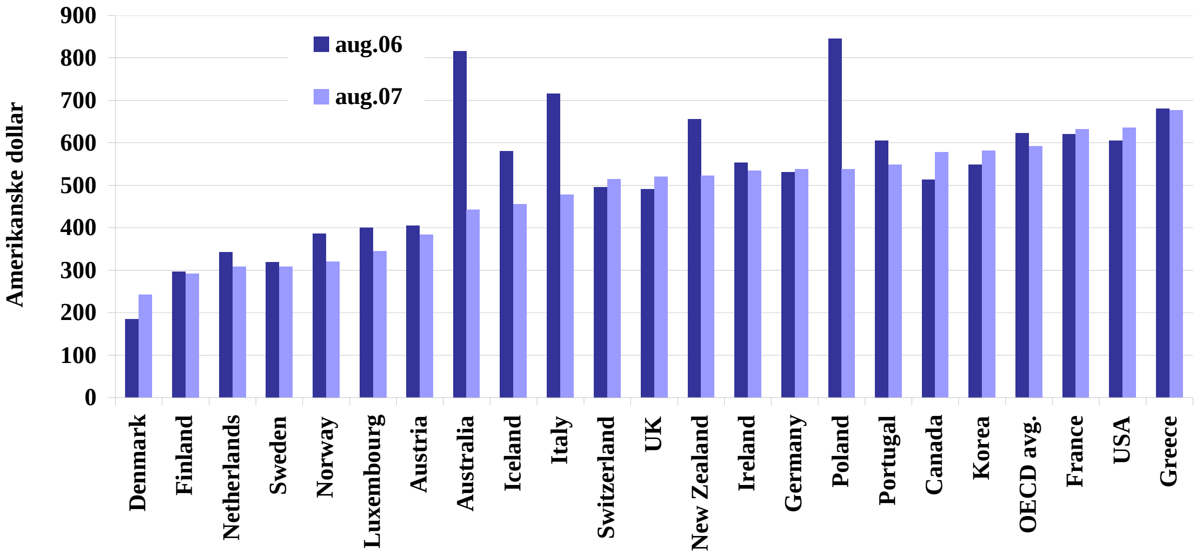

Figure 22 Annual costs for mobile telephony for heavy users in OECD countries, including VAT, and the OECD average in August 2006 and August 2007 in USD, adjusted for differences in purchasing power. (Source: Teligen)

7.3 Leased lines (transmission capacity)

For leased lines the OECD basket of national circuits of 64 kbit/s, 2 Mbit/s and 34 Mbit/s. The basket covers six different circuit lengths: 2 km, 20 km, 50 km, 100 km and 200 km. Norway was ranked number two in both August 2006 and August 2007.

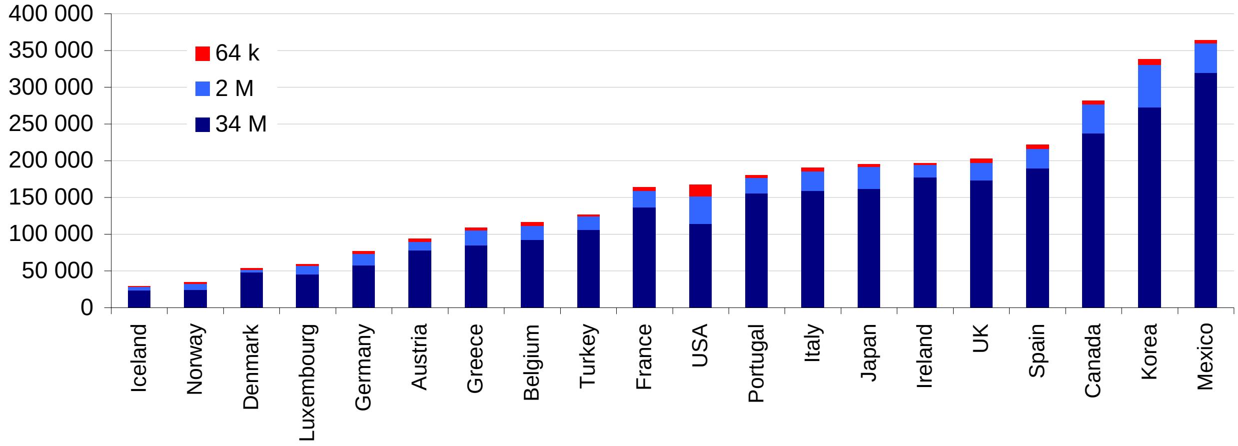

Figure 23 Price of leased lines in OECD countries, excluding VAT, measured in August 2007 in USD, adjusted for differences in purchasing power. (Source: Teligen)

APPENDIX 1: TELECOMMUNICATIONS SERVICE PROVIDERS IN OPERATION AT 30 JUNE 2007

At the end of June 2007 there were 206 active operators in the areas of fixed telephony (including VoIP), mobile telephony, broadband and leased lines. By comparison, at the end of June 2006 there were 158 active operators.

	Fixed telephone	Mobile phone	Broadband	Leased lines
3net AS	x		x	x
815mobil as		x		
ACN Norge AS	x	x		
Adapto IP Norge AS	x		x	
Agder Breiband AS	x		x	
Agder Telenett as			x	
A-link AS			x	
Arena Tele AS		x		
Austevoll Kraftlag Ba	x		x	x
AxessPartner AS			x	
Ballangen Energi AS			x	
BaneTele AS			x	x
Bellit AS	x	x		
Berger IKT AS			x	
Bergen Nett og Media AS			x	
BKK Marked AS	x		x	x
BOF AS	x		x	
Bonet AS			x	
Bredbånd i Trøndelag AS			x	
Bredbåndsfylket Troms AS			x	x
Bredbåndsservice AS			x	
Brednett Solør AS			x	
Broadnet Norge AS	x		x	
Brødrene Nielsen TV AS	x		x	
Bykle Breiband as	x	x	x	
Chess Communication as		x		
CityNett AS			x	
Combitel Networks AS	x	x	x	
ComCom AS		x		
connXion AS	x			
Consoll AS	x		x	
Cyberhemsen AS			x	
Dalane Breiband AS	x		x	
Danskerud Kabelnett, (DKnett)			x	
Dataguard AS			x	
Datapart AS			x	
Direct Connect AS			x	
Drangedal Everk			x	
Easynet AS			x	
Easytel AS		x		
EB Kontakt AS	x		x	
Eidsiva bredbånd AS	x		x	
Eltele AS			x	
Eniro Norge AS	x			

	Fixed telephone	Mobile phone	Broadband	Leased lines
Enivest AS	x		x	x
Equant Norway AS	x		x	x
Etne Elektrisitetslag AS	x		x	x
Evenes Kraftforsyning AS			x	
Fastnett AS			x	
Finnmark Bredbånd AS			x	
Finnås Kraftlag	x		x	
Firmatjenester AS			x	
Fitjar Kraftlag AS	x		x	
FOON AS		x		
Fortel AS	x	x	x	
Freewave AS			x	
Fræna Breiband AS			x	
Fredrikstad Fibernett As	x		x	
Funn IT AS			x	
Fusa Kraftlag AS			x	
GaulaNett			x	
Get AS	x		x	
GigaFib Holding AS				x
Hadeland Energi Bredbånd AS	x		x	
Hafslund Tokom AS			x	x
Halden Dataservice			x	
Hallingdal Kraft AS			x	x
Hardanger Breiband AS	x		x	x
Haugaland Kraft AS	x		x	
Hello Norway AS		x		
HemneNett AS	x		x	
Hesbynett AS	x		x	
HiperCom AS			x	
H-Nett Bredbånd As	x		x	
Homebase AS	x		x	
iaksess AS			x	
iBand AS			x	
Infonett Røros AS	x		x	
IPEA AS	x	x		
iPhone AS	x			
IPLINK AS	x			
IP-Only Telecom AS				x
ISTAD NETT			x	x
itConnect AS			x	
Itet AS			x	
Jæren Kabelnett			x	

	Fasttelefon	Mobiltelefon	Bredbånd	Overføringskap.		Fasttelefon	Mobiltelefon	Bredbånd	Overføringskap.
Jølster Breiband AS			x		Romerike Multimedia AS			x	
Kabel TV AS			x		Salten Bredbånd AS	x		x	
Kinsarvik Breiband AS			x		Samnett AS			x	x
Klepp Energi as	x		x		Sandefjord Bredband KF	x		x	
Kragerø Energi Bredbånd AS	x		x		Sat24.no AS			x	
Kragerø Kabel TV AS			x		Scan-Net AS			x	
Krøderen Elektro As			x		Selbu Energiverk as	x		x	
Kvamnet AS	x		x	x	Skånevik Ølen Kraftlag AS	x		x	x
Kvinnherad Breiband AS	x		x		Sogn Breiband AS			x	
Lebara AS	x	x			Sola Bredbånd AS				x
Lier Fibernett AS	x		x	x	Start Network AS			x	
Lindtel as			x		Storfjord Aksess AS			x	
Lofotkraft Bredbånd AS	x		x		SuCom AS			x	
LOS Bynett AS	x		x	x	Sund Bredbånd AS			x	
Lyse Tele AS	x	x	x		Sunnhordland Kraftlag AS	x		x	
MegaSat AS			x		Svorka Aksess			x	
Mobyson as		x			Sørfoldnett KF			x	
Modum Kabel-TV AS			x		Kabelnett AS			x	
Monsternett AS			x		Tafjord Mimer AS	x		x	x
MTU Link AS	x	x	x		TalkMore		x		
MultiNet AS			x		TampNett AS				x
NetCom AS	x	x			TDC Song AS	x	x	x	
NetPower Int. AS		x	x		Tele2 Norge AS	x	x	x	
NettDialog AS	x				TM - Telecom Management AS	x			
Network Norway AS		x			TeleFiber as			x	x
Network Solutions Norway AS			x		Telenor ASA	x	x	x	x
Nexttit Solutions AS			x		Telenordic		x		
NewPhone Norge AS		x			TeleSat International AS			x	
NextGentel AS	x		x		Telinet Tele AS	x			
NextNet as			x		Telio telecom AS	x	x		
Nittedalsnettet AS			x		Telipol AS	x			
Nordisk Mobiltelefon Norway AS			x		TinnCom AS			x	
NoExtras.net		x			Totalnett AS			x	
NordlysNett AS			x		Tranøy Kommune			x	
Nordmøre Energiverk Bredbånd A	x		x		TrigCom AS	x			
Nornett AS	x		x		Trollfjord Bredbånd AS	x		x	
Norsk Kabel-TV AS			x		Troms Kraft Fiber AS			x	
NotCom AS			x		Tussa IKT AS	x	x	x	
Notodden Energi AS	x		x		Tvedestrand Kabel TV AS			x	
NTE Bredbånd AS	x		x	x	Tysnes Breiband AS	x		x	
Numedal Aksess AS			x		UniKom TV AS			x	
Nutel AS	x	x	x		Universal Telecom	x			
Okapi AS			x		Venabygd Breiband AS			x	
One Call AS	x	x			Ventelo Bedrift AS	x	x	x	x
Optonet AS			x		Ventelo Privat AS	x	x	x	
Osei AS			x		Verizon Norway AS			x	x
Phonect AS	x	x			Vesterålskraft Bredbånd AS	x		x	
Phoniax AS	x				Vik IT-Partnar AS			x	
Phonzo AS	x				Viken Fibernett AS	x		x	
PowerTech AS			x		Vitel Tele AS		x		
Prodoc Drift AS			x		Vitnett AS			x	
Rananett AS			x		Voop AS	x			
Rauma Energi Bredbånd AS	x		x		WAN NORGE AS			x	
RB net AS			x		Whitebird New Media AS			x	
RingNett AS			x		Wia-Nett AS			x	
Risør Kabel TV AS			x		Ørskog Breiband AS	x		x	x
Romerike Bredbånd AS			x		Årdalsnett AS			x	

APPENDIX 2: PROVIDERS WITH SIGNIFICANT MARKET POWER (SMP) AND RELATED OBLIGATIONS

Market		Designated with SMP	Decision		
			date	Most important obligations	Status
1-6	Retail markets for fixed telephony	M1-M6: Telenor	21.04.2006	Access (M1-2), non-discrimination, transparency (M1-4), price controls at wholesale level (M1-2)	Implemented
7	Retail market for leased lines	Telenor	03.05.2007	Access, non-discrimination, transparency, price controls	Implemented
8-10	Wholesale markets for call origination, call termination and transit services on the fixed network	M8-M10: Telenor	24.03.2006	Access, non-discrimination, transparency, price controls	Implemented
		M9: Consorte, Equant, MCI, NetCom, NextGenTel, Priority Telecom, UPC, SmartCall, TDC, Tele2, Telio, Ventelo		Access, transparency, price controls	
11-12	Wholesale markets for access to the fixed access network (LLU and bitstream)	M11-M12: Telenor	20.02.2006	Access, non-discrimination, transparency, accounting separation (M12), price controls (M11)	Implemented
13-14	Wholesale leased lines markets	M13-M14: Telenor	03.05.2007	Access, non-discrimination, transparency, accounting separation, price controls (M13)	Implemented Portions of the decision in M14 appealed by BaneTele
15	Wholesale market for access and call origination on mobile networks	Telenor	23.01.2006	Access, non-discrimination, transparency, accounting separation, price controls	Implemented
16	Wholesale markets for termination on mobile networks	Telenor, NetCom, Tele2	08.05.2007	Access, non-discrimination, transparency, price controls	Implemented Portions of the decisions affecting NetCom and Tele2 appealed by NetCom, Telenor and Tele2
		MTU Networks, TDC Song	08.05.2007	Access, transparency, price controls	Implemented
17	Wholesale market for international roaming on mobile networks	No SMP found	31.07.2006	--	--
18	Broadcasting	Ex ante regulation not relevant	20.11.2006	--	--

APPENDIX 3: GLOSSARY

ADSL Asymmetric Digital Subscriber Line. Through various xDSL technologies, existing copper wire networks may be used for services requiring high transmission capacity, e.g. video.

ATM Asynchronous Transfer Mode. A connection-oriented technology based on a “cell” of a certain size as the transmission mechanism. ATM is therefore a special type of packet switching, with a large transparent capacity.

Carrier selection Carrier pre-selection or carrier selection by prefix. Service offered by fixed network operators, making it possible for a subscriber to personally select the operator that is to carry the call. Carrier selection by prefix was introduced in the Norwegian market on 1 January 1998, carrier pre-selection on 1 June 1999. With carrier selection by prefix the subscriber must use a four-digit number preceding the recipient subscriber’s phone number to complete the call via the chosen operator.

Dark fibre Optical fibre not linked to electronics with traffic routing data and transmission interface.

DDI/DDO Direct Dial In/Direct Dial Out. 2 Mbit/s connection between a PBX and a PSTN.

Ethernet Standard for local area networks (LAN), which can be used with most types of computers.

Frame Relay A protocol in accordance with ITU-T Recommendation I.122, for packet switching in digital transmission systems.

GSM Global System for Mobile Communications. Common European digital mobile telephone system.

Interconnection Exchange of traffic between telecom operators enabling subscribers on different networks to communicate.

IP Internet Protocol. Communications protocol that covers addressing and path selection for data packets fro the Internet and other IP-based networks.

ISDN Integrated Services Digital Network. Digital network that integrates several types of service: voice, text, data and images. Speech and other analogue signals are converted to digital signals in the user equipment. ISDN is offered with 2x64 kbit/s channels and one 16 kbit/s data channel as ISDN 2B+D (basic rate access) and with 30x64 kbit/s channels and a 64 kbit/s data channel as ISDN 30B+D (primary rate access).

ISDN-pak Data transmission services using the signalling channel on ISDN.

kbit/s Kilobits per second; thousand bits per second, measure of transmission capacity.

LAN Local Area Network. Local networks with high transmission capacity and limited range in a building or limited area for connecting computers.

Mbit/s Megabits per second, million bits per second, measure of transmission capacity.

MMS Multimedia Messaging Service. Service for sending e.g. images and sounds to GSM terminals.

MNO Mobile Network Operator. Network with own physical infrastructure and radio network.

MVNO Mobile Virtual Network Operator. Network operator with some physical infrastructure, but not a radio network. Has own functions for adaptation of services.

NMT Nordic Mobile Telephone. The first automatic system for mobile telephony introduced in Norway. Available in two different systems: NMT 450 and NMT 900.

Origination Service for bringing a call from a subscriber to a connection point for interconnection, where the call or data link-up is routed by the operator selected by the use of the carrier selection or carrier pre-selection. The service is used when a customer chooses to use another operator to make a call but where the other operator does not have a proprietary access network. See also termination.

PSTN Public Switched Telephone Network, the analogue public telephony network.

Radio access Connection to the telecommunications network by means of radio transmission, i.e. as an alternative to copper or fibre-optic cable.

Roaming Facility for a mobile phone or other mobile terminal device to have access to the network within the coverage area of a cellular radio network (such as NMT and GSM). The term is used in connection with the ability to move between different mobile operators' networks in different countries. There is currently no national roaming in Norway.

SMS Short Messaging Service. Service for short text messages sent to GSM terminals.

Switching Making and breaking connections on a network. Physical equipment for linking one or more communication lines with one or more communication lines.

Termination Service for brining a call from a subscriber to an operator's connection point for interconnection with the access network of another operator to complete the transmission of the call. The service is used when a customer does not have direct access to the receiving subscriber through his/her operator, but completes the call through another operator's access network. See also origination and transit.

Transit Service for transmitting a call from one connection point to another point of interconnection on a telecom operator's network.

Trunk network Network consisting of transmission systems for the physical transfer of information and the logical functions that are necessary for routing of information for different services through the network.

WLAN Wireless Local Area Network. Term for wireless networks for computers, based on radio transmission.

WLL Wireless Local Loop. Term for wireless access networks for telephony (that can also be used for data communications).

xDSL Digital Subscriber Line. Generic term for technologies that make it possible to increase the capacity of copper access networks. See also ADSL.