Activity Report 2011

by the Federal Communications Commission (ComCom)

Swiss Federal Communications Commission ComCom
Marktgasse 9, CH–3003 Berne, Switzerland

Phone: +41 (0)31 323 52 90
Fax: +41 (0)31 323 52 91
comcom@comcom.admin.ch
www.comcom.admin.ch
www.comcom-ch.mobi

INDEX

Preface of the President

The telecoms market is in a state of change. On the one hand, users are calling for more and more new services and therefore significantly higher bandwidth. On the other hand, once generous margins are now being squeezed.

The result is a consolidation of the market – worldwide, in Europe and also in Switzerland. New owners and attempted mergers have dominated the headlines of the telecoms sector over the last two years.

Not least because of the decision of the Swiss Competition Commission to oppose the merger of Orange and Sunrise, things have generally remained unchanged in Switzerland. Though this market constancy with its asymmetry in favour of Swisscom is regrettable, it is all the more the task of the regulatory authority to ensure that all providers have fair access to the telecoms market.

With its decisions on access in relation to unbundling and interconnection, ComCom has endeavoured to get the best out of the situation – within the limits of its capabilities, because only access using copper technology is subject to regulation in Switzerland.

In the case of other technologies, such as optical fibre or mobile communications, it must be ensured with either "gentlemen's agreements" (FTTH Round Table) or with proactive licensing (call for tenders for the mobile communications spectrum) that Switzerland remains in Europe's top tier in terms of telecoms infrastructure.

In this respect, we are treading a narrow path between regulation and investment. Viewed in this way, it is appropriate that the level of investment in optical fibre, cable TV and mobile communications is not slowed by hasty regulation. But the day will certainly arrive when bottlenecks caused by monopolies will hinder access to the market and market access will have to be fought over.

For these cases, the range of technologies must be opened up to regulation. So that the tools are available if the telecoms market needs them.

Marc Furrer, President

March 2012

I. Overview of the telecoms market

The one constant in the telecoms market is continuous development. In conjunction with the convergence of telecommunications, the media sector and the internet, technological developments are creating major challenges for all players, as the industry never stands still and constantly reinvents itself.

In the information and communication technologies, there is today no mood of crisis, but rather a spirit of optimism. Consumers are ensuring this, as they live their lives permanently networked and expect high bandwidth everywhere.

Switzerland is a world leader in broadband connections on the fixed network. The number of smartphones, which are being used in mobile networks with more and more new multimedia applications, is increasing greatly. This is leading to a further explosion of data traffic both on the fixed network and in mobile communications. Revenues from mobile data services are in fact experiencing high growth rates.

Two quantum leaps in relation to network performance are therefore imminent: on the fixed network, massive investment is already being made (in fibre and CATV with DOCSIS 3.0) and in mobile communications the much more efficient LTE (Long Term Evolution) technology is on the starting blocks. For operators, this means that they will have to bear very high investments in the coming years.

ComCom actively supports this technological progress in the interests of consumers.

1. **Re-allocation of all mobile radio frequencies:** With the auction of existing and additional frequencies ComCom is paving the way for the use of modern and more efficient mobile radio technologies such as LTE in Switzerland (cf. page 20). Consumers will be able to benefit in future from very good mobile radio provision and high-quality services.
2. **FTTH Round Table:** The objectives of the FTTH Round Table, which ComCom's President moderated from 2008 until the beginning of 2012, have been achieved. In many places in Switzerland there is massive investment in the future of the fixed network. Thanks to the discussions at the Round Table and the jointly developed standards, the network is now being constructed in a coordinated manner, with multiple fibres to dwellings (cf. page 12). Network access for all telecommunications providers is intended to promote competition and offer customers a wide range of providers.

ComCom is committed to the rapid introduction of new network technologies, since this is of great importance for Switzerland as a business location and as an attractive place to live.

The following sections provide an overview of the telecoms market and ComCom's activities in 2011.

1. The mobile telephony market

In Switzerland, the coverage of mobile telephony services is almost total. The GSM networks serve almost 100% of the population and cover more than 90% of the territory. It is therefore possible to make calls even in the remotest areas.

Since 2007, the number of mobile phone contracts has exceeded the number of inhabitants. With a penetration rate of 123% at the end of 2011, corresponding to more than 9.7 million subscribers, Switzerland was a little below the European average (128% at the end of 2011, as against 100% in Japan and 104% in the United States).

Despite a market which is almost at saturation point, the number of subscribers nevertheless continued to increase in 2011. During 2011, the three national GSM network operators saw their subscriber numbers increase (cf. fig. 1) by a total of 365,000 new registered customers.

With 221,000 acquisitions Swisscom is still making progress compared to the previous year and has picked up more than 60% of all new customers. At the end of 2011, its market share remains constant at 61,9% and is still high in an international comparison.

For its part, Sunrise gained 101,000 new customers (almost 28% of all new customers) and saw its market share rise to 21.6%.

After a difficult year in 2010 when it gained only 6,000 new customers, Orange came back in 2011 and won 43,000 new customers, corresponding to 12% of the total. However, its market share continued to fall, to 16.5% at the end of 2011 (as against 16.7% at the end of 2010).

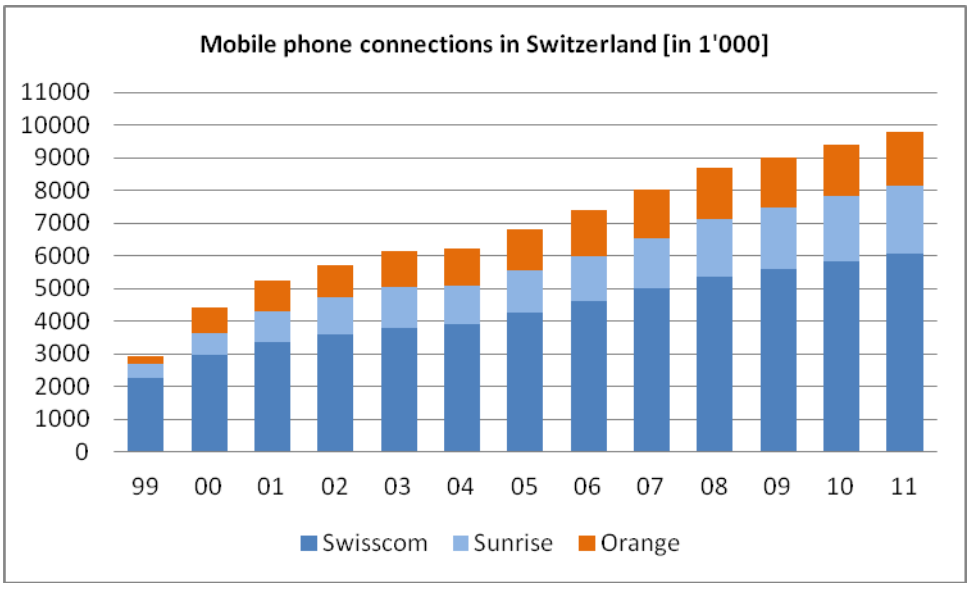

Fig. 1: Mobile telephone connections in Switzerland 1999 - 2011 [in thousands]
Sources: Operators' annual reports

Mobile telephony prices

As in the previous year, mobile telephony prices fell slightly between 2010 and 2011. The mobile telephony services index, based on the three main Swiss service providers, for example, fell by 4.8% for an average user (cf. fig. 2). However, this evolution of prices must be qualified according to market segments and types of users in question.

The observed trend between 2009 and 2010 was confirmed again in the reporting year: in a report published in late November by OFCOM (OFCOM, Prix de détail des services de téléphonie mobile, Nov. 2011) on the costs of mobile telecommunications services, it was found that although prices fell overall for customers using a contract – except for high-volume users, for whom they increased slightly – prices for prepayment cards all increased.

Although prepaid products have to date proved more advantageous for low or medium mobile phone users, contracts are in some cases becoming a better bet than prepayment cards.

According to the OFCOM report, however, this trend does not apply to resellers of mobile services, who are still more attractive in the prepayment card segment.

The main telecommunications service providers have proposed new tariff models, in particular to adapt to the growing demand for smartphones. Consumers' growing interest in offerings combining fixed telephony, internet and mobile telephony has also increased the attractiveness of contract-type solutions.

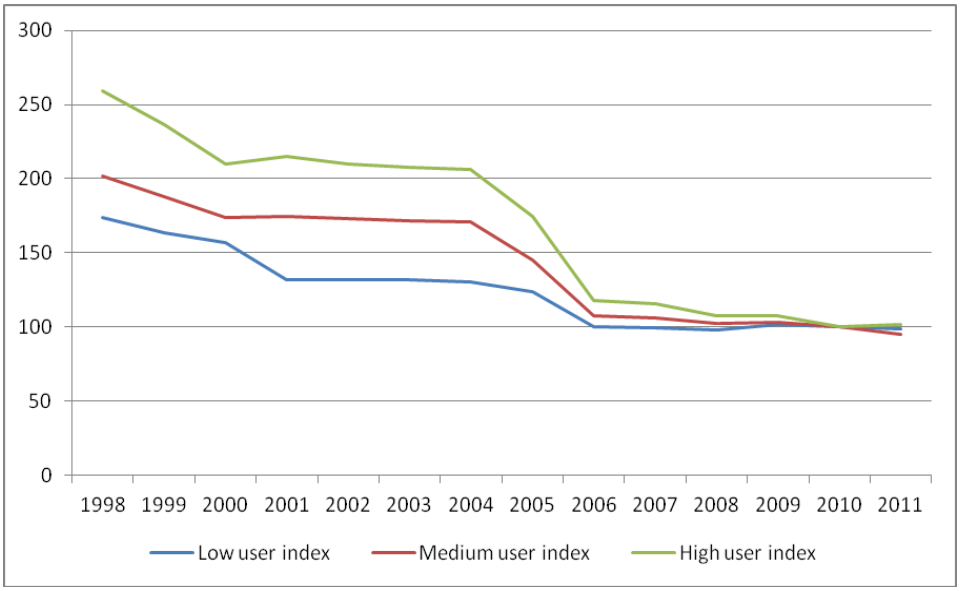

Fig. 2: Evolution of retail prices of mobile telephony in Switzerland 1998 - 2011
[cost indices by user profile 100 = year 2010]
Source: OFCOM, study «Prix de détail des services de téléphonie mobile», November 2011

Growth in mobile data traffic

More than one in four mobile devices worldwide is a smartphone. Driven by the success of the iPhone and the numerous Android devices, enthusiasm for intelligent, multi-functional mobile phones remains strong. According to various research institutes, on average 450 million smartphones were sold throughout the world in 2011. Smartphones represented between 25% and 30% of all mobile devices sold that year.

In Switzerland too, the proportion of smartphone sales in 2011 increased markedly. Of the 4.372 million mobile phones sold in 2011 in Switzerland, more than 2 million, or 54.6%, were smartphones (Weissbuch 2012, www.weissbuch.ch). According to figures published by Swisscom in the fourth quarter of 2011, this proportion may even have been as high as 60%.

As a result, demand for mobile broadband services is also in full expansion. The number of broadband contracts on the mobile networks increased by 13% between June 2010 and June 2011 in Switzerland and reached 3.8 million units in mid-2011. The mobile broadband

penetration rate was 48.7% at that time, roughly at the level of the average for the OECD countries (47.9%), but some distance from the performance of the Scandinavian countries, for example, where the rate exceeded 75%, or South Korea, where it reached 99%.

However, the proliferation of this type of device leads to strong growth in the amount of data on mobile networks. Data traffic on the Sunrise mobile network increased by a factor of six in two years, whilst it doubled in 12 months on the Swisscom mobile network.

What are the drivers of this development?

- The market for **mobile applications** has seen extraordinary growth: 20 billion applications were downloaded in 2011 (compared to 300 million 2 years earlier, in 2009); social network (Facebook) and microblogging (Twitter) applications are among those most downloaded. The Facebook social network has more than 350 million mobile users out of a total of 800 million. Twitter has more than 100 million active users, 55% of whom use a phone or a tablet.
- Consumption of **videos** (TV and streaming) today represents 35% of the traffic on mobile networks worldwide, and YouTube alone accounts for nearly a quarter of global mobile data traffic. Cisco predicts that by 2015 video will account for two thirds of mobile traffic.
- The market for **online music** also continues to grow and has become a strategic and commercial factor. 2011 saw the signing of several partnerships in Europe between mobile operators and musical content providers, essentially Deezer and Spotify. In Switzerland, music download and streaming offerings are growing, with the arrival in 2011 of the Spotify, Deezer or Qobuz streaming platforms, all of which offer a dedicated application and options including the availability of their catalogue on mobiles.
- For their part, the giants of the web are also surfing this wave and are continuously enriching their **cloud computing** offerings, which can also be accessed from a mobile device: for example, at the end of March 2011 Amazon launched its Cloud Drive service, whilst the Apple iCloud service has been available since October 2011, and Microsoft upgraded its storage system (SkyDrive) in December 2011.
- Moreover, the generalisation of touch-screen mobiles and tablets which can connect to the internet appears to be giving a new impetus to **m-commerce** and **"mobile money**" (mobile payment, mobile banking, etc). A recent study (ComScore, Connected Europe, Jan. 2012) confirms that mobile commerce increased by 85% between October 2010 and October 2011 in the 5 most important European markets (France, Germany, Italy, United Kingdom and Spain). In Switzerland, online commerce also continues to grow, thanks to the progress of the mobile internet. For the online supermarket LeShop, for example, the proportion of orders placed from a mobile terminal rose from 5% to 11% between 2010 and 2011.

Development of the mobile networks

To cope with these new trends and to meet the high demand for mobile data services, the three national operators have all made investments in recent years with a view to modernising the networks. All the operators have equipped their UMTS networks with HSPA technology, which permits download speeds as high as 7.2 Mbit/s. Some operators have also introduced HSPA+ in areas with a high density of mobile internet users; this greatly increases transfer rates, up to 21 Mbit/s and even 42 Mbit/s in some cities.

Thanks to a combination of second- and third-generation mobile telephony, operators can therefore provide mobile access to the internet from almost anywhere. UMTS/HSPA services now cover between 80% and more than 93% of the population, depending on the operator.
As the successor to UMTS/HSPA technology, the next mobile technology which will be deployed is LTE (Long Term Evolution of UMTS). All the Swiss operators have carried out tests with this

new technology and Swisscom launched a pilot project in seven tourist regions between early December 2011 and spring 2012.

To enable the use of this new technology and to increase the capacity of the mobile networks, ComCom launched the procedure for reallocating all mobile telephony frequencies at the end of 2010. By means of an auction which took place early in 2012 and which raised some CHF 996.3 million for the Confederation, the mobile telephony service providers all acquired spectrum which corresponds to their needs (see details below, section III.2.5).

2. The fixed telephony market

Although the ongoing development of mobile telephony has resulted in a constant decline in the number of fixed telephony connections over a 10 year period (-20% between 2001 and 2010) and in the number of calls made on the fixed network, the mobile network will not replace the fixed network.

In fact, in recent years, large sums have been invested in unbundling and in the development of networks, in particular fibre-optic networks (see also below). The expansion of VoIP voice telephony is also an argument in favour of complementarity between networks.

Thus in addition to the three mobile telephone networks, Switzerland has several "backbone" fixed telephone networks and a high-quality national network which covers the whole of the territory. The Swisscom network (3,120,000 connections) is efficient and available throughout Switzerland. Furthermore, several cable television networks are also well established and also offer connections to subscribers, although with the exception of Cablecom most of these networks offer broadband and telephony services on a very localised basis.

After relative stagnation in 2010, fixed telephony prices in Switzerland fell in 2011. According to an OFCOM study published in November 2011, the prices of the cheapest offerings fell by 0.7%, 3.4% and 8.9% respectively for the three user profiles (low, medium and high usage; see OFCOM study «Prix de détail des services de téléphonie fixe», Nov. 2011).

The interconnection prices paid by the alternative operators in respect of co-use of the Swisscom network have been fixed by ComCom and are among the lowest in Europe. For 2011, these prices have been reduced by up to 15%. Prices for interconnection services, which are not calculated as a function of usage, are falling by up to 36%.

The distribution of fixed network market shares has changed little in recent years. Swisscom's market share, at just over 67%, remains very high; Sunrise, its main competitor, serves 13% of subscribers.

For their part, and despite a declining market, the cable operators continue to grow in relation to fixed telephony, and have gained more than 80,000 additional customers (20% up on 2010). At the end of 2011, Cablecom, the leading provider of cable telephone services, had 363,200 telephone subscribers (compared to 327,200 at the end of 2010) and its market share now exceeds 9%. The many other providers have marginal shares of the market.

Finally, it should be noted that billing for the connection, allowing alternative operators themselves, rather than Swisscom, to bill the subscriber connection to their customers, fell slightly in 2011, from 114,380 at the end of 2010 to 104,214 at the end of 2011.

This fall – like that in the number of automatic carrier preselections (-64,000 in 2011; see below) – is explained by the growth in unbundling of subscriber lines.

3. Broadband on the fixed network

Switzerland is a leader in broadband thanks to the healthy competition between infrastructures, which in turn stimulates competition between services and thereby offers greater choice to consumers.

Because the volume of data transfer on the fixed network in Switzerland doubles approximately every 18 months, it is imperative that the investments in different very fast infrastructures can continue. The development of broadband is very important for the economy and the information society in Switzerland.

With 38.3% of the population having broadband internet access in mid-2011, Switzerland is now in second place of the best connected OECD countries, just behind the Netherlands (38.5%). The average for the OECD countries is 25.1% (cf. figure 3) and the figure for the EU is 27.2%.

Switzerland not only has good penetration of broadband access, but users also benefit from high speeds compared with other countries. A study published by Akamai Technologie (The State of Internet, 3rd Quarter 2011) again confirms the progress made over the past 2 years: 51% of Swiss surfers have an internet connection faster than 5 Mbit/s (compared with 31% at the end of 2009); the world average is 29%. In Switzerland, 96% of broadband connections are at least equivalent to 2 Mbit/s (compared with 91% at the end of 2009).

According to another study published by OFCOM in November 2011 on the retail prices of broadband services in Switzerland, the increase in speeds has been accompanied by a significant reduction in prices. The costs incurred by an average user for broadband services fell by 5.2% between 2010 and 2011, whilst speeds for an average user increased by 3 Mbit/s to 8 Mbit/s on average. The Mbit/s price index therefore fell by almost 37% compared with the previous year.

In an international comparison, however, the average Mbit/s price in Switzerland remains one of the most expensive in the OECD countries.

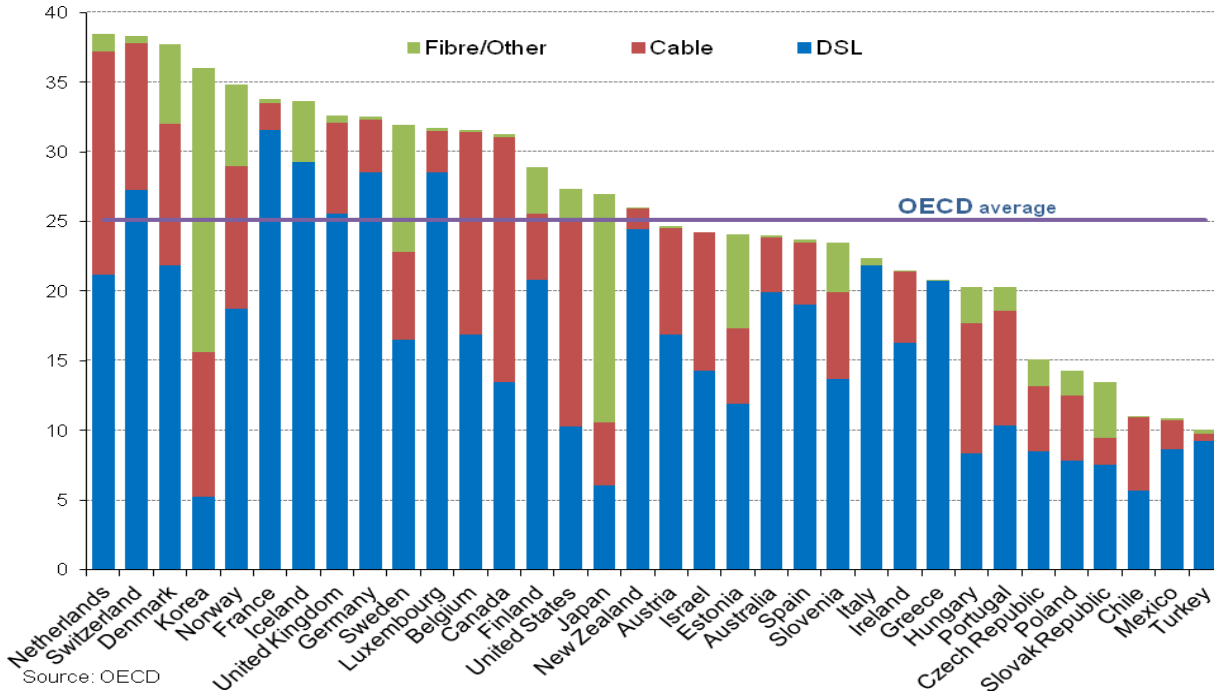

Fig. 3: OECD broadband penetration, June 2011 (as % of population)
Source: OECD

However, the broadband access market is seeing a growth rate which is falling year-on-year. The number of broadband connections grew by around 5.4% in 2011 (as against 5.8% in 2010 and 7.4% in 2009).

All internet service providers combined (CATV and DSL) gained 153,100 new customers in 2011 (as against 156,000 in 2010), giving a total of 3,011,000 high-speed connections in Switzerland.

For the first time in 10 years - i.e. at the time when DSL service providers for the first time overtook cable operators in terms of broadband connections at the end of 2002 - cable operators have acquired almost as many new customers as DSL service providers. The cable operators therefore gained more than 70,100 new internet customers in 2011 whilst DSL service providers gained 83,000. This is all the more remarkable since just 2 years ago, DSL providers were gaining 10 times more new customers than CATV providers. The rally which began last year therefore seems to be strengthening for the cable operators, who have already invested heavily in upgrading their network infrastructure by continuing the roll-out of DOCSIS 3.0, enabling them to offer speeds of up to 100 Mbit/s. No less than 58% of Swiss households today could choose a connection based on DOCSIS 3.0 technology (source: Swisscable).

DSL telephone line access technology, however, is still preferred by surfers for internet access: 71.3% of them opted for DSL (2,148,000 connections) and only 28.7% for cable (863,000 connections) at the end of 2011 (cf. figure 4).

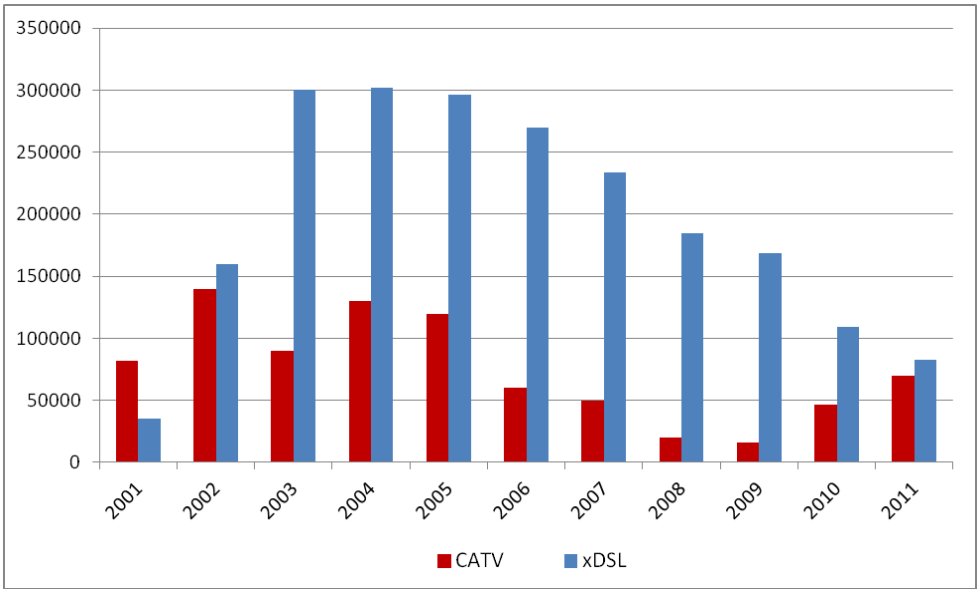

Fig. 4: New customers per year according to technology, 2001-2011
Sources: Swisscom, Swisscable

Considering the entirety of high-speed internet service providers (CATV and DSL), the distribution of market shares continues to evolve in favour of Swisscom (cf. figure 5), which with 55.2% at the end of 2011 (compared to 55.4% at the end of 2010) is way ahead of its main competitors. The share of all the alternative DSL providers is 16.2%, of which 12.2% is held by Sunrise. For the cable operators, the market share of Cablecom is 18.4% and that of the other CATV providers is 10.3%.

By way of comparison, the average market share of the historic operators in the European Union has fallen continuously and was 43% at the end of July 2011.

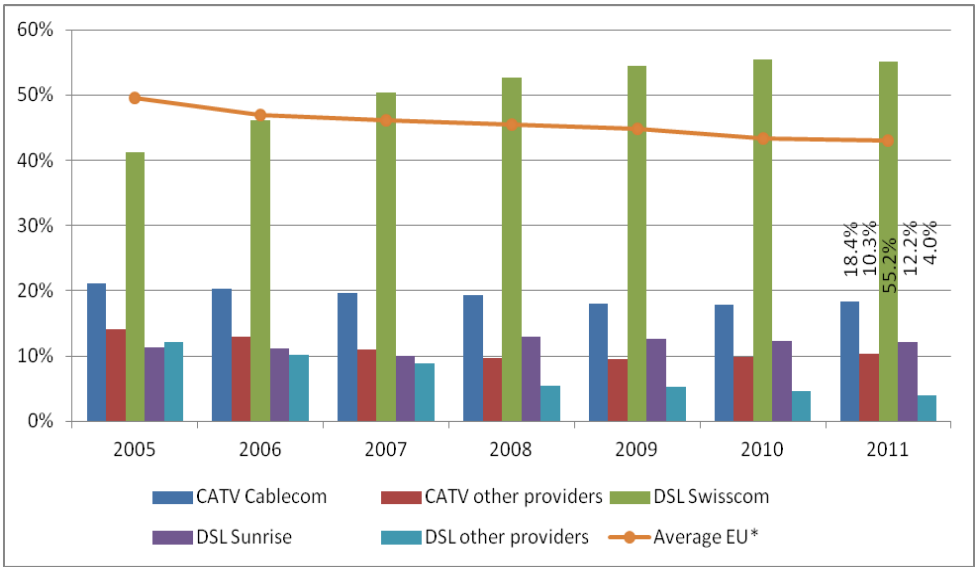

Fig. 5: Market shares of broadband connections in Switzerland and in the EU 2005 - 2011 (EU averages are from July)
Sources: operators, European Commission, ComCom estimates.
* Historic operator's market shares of all broadband lines.

In the DSL market alone, including unbundled lines, there has been an overall increase of 83,000 customers (as against 109,000 customers between 2009 and 2010), i.e. an increase of 4% between December 2010 and 2011 (cf. figure 6).

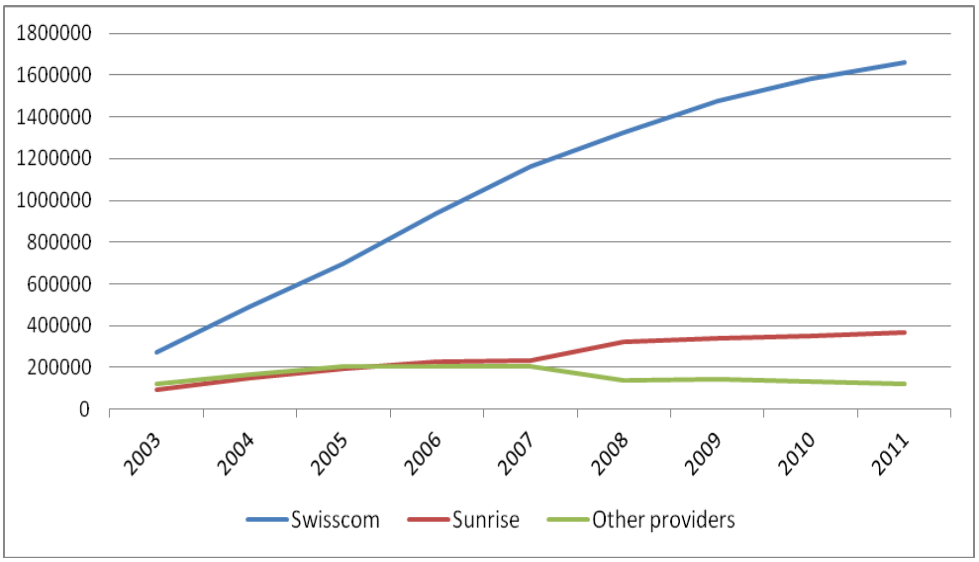

Fig. 6: xDSL connections in Switzerland 2003 - 2011 (including unbundling)
Sources: Swisscom, Sunrise

Despite slightly weaker growth, Swisscom is still reporting the highest increase in the number of customers, with growth of the order of 77,000 customers during 2011. With 1,661,000 DSL lines, its market share therefore increased from 76.7% at the end of 2010 to 77.3% at the end of 2011.

Sunrise, for its part, gained 16,300 new customers over the same period. With 366,300 high-speed customers at the end of 2011, including 276,300 unbundled customers, Sunrise's market share increased slightly to 17.1% at the end of 2011 (from 16.9% in 2010).

Other resellers of DSL services, on the other hand, lost a further 10,000 clients (-13,000 customers in 2010), and their market share also continued to decline, to 5.6% at the end of 2011, as against 6.3% at the end of 2010.

Finally, the number of unbundled lines continued to grow in 2011, reaching 306,000 units by the end of the year 2011 (255,000 at the end of 2010 and 153,000 at the end of 2009). This means that their number doubled within 2 years (cf. figure 7).

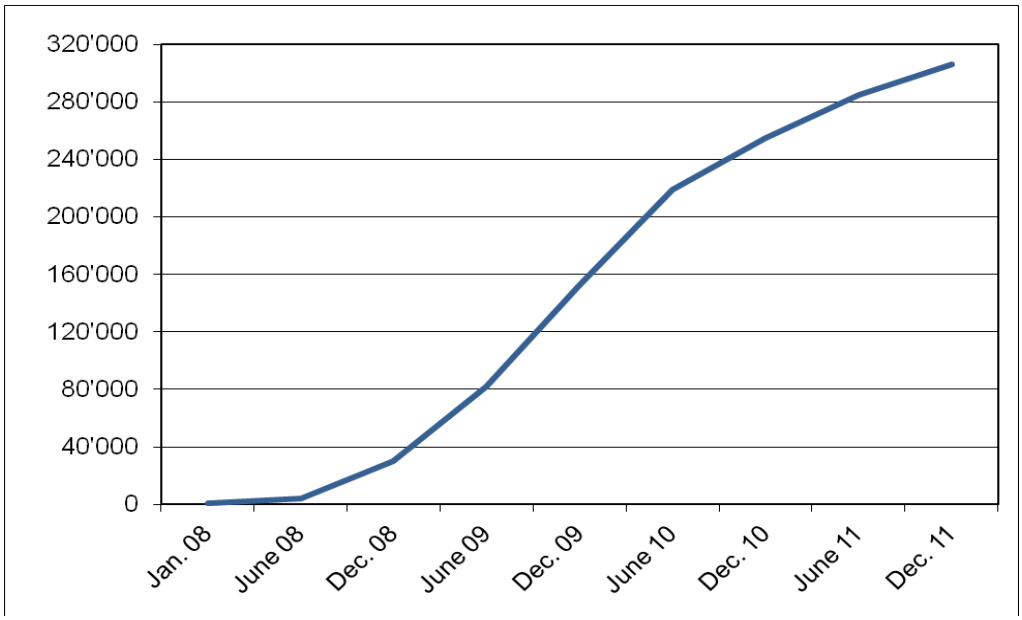

Fig. 7: Evolution of the number of unbundled lines in Switzerland 2008 - 2011
Source: Swisscom

Although the number of fully unbundled lines (Full Access) already represents more than 60% of the DSL lines of the alternative operators, they account for only 14% of all DSL lines and 10% of all broadband connections including CATV.

Moreover, the bitstream offering remains a little used option: the number of bitstream connections has changed little and remained around 9,000 at the end of 2011.

The roll-out of FTTH networks continues

The roll-out of optical fibre in Switzerland is making good progress. Several partnership agreements, some concluded as long ago as 2010, between the industrial services and Swisscom have enabled optical fibre to be installed in several cities and also in peripheral regions. At the end of 2011, over 360,000 residential and commercial premises had been equipped with fibre ("homes passed"); this represents 10% of Swiss households. The construction partners plan to reach 30% of households by 2015.

Several cooperation agreements were submitted by Swisscom and the respective partner companies to the Competition Commission (ComCo) as a precaution for antitrust review. ComCo subjected the contractual clauses to in-depth analysis and came to the conclusion in September 2011 that in part the contracts would contain competition agreements not in line with Swiss competition law. ComCo stated, that in such cases the competition legislation does not permit exemption from sanctions for the entire contract term of 40 years.

In the wake of this decision, re-negotiations took place between the cooperating partners and in some cases amendments to the cooperation agreements were made before the end of 2011.

Basically it has been shown that the Competition Commission welcomes the multi-fibre model and cooperation in the construction of fibre networks, provided that operation of these networks is in accordance with competition law.

FTTH Round Table

The FTTH Round Table, organised by ComCom in collaboration with OFCOM since 2008 and bringing together the players in the market, has allowed significant progress to be made with the roll-out of optical fibre networks in Switzerland.

With this round table discussions ComCom wanted to prevent the creation of new monopolies which would impede access for other telecommunications providers and obstruct competition. At the same time, construction of the network should be as efficient as possible, in order to allow economically feasible investment. A dozen heads of Swiss companies which are investing in fibre networks have taken part in nine Round Tables.

The participants in the round table agreed on the definition of a clear basis for the construction of the network:

- **Coordinated construction of fibre network and multi-fibre model:** to avoid the construction of parallel networks, network-construction must take place in a coordinated manner and multiple fibres will be laid until and within the buildings.
- **Guaranteed network access:** Moreover, all providers must have access under the same conditions and at different network levels to the optical fibre network. This will ensure competition and consumers can continue to choose their telecoms provider freely.
- **Technical standards:** At the technical level, the participants in the round table developed uniform standards for in-house installations of optical fibre to the customer (connection interfaces, building entry point, in-house cabling, connector type for optical telecommunications outlet).

On the initiative of Swisscom, property owners and network operators negotiated and agreed on a model contract, which governs the legal and financial aspects of FTTH installations in residential properties. The network operators pay for the in-house cabling – owned by the house owner – and obtain a constant right of use.

Finally, a common platform for orders and customer switching in the fibre sector has also been developed.

The coordination between the electricity companies and Swisscom and the adoption of the multi-fibre model has helped to prevent the parallel construction of new networks. Open, non-discriminatory access to all providers, at the physical network level and at the level of services, is intended to stimulate competition; consumers will have a choice between several providers.

The main objectives of the round table, aiming to avoid the uncoordinated construction of new parallel networks, have been achieved. The players in the market and ComCom estimated at the beginning of 2012 that it is no longer necessary to continue the discussions within the round table.

NGA working group

In the summer of 2011, OFCOM set up an NGA working group, with a view to encouraging reflection on all network technologies, including the cable and mobile networks, and to encourage the roll-out of very high-speed networks in the peripheral regions too. This working group will draw up an inventory of existing or planned networks, analyse consumer demand for broadband and produce a guide to decision-making for the municipalities and regions.

II. The Commission and its Secretariat

ComCom is an independent extraparliamentary official commission which is responsible for licensing and market regulation in the telecommunications sector. The Commission consists of seven independent experts, nominated by the Federal Council.

In 2011 the Commission consisted of the following members:

- **Marc Furrer, President**, Attorney and notary
- **Christian Bovet, Deputy President**, Dr. iur., Professor of Law at the University of Geneva
- **Andreas Bühlmann**, Dr. rer. pol., Head of the Office of Finance in Canton Solothurn
- **Monica Duca Widmer**, Dr., dipl. Chem. Ing. ETH, entrepreneur with SMEs in the environment sector
- **Reiner Eichenberger**, Dr. oec. publ., Professor of Economics at the University of Fribourg
- **Jean-Pierre Hubaux**, electrical engineer, Prof. EPFL Lausanne
- **Stephan Netzle**, Dr. iur., LL.M., Attorney

After the maximum possible term of office of 12 years, vice-president Christian Bovet resigned from the Commission at the end of 2011. The Commission would like to thank Prof. Bovet, who has contributed greatly to the work of ComCom with his considerable expertise, for his tireless commitment.

On the occasion of the general re-elections, at the end of 2011 the Federal Council re-elected the existing members of ComCom for the 2012-2015 term of office. Mrs Monica Duca Widmer was appointed as vice-president by the Federal Council.

As of January 2012, the Federal Council chose Mrs Adrienne Corboud Fumagalli as a new member of ComCom. Mrs Corboud Fumagalli is a doctor of economic and social sciences and vice-president for innovation and technology transfer at the EPFL Lausanne (Swiss Federal Institute of Technology). She has broad industry experience in the areas of multimedia, ICT and telecommunications.

In 2011, the Commission met for sessions on 11 days. It also took numerous decisions by way of circulation. On the occasion of a study trip, the Commission visited telecoms providers, equipment manufacturers and regulatory authorities in Belgium and Holland.

The Commission has its own secretariat, which is responsible for coordinating affairs, organising the activities of the Commission and providing the public with information. One female employee and two male employees work in the secretariat; in total, the three part-time jobs amount to 2.4 full-time equivalent posts.

III. Activities of the Commission

ComCom is the Swiss licensing and regulatory authority for the telecommunications sector. As an independent official commission it is not subject in its decisions to any instructions from the Federal Council or the Department.

The purpose of the Telecommunications Act (Art. 1 TCA) is to provide guidelines for the Commission's decisions: the objective is to reliably provide the population and businesses with a wide range of high-quality, affordable telecommunications services. Apart from the universal service which provides the whole of Switzerland with telecommunications services, these goals are to be achieved by means of effective competition.

ComCom's most important tasks according to the Telecommunications Act are:

- granting radio licences for use of the frequency spectrum (Art. 24a TCA),
- awarding the universal service licence (Art. 14 TCA),
- laying down the access conditions and prices when service providers fail to reach an agreement (Art. 11 and 11a TCA),
- approving the national numbering plans (Art. 28 TCA),
- fixing the applicable terms for number portability and the free choice of provider (Art. 28 TCA),
- taking measures and sanctions in the event of violation of the applicable law and, where appropriate, revoking the licence (Art. 58 TCA).

In fulfilling its tasks, ComCom works closely with the Federal Office of Communications (OFCOM). On behalf of ComCom, OFCOM with its technical services prepares the business of the Commission. The Commission's decisions are implemented by the secretariat or OFCOM.

The following sections provide an overview of ComCom's activities in 2011.

1. Access procedures

Since April 2007, the law (Art. 11 TCA) has provided for the following access variants to the infrastructure and services of a market-dominant provider:

1. Full unbundling of the local loop
2. Bitstream access (for four years)
3. Billing for fixed network subscriber connections
4. Interconnection
5. Leased lines
6. Access to cable ducts, in so far as these have sufficient capacity.

At the end of 2011 two access procedures were still pending with ComCom. It was possible to write one off in early 2012, because the parties came to an agreement. The second procedure has been suspended.

In the Federal Administrative Court there were seven appeals outstanding against ComCom decisions at the end of 2011; of these, five procedures have been suspended since February

2011, until the Federal Administrative Court has ruled on the other two appeals regarding ComCom's decision of April 2010 on leased lines prices.

The LRIC price calculation method

Article 11 of the Telecommunications Act (TCA) states that a market-dominant provider must provide in different cases access to the infrastructure and services (see above) at cost-based prices.

According to longstanding practice, ComCom uses the LRIC method (Long Run Incremental Cost) to calculate these prices. These prices are based on the costs which an efficient provider would incur if it were to construct a new network using modern technology under competitive pressure. Accordingly, the calculations do not include the historical costs of the market-dominant provider, but rather current replacement costs.

This method of calculation also takes into account, in addition to the costs related to the service in question, a portion of overhead costs and the capital costs which are customary in the industry. The capital costs include both the costs for external capital and the expected return on internal capital resources (equity capital).

The Commission takes the view that the calculation method employed for many years is based on the wording of the Act and the Telecommunication Services Ordinance (Art. 54).

This established practice of ComCom’s was affirmed by the Federal Administrative Court (FAC) in April 2011 and judged a correct implementation of article 54, TSO (cf. FAC judgement of 8 April 2011, A-300/2010, www.bvger.ch).

1.1. Full unbundling and interconnection

In 2008 ComCom set the price for full unbundling and co-location for the first time, The monthly price for the unbundled subscriber lines was reduced to a cost based level because of the market-dominant position of Swisscom. Accordingly, the monthly ULL price was lowered from over 30 to 18.18 CHF.

The prices for installation and operation of equipment in Swisscom exchanges (co-location) were also greatly reduced. At the same time, ComCom additionally reduced interconnection prices for 2007 and 2008 by up to 30%.

Based on extensive cost analyses and price calculations that were carried out by the Federal Office of Communications (OFCOM), also in 2011 ComCom has analysed the monthly unbundling price and fixed it at CHF 16.70 for the year 2010 and at CHF 15.50 for 2011.

Furthermore, ComCom also reduced slightly further the prices for co-location and interconnection in 2011.

The interconnection prices calculated using LRIC are among the lowest in Europe, while the unbundling price in 2011 was some CHF 4-5 above the European average.

A new basis from 2013

To date, cost-based prices have been calculated using the LRIC method, on the basis of copper technology. Nowadays, however, a modern telecommunications network would be constructed using fibre technology. Since provision of services by an efficient provider constructing its own new network is assumed for the calculation of access prices, in its access decision of 7

December 2011 ComCom announced a change in practice: from 2013 ComCom will be using as a basis for its calculations modern technologies such as optical fibre and will no longer be basing them on copper networks.

1.2. Charging for the subscriber line and cable ducts

In another procedure, ComCom examined the prices for charging for the subscriber line and for the use of cable ducts and set cost-based prices for the years 2010 and 2011.

The price per metre of cable duct was set at CHF 0.206 for 2010 and at CHF 0.201 for 2011. The monthly deduction for direct charging for the local loop by an alternative provider is CHF 1.49 CHF for 2011 (see the 2008 ComCom Activity Report).

The two above-mentioned access decisions by ComCom were contested in the Federal Administrative Court.

1.3. Leased lines

An access procedure concerning leased lines has been suspended until the Federal Administrative Court has reached a decision on two appeals dating from April 2010.

How is an access procedure carried out?

The **primacy of negotiations** is laid down in the TCA. Before the Commission can decide on the prices and conditions for interconnection or access, the providers must first attempt to reach an agreement via negotiations. If no access agreement can be reached within three months, the provider may lodge a request with the Commission for an access decision to be taken. The matter is then investigated by OFCOM.

When there is a question as to whether one provider occupies a dominant position in the market, it is necessary to consult the Competition Commission (ComCo).

This procedure is also known as “ex-post regulation”. In contrast, “ex-ante regulation”, which does not recognise the primacy of negotiation, is practised in the EU. The regulatory authorities in the EU countries can intervene by itself in markets in which competition is not effective.

2. Licences

In accordance with the Telecommunications Act (TCA), ComCom awards radio and universal service licences.

However, ComCom has delegated to OFCOM the task of awarding radio communication licences for telecommunication services which are not subject to a tender procedure (for example, licences for radio amateurs or company radio) and licences which are intended to be fully used for the transmission of radio and television programme services.

Below you will find an overview of the licences issued by ComCom.

2.1. Universal service

In 2007 ComCom awarded Swisscom the universal service licence for the period 2008-2017.

The universal service licensee must comply with quality criteria which are determined by the Federal Council. OFCOM checks compliance with these quality criteria annually and reached a positive conclusion for the year 2011.

Providing the population with a high-quality, reasonably-priced basic offering of telecommunications services is therefore guaranteed everywhere in Switzerland.

Since 2008 an internet connection has been part of the universal service. The Federal Council decided in December 2011 to increase the minimum speed for data transmission from the internet to the end user as of 1 March 2012 from 600 to 1000 Kbit/s. At the same time it reduced the upper price limit for a connection with such a data rate from CHF 69 to CHF 55 per month (excl. VAT).

Public call boxes

Compared to other countries, Switzerland continues to have one of the densest networks of public telephones. However, these are actually being used less and less, as most residents have a mobile telephone. Between 1998 and 2009, the number of calls from public call boxes fell by 84%.

In the universal service licence, ComCom lays down the minimum number of public call boxes for each municipality. Consideration is given to the number of inhabitants and the surface area of the municipality.

As of the end of 2011, the universal service included a total of 4,058 public call boxes.

However, municipalities can also opt to do without public telephones. Also in 2011, Swisscom applied to remove public call boxes. On the basis of a declaration from the municipalities concerned to the effect that they agreed to the removal, ComCom approved in 2011 the requested reduction of 379 public call boxes.

In addition, outside the universal service, Swisscom provides an additional approx. 3,500 public telephones in profitable locations.

What is the universal service?

The universal service consists of a basic offering of telecommunications services which must be provided nationally to all sectors of the population, in good quality and at a reasonable price. The universal service therefore ensures from the outset that any possible regional or social disadvantage does not prevent access to the most fundamental means of social communication.

It is within the remit of the Federal Council to adapt the content of the universal service periodically to social and economic needs as well as to technological developments. ComCom is obliged by the TCA to periodically put the licence for universal service in telecommunications out to tender and to award it on the basis of a competition based on criteria.

The universal service includes the public telephone service and the right to a fixed-network connection, and now it also includes a broadband internet connection. In addition, adequate coverage by telephone boxes and access to emergency call services and subscriber directories must be guaranteed. To facilitate communication for the hearing-impaired and visually-impaired, there are additional special services (such as a transcription service and switching services).

2.2. GSM licences

When the market was opened up in 1998, three GSM licences were awarded for a term of 10 years to Diax, Orange und Swisscom. In December 2003 the companies Tele2 and In&Phone each received a GSM licence – but with a smaller spectrum entitlement. In the short term, this did effectively lead to the desired revival of competition in mobile communications and therefore to lower prices. However, these new licensees were unable to establish themselves in the mobile market in the longer term or acquire a sizeable share of the market. The Tele2 licence was returned to ComCom when the company was taken over by Sunrise in autumn 2008; In&Phone's licence expires at the end of 2013.

After a transition period due to outstanding appeals, in 2009 ComCom was able to implement the planned technology-neutral renewal of the GSM licences of Orange, Sunrise and Swisscom until the end of 2013. This means that all GSM licences will expire at the same time.

Currently, therefore, four GSM licences with different bandwidths in the 900 MHz and 1800 MHz bands are in use in Switzerland.

GSM coverage

The three national network operators Orange, Sunrise and Swisscom, when being compared on international level, are able to provide high GSM coverage: virtually 100% of the population and about 90% of the territory are covered by GSM.

2.3. UMTS licences

In 2000, four UMTS licences were awarded by auction until the end of 2016.

Currently, one UMTS licence is being used by Orange, Sunrise and Swisscom respectively. The 3G Mobile company won the fourth UMTS licence at auction. ComCom revoked this licence without compensation in 2006, because the licensee had not used the allocated frequencies, contrary to the terms of the licence, and had thus violated the licence.

As is the case with GSM, all three UMTS network operators are complying with their licence conditions. Population coverage for UMTS services is between 80% and 93% or even more, depending on the provider.

2.4. Acquisition of Orange by Apax Partners

As early as the summer of 2011, it was known that the parent company of Orange Switzerland, France Telecom, intended to sell its Swiss subsidiary. On 23 December 2011, the private equity company Apax announced that it had agreed with France Telecom to take over 100% of the shares of Orange Switzerland.

If a company intends to take over a mobile radio licence, ComCom has to approve this commercial licence transfer. In the process, ComCom verifies whether the statutory licensing requirements will continue to be met under the new ownership structure and whether competition in the telecommunications market will be substantially adversely affected (according to Art. 23 TCA).

ComCom approved the commercial transfer of the licence, since Orange Switzerland continues to meet the licensing requirements and competition in the mobile market will not be affected by this take-over.

At the end of February 2012 Orange announced that the take-over by Apax Partners was complete. The new owner of Orange Switzerland is Matterhorn Mobile.

2.5. New allocation of mobile radio frequencies

In 2011 ComCom went ahead with the simultaneous re-allocation of all mobile radio frequencies and in February 2012 concluded the auction, which was conducted by the Federal Office of Communications (OFCOM).

The existing mobile operators Orange, Sunrise and Swisscom all purchased a better spectrum arrangement which meets their future needs.

In Switzerland the path is therefore now open for the use of modern, efficient mobile radio technologies such as LTE (Long Term Evolution).

The proceeds of the auction for the Confederation amount to CHF 996,268,000.

Why this new award?

The reasons for this award procedure are many: first, the GSM licences expire at the end of 2013 and the UMTS licences at the end of 2016. Secondly, a large number of frequencies are available for the first time for use by mobile services.

The following frequencies were awarded simultaneously:

- **800 MHz:** Thanks to the so-called “digital dividend”, frequencies in the 790 to 862 MHz band are available for mobile services from about 2013. The “digital dividend” means that as a result of more efficient transmission of TV programme services, not all UHF frequencies (470-862 MHz) are now needed for broadcasting and some of the frequencies can therefore be used for other purposes.
- **900 MHz**: Today, all frequencies are allocated to Orange, Sunrise and Swisscom, but the licences will expire at the end of 2013.
- **1800 MHz**: The majority of the frequencies are allocated to In&Phone, Orange, Sunrise and Swisscom until the end of 2013. The frequencies returned by Tele2 will be available soon after the auction.
- **2100 MHz**: Orange, Sunrise and Swisscom each have a UMTS licence in this band until the end of 2016. Soon after the auction, the frequencies revoked from the 3G Mobile company will be available.
- **2600 MHz**: Frequencies with a bandwidth of the order of 190 MHz are currently free (2 x 70 MHz FDD and 50 MHz TDD).

Owing to the rapidly growing demand for mobile broadband services and the spread of smartphones, data traffic on mobile networks is doubling every 9-12 months.

With the goal of promoting the roll-out of new mobile technologies in Switzerland, ComCom took the unique opportunity of a simultaneous re-allocation of all mobile radio frequencies.

The overall result of the invitation to tender is positive:

- **Equal treatment:** All interested companies were able to participate on equal terms in the auction. Unfortunately the Commission's assessment that it would be unlikely for an additional provider to enter into the market, who would have to construct its own mobile network from new, was confirmed.
- **Optimal allocation of frequencies:** As a result of awarding the spectrum in small blocks of frequencies, the participants in the auction were able to acquire flexibly a range of

frequencies which corresponds to their needs and business models. In contrast with previous awards, the operators therefore determined their spectrum allocation themselves. Bidding restrictions in certain frequency ranges ensured that individual auction participants could not purchase all the frequency blocks.

- **More spectrum for new technologies:** All existing operators were able to acquire a larger, future-proof frequency allocation. This allows not only the use of the latest technologies, but also makes for valuable flexibility in network planning. Hence network operators will be able to meet the booming demand for mobile broadband services.
- **Planning and investment security:** With the early allocation of all frequencies until 2028, operators are provided with a long-term perspective for planning and investment security.
- **Adequate licence revenue:** In accordance with the provisions of the legislation, a reasonable return must also be obtained for the frequencies, which represent a scarce public resource.
- **A good range of products for end users:** Thanks to operators' better spectrum resources, consumers will also benefit in the future from very good mobile coverage and high-quality products.

Conduct of the procedure

As early as the end of November 2010 ComCom had launched the invitation to tender for the new award of mobile frequencies and invited all interested companies, in an initial procedural step, to submit any questions regarding the procedure.

On the basis of the numerous questions and comments relating to the procedure, in January 2011 ComCom extended the deadline for candidatures and examined the comments after a hearing of the interested companies. At the end of May 2011 it revised a number of points in the invitation to tender and specified the deadline for candidates to participate in the auction as the end of September 2011.

Those applicants which were able to demonstrate that they could meet the licensing requirements and that the award of a radiocommunication licence to them would neither eliminate nor substantially adversely affect competition were approved by ComCom to take part in the auction. Furthermore, the applicants had also to submit a bank guarantee which covered 50% of the minimum bid for the frequencies they were applying for.

The companies Orange, Sunrise, Swisscom and In&Phone had applied to take part in the auction. In&Phone did not satisfy the admission criteria and was therefore not allowed to participate in the auction.

To ensure participants in the auction were well prepared, bidders received the software well in advance to allow them to practise using it and they participated at a trained event before the auction.

The auction began on 6 February 2012. It lasted for a total of 13 days and was conducted using an electronic auction system by the British company DotEcon Ltd.

2.6. DVB-H licence

Within the framework of a criteria-based competition, ComCom awarded in September 2007 the first national DVB-H licence to Swisscom Broadcast. The coverage provisions, which called for coverage of about 44% of the population, were met by the end of May 2008.

Since the demand for DVB-H and in particular the availability of corresponding terminals had not evolved as expected, the licensee submitted an application in February 2010 to defer the obligation to start operation until the end of 2012.

In its decision, ComCom approved the deferment of the obligation regarding operation, but obliged the licensee to maintain the wholesale offering and to put the existing infrastructure back into operation if there is corresponding demand from third parties.

The term of the licence was then shortened to the end of 2012; the licensee is entitled to an extension of the licence until the end of 2017 provided it puts the infrastructure back into service by early 2013.

3. Free choice of service provider

To enable competition to take place, consumers must be able to pick and choose freely from existing providers.

In the mobile radio sector, the choice is between three network operators and various service providers which have entered into a partnership with an operator on a commercial basis.

On the fixed network, every household is provided with the customary telephone connection by Swisscom. In parallel, there is generally also a cable television connection, via which broadband internet and telephony services have been available for some years. As a result of the liberalisation of the telecoms market it became possible for providers of telephony services to make joint use of Swisscom's network, in return for a fee.

In order to make changing one's provider as simple as possible, manual carrier selection (carrier selection call by call) and permanent preselection (carrier preselection) were introduced in 1999. In the case of carrier preselection, the change of provider is permanently fixed on the Swisscom network and the chosen provider charges its customer for telephone traffic directly. Swisscom continues to bill the connection charge to customers. However, providers also have the possibility of acquiring the connection as a resale offering from Swisscom and billing its customers itself.

At the beginning of the liberalisation process, carrier preselection was indeed a key instrument in promoting competition. By 2002 the number of connections on which carrier preselection was active had rapidly risen to 1.37 million, corresponding to one third of all connections. Since then the number has continuously fallen, to just 387,251 at the end of 2011, corresponding to a drop of 63,761 preselections within one year. According to Swisscom, in 2011 some 101,027 carrier preselections were activated and 71,503 were de-activated. The fact that the number of preselections nevertheless fell considerably overall is attributable to consumers switching to cable networks or unbundled connections All orders for implementing a carrier preselection are carried out by Swisscom within 3 - 5 working days.

4. Number portability

Since the year 2000, it has been possible for customers to transfer an existing telephone number to a new connection operator.

In mobile telephony, according to the Teldas company, which maintains the central porting database in Switzerland, in the years 2009-2011 between 160,000 and 170,000 numbers were ported annually. In 2011, therefore, only about 2% of mobile customers took their number with them to a different provider.

On the fixed network, number porting takes place only in the case of a switch between operators of their own connections (e.g. in the case of a switch to a CATV operator or unbundling by a telecoms provider). In 2011 a total of 105,629 numbers were ported from Swisscom (corresponding to 3.4% of Swisscom's fixed-network connections) and 18,006 numbers were switched to Swisscom.

Since 2002, fixed network providers have been able to offer "geographic number portability" not only within a dialling code area but also nationwide. In this case, when they move house customers can also take their telephone number with them to another dialling code area. The code (e.g. 032) will then no longer match the place of residence.

5. Perspectives

Through its decisions, ComCom seeks to promote sustainable competition between providers and the efficient utilisation of the frequency spectrum in the interest of consumers. Furthermore, it continues to strive to stimulate an investment-friendly environment and technological innovation in the telecommunications market.

The following are the major activities in 2012:

- **Award of mobile radio frequencies:** The auction of all mobile radio frequencies is being conducted by OFCOM; ComCom will then award the licences. Then the planning of any necessary frequency conversions on the networks will have to be approved and monitored.
- **Access procedures:** Pending or newly submitted access procedures are being pursued and where possible decisions will be made in 2012.
- **High-speed broadband:** The last FTTH Round Table was held in January 2012. ComCom is also represented in the "Next Generation Access" working group of the OFCOM. This working group is tasked with formulating principles so that political authorities at municipal, cantonal and federal level are able to take their decisions with the necessary overview.
- **International:** Together with OFCOM, ComCom is monitoring regulatory practice in the other European states. To this end it is taking part as an observer in meetings of the BEREC and is actively involved in the Independent European Regulators' Group (IRG).

IV. Finance

ComCom performs its tasks in close cooperation with OFCOM. A general overview of the revenue and expenditure of the Swiss telecommunications regulator must therefore also include the activities of OFCOM. Table 1 shows total expenditure in the form of various products. This also allows the corresponding revenues to be shown.

In 2011, ComCom's total costs including OFCOM's expenditure for the Commission amounted to CHF 4,632,318, corresponding to a drop of -2.5% on the previous year. This includes the expenditure of the Commission as a whole, with its secretariat, of CHF 1.2 million in total. In 2011, the invoiced administration fees amounted to CHF 287,650. The coverage of costs was therefore extremely low in 2011. This is due to the fact that it has not yet been possible to bill substantial costs from the reporting year. This applies especially to the access procedures which are not legally enforceable because of appeals, and to the considerable costs incurred in preparing the mobile radio auction.

The Commission's costs are covered by administration fees as far as possible. But there are unavoidable activities which cannot be offset against any specific procedure (Table 1, "general foundations"): this is the case, for example, for the elaboration of economic or legal foundations, international exchanges of experiences or market development studies.

The award of radiocommunications licences by ComCom also gives rise to substantial annual, or in the case of auctions one-off revenues for the Federal Treasury, in the form of radiocommunications licence fees. These radiocommunications licences earned the Confederation revenue of CHF 14 million in 2011.

Product	**Costs (in CHF)**	Received **administration fees (in CHF)**	**Coverage of costs (in %)**
General foundations	1,922,067	0	0
Universal service licence	533,154	232,550	44
Access procedures	734,809	40,190	5
Radiocommunications licences: tender procedure and award	1,424,823	13,440	1
Supervisory measures	17,465	1,470	8
ComCom total (OFCOM, Commission and secretariat)	**4,632,318**	**287,650**	**6**

Tab. 1: Costs, administration fees and coverage of costs of ComCom in 2011
(including ComCom's secretariat and OFCOM's activities for ComCom)

The most important activities at a glance

Access procedures

Unbundling and co-location	⇨ ComCom has set new prices for unbundling and co-location for the year 2011. The monthly price for unbundling fell to CHF 15.50.
Interconnection	⇨ Interconnection prices were also reduced slightly for 2011 compared to the offer from Swisscom.
Charging for the subscriber line and cable ducts	⇨ ComCom set the prices for charging for the local loop and for the use of cable ducts for the years 2010 and 2011.

Licences

Universal service	⇨ The universal service was fully guaranteed nation-wide in 2011 in accordance with the provisions of the law. The bandwidth of the internet connection included in the universal service is being increased to 1 Mbit/s.
Mobile radio frequencies	⇨ In 2011 ComCom pushed ahead with the new award of all mobile radio frequencies. The auction took place in February 2012 and generated total revenue of CHF 996 million for the Confederation.

Abbreviations

ADSL = Asymmetric Digital Subscriber Line

BWA = Broadband Wireless Access (WiMAX/WLL)

CATV = Cable Television

ComCom = Swiss Federal Communications Commission

CSC = Carrier Selection Code

DSL = Digital Subscriber Line

DTS = Decree on Telecommunications Services (SR 784.101.1)

DVB-H = Digital Video Broadcasting for Handheld Terminals

EDGE = Enhanced Data rates for GSM Evolution

FAC = Federal Administrative Court

FTTC = Fiber to the Cabinet

FTTH = Fiber to the Home

GPRS = General Packet Radio Services

GSM = Global System for Mobile Communications

HDTV = High-definition television

HSDPA = High Speed Downlink Packet Access

IC = Interconnection

IP = Internet Protocol

IPTV = Internet Protocol Television

ISDN = Integrated Services Digital Network

ISP = Internet Service Provider

LRIC = Long Run Incremental Costs

LRTV = Law on Radio and Television (SR 784.40)

LTC = Law on Telecommunications (SR 784.10)

LTE = Long Term Evolution of UMTS

MMS = Multimedia Messaging System

NGA = Next Generation Access Network

OFCOM = Swiss Federal Office of Communications

PSTN = Public Switched Telephone Network

SMS = Short Message System

UMTS = Universal Mobile Telecommunications System

VoD = Video on Demand

VoIP = Voice over IP

WiMAX = Worldwide Interoperability for Microwave Access