Activity Report 2012

by the Federal Communications Commission (ComCom)

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Foreword of the President

What may sound like a given is in reality a tremendous challenge.

However large the volume of data, it has to be transported – both for individuals as well as businesses.

In order to meet this demand by most users in Switzerland, high-speed broadband coverage – both mobile and fixed – is required. Through its strategy and its activity, ComCom seeks to create the conditions, the incentives and the overall framework to enable such powerful networks to be constructed.

In this context, in 2012 we were able to take decisions about both mobile and fixed network communication and to complete processes which now enable the telecom companies to progress rapidly with their investments.

In the fixed-network sector, the Round Table on rolling out fibre has been concluded – fibre to the home or at least to the manholes in the street is now being laid in many places, in a spirit of cooperation. Together with the huge investments made by the cable companies, this is generating at least a tenfold increase in data capacity – not only in cities but also in rural areas. The expansion is taking place in a coordinated fashion and in accordance with the rules agreed at the Round Table.

In the mobile sector, ComCom resold the entire frequency spectrum, to enable major investment in more powerful networks here too. The 'Big Bang' auction – the allocation of the entire mobile radio spectrum in a single auction, was a world first – and not without controversy. But it has paid off: without delays or appeals, construction of the next generation of mobile networks (LTE) can begin immediately. The three mobile operators now have more frequencies – good frequencies – to provide powerful and modern services to their customers, and this will be the case for the next 15 years. Only now – and as a result of this step – is the motto "anything, anytime, anywhere" truly becoming reality in the mobile world.

Through its activity, ComCom seeks not only to encourage these developments and investments towards a high-performance information society in Switzerland but also to drive them and keep pace with them. Our interventions must serve the development of the market and must in no way be a hindrance on investment incentives – on the contrary.

Many market players are making major investments, with an impressive commitment. This means that what the EU is promoting as a programme for a "Digital Europe" will become reality in Switzerland over the next few years: coverage of the population and businesses with high-speed broadband transmission capacities from 100 Mbit/s to over 1 Gbit/s, so that in future all communications services and contents will be available in a matter of seconds. High-speed broadband will become a commodity or – speaking plainly – a given.

Marc Furrer, President

March 2013

I. Overview of the telecoms market

The year 2012 was marked by several events important for the future of the telecommunications market in Switzerland.

Firstly, ComCom successfully awarded all of the **mobile telephony frequencies** in a single auction procedure conducted by OFCOM in February 2012 (cf. page 22). Operators were therefore able to acquire spectrum which meets their present and future needs: all the operators will have a much greater number of frequencies in the future. For consumers, this means good coverage in the future and access to increasingly efficient high-speed mobile services, in particular as a result of the introduction of modern mobile technologies such as LTE (Long Term Evolution).

Secondly, the roll-out of **fibre to the home** (FTTH) also continued at a rapid rate during 2012. Following the opinion given by the Competition Commission (ComCo) in September 2011, the roll-out partners have adapted or removed certain clauses in their cooperation contracts. The number of these has increased greatly as a result and this relates to both towns and cities as well as the peripheral regions. At the end of September 2012, nearly half a million homes and businesses had already been passed using FTTH technology.

ComCom also held its final **Round Table on fibre networks** (cf. page 14) in January 2012, as it was of the opinion that the desired objectives had been achieved. The network must be developed in a coordinated manner and without duplication. Competition should be stimulated through nondiscriminatory network access, which is open to all providers of telecommunications services and through the installation of multiple fibres (the multi-fibre model).

Finally, also worthy of note is the publication of the complementary report by the Federal Council on the **evaluation of the telecommunications market** at the end of March 2012. In its latest report, the Federal Council notes that the current Telecommunications Act (TCA) has been overtaken by the rapid technological developments. The government therefore plans to draw up a draft partial revision of the TCA during this legislature.

On publication of the evaluation report on the telecommunications market in September 2010, ComCom pronounced itself in favour of a revision of certain points in the TCA, notably in relation to stimulating the market and improving consumer protection.

With a dynamic technological environment such as that outlined above, the Telecommunications Act needs a degree of flexibility, in order to avoid the risk of not being able to fully deploy its effects in future. ComCom therefore favours the introduction of flexible and technologically neutral regulatory instruments, which would provide adequate tools in a timely manner and ensure nondiscriminatory access by providers to telecommunications infrastructures.

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 from almost anywhere, even in the remotest areas.

With a handset penetration rate of almost 125% at end of 2012, corresponding to more than 10 million subscribers, Switzerland is a little below the European average (132% at the end of 2012).

Despite an increasingly mature mobile market, the number of subscribers also continued to increase in 2012, benefiting from the rapid rise in the number of smartphones, which is a young market with very strong growth. During 2012, the three national mobile network operators all saw their subscriber numbers increase (cf. fig. 1) by a total of 249,000 new registered customers.

With 168,000 acquisitions, **Swisscom** is still making progress and has picked up more than 67% of all new customers. At the end of 2012, its market share remained stable at 62% and remains high.

Sunrise, for its part, with 26,000 new customers, which corresponds to a little more than 10% of all new customers, saw its market share decline very slightly to 21.4%.

Orange gained 55,000 new customers, which corresponds to 22% of all new customers, confirming its recovery, which had begun back in 2011. Its market share increased very slightly to 16.6% at the end of 2012 (compared to 16.5% at the end of 2011).

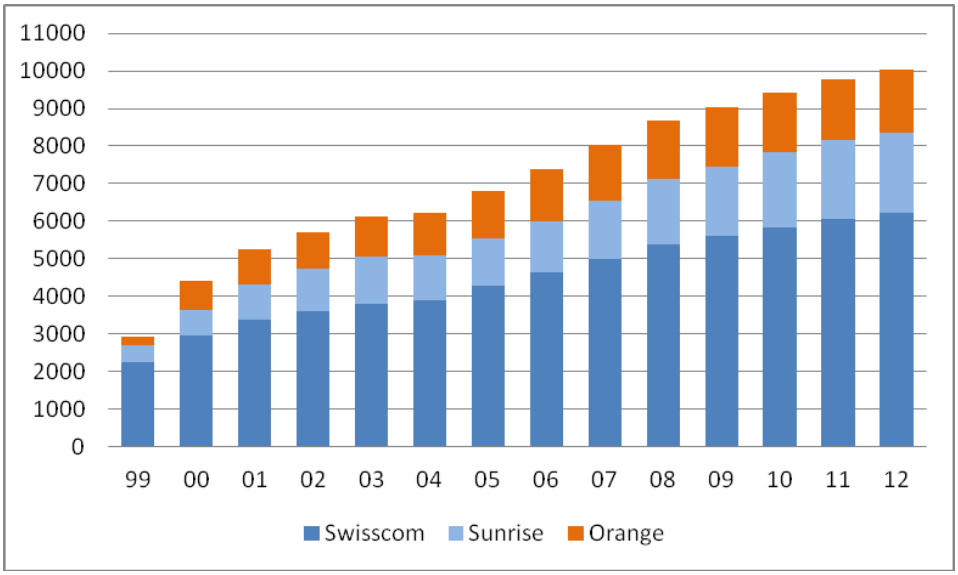

Fig. 1: Mobile phone connections in Switzerland [in thousands]
1999 - 2012
Sources: operators' annual reports

Note, however, the low impact of competition on the evolution of the market shares of the operators in the mobile telephony market in Switzerland. Swisscom has managed over the past 10 years to maintain its lead over its competitors. Its market share, after some minor fluctuations in the mid-2000s, has regained its 2003 level and remains stable at nearly 62%, whilst that of Sunrise increased by only 1% over 10 years, at the expense of Orange. Everything is therefore developing as if the competition between operators to gain new customers left Swisscom totally unaffected and merely caused the two alternative operators to fight it out between themselves.

The growth in mobile data traffic

The mobile telephony market is constantly evolving. Over the last few years, with the arrival of new smart devices, usage and consumption habits have been transformed. Hundreds of thousands of available applications and automatic synchronisation applications or files on multiple devices change usage profoundly and offer new possible applications.

The smartphone market is enjoying spectacular growth. According to Strategy Analytics, the number of smartphones used in the world exceeded one billion units in the autumn of 2012,

representing 40% of the mobile phones in use in the world. According to various research institutes, between 650 and 700 million of these devices were sold worldwide in 2012; this represents almost 40% of all mobile phones sold in that year.

In Switzerland too, smartphones are increasing their share of the mobile phone market. According to the operators, smartphones represented between 60% and 70% of the units sold in 2012; this corresponds to more than half of the mobile phones in use in Switzerland (54%, according to comparis).

But above all, the boom in smartphones has created tremendous growth in data traffic on mobile networks, with the volume of traffic currently doubling every 16 months on the Swisscom mobile network, for example. At the global level, data traffic on mobile networks has doubled in a year, between 2011 and 2012 according to the Ericsson report on mobility. Ericsson expects that this traffic will continue to grow at an average of 50% per year between 2012 and 2018.

Telecommunications service providers face several challenges: in order to cope with the growth of mobile network data traffic in particular, mobile operators are investing considerable sums in their network infrastructures.

Swisscom announced that it intends to invest CHF 1.5 billion in the expansion of its mobile telephone network by 2016. Sunrise invests up to CHF 200 million annually in mobile and fixed network infrastructures. Within the framework of the investment program for the next 5 years initiated in 2010, Orange is investing more than CHF 700 million in the modernisation and future expansion of its mobile network, including the commercialisation of 4G.

Since mobile communication is also increasing on trains, Swiss Federal Railways (SBB) is working together with the mobile operators on improving mobile telephone reception on trains. According to the SBB, by the end of 2013 approximately three-quarters of the carriages on inter-city trains will be fitted with repeaters. To improve the quality and speed of connections from trains, mobile operators are also improving coverage along railway lines.

The investments in LTE have begun: Swisscom officially launched its **LTE network** in late November in 26 localities. Sunrise, for its part, will propose a commercial service offering on its mobile LTE network in June 2013, whilst Orange will also launch its new generation network in 10 cities in June 2013.

In addition to constantly improving the quality and coverage of the networks, operators also have to offer contracts in line with the new consumer habits unleashed by the proliferation of smartphones.

In mid-June, Swisscom, for example, launched new fixed-price contracts where the price is a function of the transfer rates, applying to the mobile market practices in the fixed network and ADSL. This paradigm shift increased competition on prices in Switzerland in 2012. Sunrise responded at the beginning of July by lowering the price of its contracts and also offering fully unlimited contracts, without volume or speed limitations. Orange for its part slightly reduced some of its rates in early October, in particular introducing the option of sharing one's surfing limit across multiple devices.

The year 2012 was also marked by an increase in the number of **bundled products** combining internet plus fixed and mobile telephony. With the arrival on the market of Sunrise TV in January 2012, Sunrise became the second telecommunications service provider, after Swisscom, to offer "quadruple play" in Switzerland. For the cable operators it also seems advantageous to offer mobile telephony to their customers. The Quickline grouping of cable operators, for example, introduced new mobile contracts in the autumn of 2012, notably as part of a combined offering. Cablecom, for its part, is planning to launch itself as a virtual operator (MVNO) in the mobile telephony market in 2013.

Demand for broadband mobile services also continues to grow. The number of broadband contracts on the mobile networks increased by 12% between June 2011 and June 2012 in Switzerland and reached 4.2 million units in mid-2012. The penetration rate of mobile broadband in Switzerland was 54% at that time (compared to 48.7% in June 2011), slightly below the average of the OECD countries (56.6%).

The main trends currently observed:

- With the proliferation of smartphones and tablets, the market for **mobile applications** is experiencing extraordinary growth: in the reporting year alone, nearly 40 billion applications (source: Strategy Analytics) were downloaded throughout the world (compared to 20 billion in 2011 and only 300 million in 2009). Each of the two main stores, iTunes and Google Play (ex-Android market), has more than 700,000 applications available, while the Windows store had 150,000 at the end of 2012. With an average of 19 paid-for applications installed on their smartphone, Swiss users are champions at downloading mobile applications (Statista.com).

- Consumption of **videos** is the main vector for the increase in mobile traffic. According to the Ericsson report on mobility, it currently contributes 25% to the total traffic generated by smartphones and 40% to that originating from tablets. YouTube alone is responsible for nearly a quarter of mobile data traffic worldwide. In Switzerland, internet TV services such as Teleboy, Wilmaa and Zattoo are gaining popularity, and more and more users are watching TV on a smartphone or a tablet.

- **Music streaming** is attracting more and more consumers and continues to grow. Mobility-driven streaming is becoming a major strategic and commercial argument. For operators, it is a way of offering added value to their customers, predominantly the younger audience. 2011 had already seen the signing of several partnerships in Europe between mobile operators and music content providers such as Deezer and Spotify. In Switzerland, since late November 2012, Sunrise has been offering access to the Juke music streaming catalogue as an extra on some contracts. Meanwhile, Orange has been offering access to the Spotify catalogue since January 2013.

- The online storage market is growing strongly and **cloud computing** services are multiplying, driven by the multi-screen trend, synchronisation between devices and the integration of native applications on smartphones (Apple iCloud, for example). Following the pioneer Dropbox, launched in 2008, the giants of the web – Google Drive, Microsoft's Skydrive, Amazon Cloud Drive – are all offering a multitude of services, from the office suite to music storage via hosting and file sharing. Dropbox claims 100 million users worldwide, while Microsoft Skydrive claims to have 200 million and Apple iCloud 190 million.

- Mobile commerce or **m-Commerce** also benefits from the widespread use of mobile phones and touch-screen tablets. Although most customers are still content to search for information or compare prices online before making a purchase in shops, the number of people placing orders from a mobile device continues to increase. In Switzerland, at the online supermarket LeShop, for example, the proportion of orders placed from a mobile terminal more than doubled between 2011 and 2012, from 11% to 23%. The rate of growth is the same for ricardo.ch, where 25% of the total traffic was carried by mobile devices at the end of 2012, compared to 14% only 6 months earlier.

- Payment by mobile or **m-Payment** is starting to take off. In 2012, PayPal recorded $14 billion of mobile payments, an increase of 250% on 2011 ($4 billion). The combined development of m-Commerce and m-Payment represents a huge potential and a considerable challenge for many players in different sectors who seek to develop their own solution: mobile applications, paypass function on credit cards, Google's Wallet or Apple's Passbook. Its development also depends on the availability of appropriate

devices, in-store payment terminals and compatible mobile telephones. For their part, mobile operators are also multiplying tests using the wireless communication technology NFC (Near Field Communication), which permits payment by mobile phone over short distance.

Mobile telephony prices

There was a very sharp fall in prices for mobile telephony in 2012. Although the magnitude of this price reduction varies, all types of users benefited overall from these reductions in 2012. On average, prices fell by 13.2% for light users, 18% for average users and 28% for heavy users (cf. fig. 2). However, this evolution of prices must be qualified according to market segments.

In a report published by OFCOM at the end of December 2012 on the retail prices of mobile telecommunications services, though prices fell consistently for users with a contract, they nevertheless increased for large users using a prepayment card.

Although prepaid products have to date been more advantageous for people whose mobile phone usage is low or average, contracts have become more advantageous for average and heavy users, whilst for the light user, a prepayment card and a contract work out at the same price.

According to the OFCOM report, however, this trend does not apply to telecommunications services resellers who remain more attractive in the prepayment card segment.

Furthermore, it should be noted that the retail prices for mobile communications in Switzerland are among the most expensive in comparison with the other OECD countries.

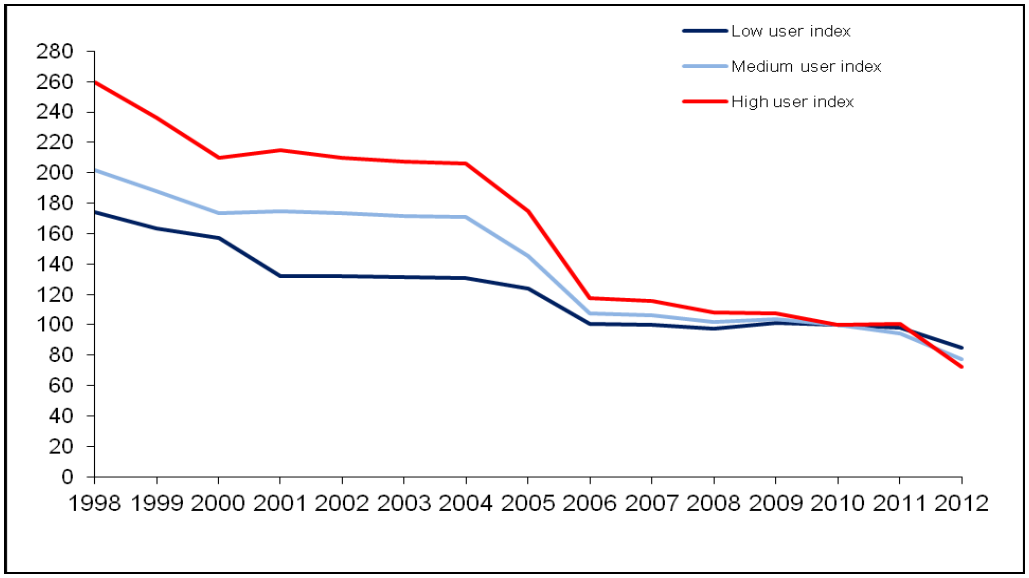

Fig. 2: Evolution of end prices of mobile telephony in Switzerland 1998 – 2012

(cost indices by user profile, 100 = year 2010)

2. The fixed telephony market

The on-going development of mobile telephony has resulted in a constant decline in the number of fixed telephone connections over the last 10 years (-23% between 2002 and 2011). Similarly, the number (-2.3% in 2011) and duration (-7.6% in 2011) made on the fixed network are decreasing.

However, the mobile network has thus not yet succeeded in replacing the fixed network. There is indeed significant growth in voice telephony using VoIP. According to the official telecommunications statistics for 2011 published by OFCOM, the number of customers accessing telephony services on fixed networks from a VoIP access provided by the TSP (DSL, cable, etc.) increased by 27% in 2011, while the duration of calls made from a VoIP access increased by 11.3% between 2010 and 2011. Within a few years, IP digital telephony is set to completely replace traditional telephony.

On the other hand, both the unbundling and the growth of the market for digital TV via DSL lines, plus significant investments in the modernisation of the networks and the deployment of optical fibre, also indicate a complementarity between the networks.

Thus in addition to the three mobile telephone networks, Switzerland has several "backbone" networks and a high-quality national network covering the whole of the territory. The Swisscom fixed network (3,013,000 connections) is efficient and available throughout Switzerland. Furthermore, several cable television networks are also well established and offer connections to subscribers, although with the exception of Cablecom most of these networks offer broadband and telephony services on a very localised basis.

Whilst fixed telephony prices in Switzerland fell in 2011, they again experienced stagnation in 2012, regardless of the user profile. According to a study by OFCOM on retail prices published in November 2012, the prices of the cheapest products remained unchanged for light users and fell by 0.1% and 0.3% for medium and heavy users respectively.

In an international comparison, the prices for fixed telephony in Switzerland are about on average.

The distribution of fixed network market shares has changed little in recent years. Swisscom's market share, at almost 70%, remains high; Sunrise, its main competitor, serves less than 13% of subscribers.

For their part, the cable operators continue to gain market share in fixed telephony. In 2011, they gained more than 80,000 additional customers, in 2012 90,000 (18% up on the end of 2011). At the end of 2012, Cablecom, the leading provider of cable telephone services, had 421,400 telephone subscribers (compared to 363,200 at the end of 2011) and its market share is now close to 11%. The numerous 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 considerably, from 104,214 at the end of 2011 to 89,206 at the end of 2012, i.e. a drop of the order of 14% (compared to -9% between 2011 and 2010). This decline – like the fall in the number of automatic carrier preselections (-56,000 in 2012; see below) – can be explained by the unbundling of subscriber connections and the increase in customer migrations to cable operators.

3. Broadband on the fixed network

Switzerland currently stands at the forefront in relation to broadband. Competition on infrastructures and services offers greater choice to consumers. The development of broadband is also very important for the economy and the information society in Switzerland.

Within the context of ever tougher international competition, aggravated in particular by the economic crisis, the preservation of Switzerland' status as a vibrant economic location is important. Switzerland must maintain its position and ensure the rapid transition to very high speeds and modern network infrastructures providing access to increasingly demanding services.

All the more so as the EU's strategy to improve fast and super-fast internet access for Europeans included in its digital agenda appears ambitious: it involves the provision of basic broadband access for all by late 2013, with minimum speeds of 2 Mbit/s, but above all, through the deployment of next generation access networks (NGA), 30 Mbit/s access for all by 2020, and 100 Mbit/s for 50% of households.

Whilst the volume of data traffic on the fixed network increased by over 30% in Switzerland in 2012, it is imperative that the investments in various very fast infrastructures continue.

With 41.6% of the population having broadband internet access in mid-2012, Switzerland has again improved its position in the ranking of the OECD countries. It is now in first place, ahead of the Netherlands (39.4%) and Denmark (38.3%). The average for the OECD countries is 26% (cf. fig. 3) and the figure for the EU is 28.2%.

Switzerland not only has good penetration of broadband access, but users also benefit from ever higher speeds. In an international comparison, Switzerland is among the best connected countries. According to a study published by Akamai Technologies (The State of Internet, 3rd Quarter 2012), 81% of Swiss surfers have an internet connection faster than 4 Mbit/s (compared to 51% at the end of 2011); the worldwide average is 41%. Switzerland is therefore in 4th place in this worldwide ranking, with average speeds of the order of 8.7 Mbit/s, whilst 22% of broadband connections in Switzerland are over 10 Mbit/s.

According to another study published by OFCOM in December 2012 on broadband services prices, the increase in speeds is accompanied by a slight increase in prices. So the costs incurred by an average user for broadband services increased by 1.2% between 2011 and 2012. But since the speeds for an average user have increased by an average of 1 Mbit/s to 9 Mbit/s, the Mbit/s price index consequently fell by 14.6% from the previous year.

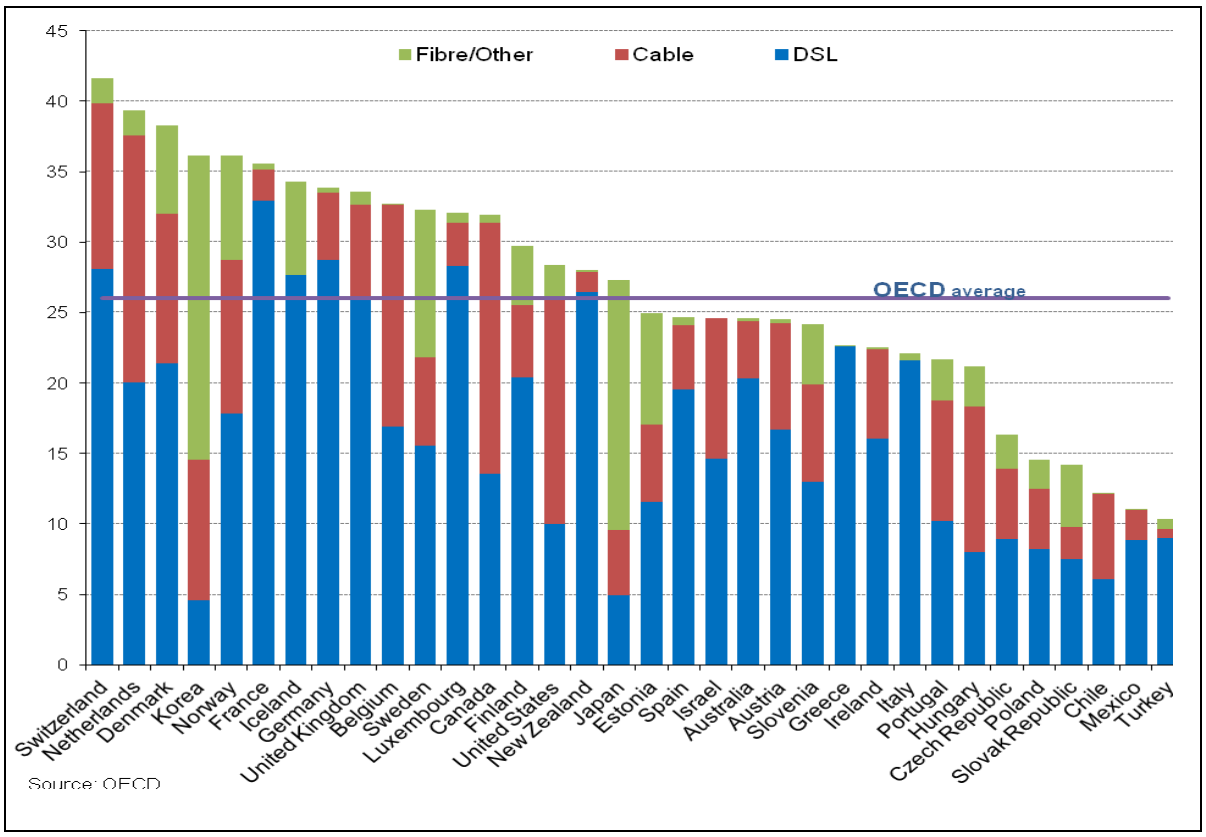

Fig. 3: OECD broadband penetration, June 2012 (as % of population)
Source: OECD

The broadband access market is witnessing growth rates which are falling year on year. In 2012 the number of broadband connections grew by about 5.1% (compared to 5.4% in 2011 and 5.8% in 2010).

All internet service providers (CATV and DSL) combined won 152,500 new customers in the year 2012 (compared to 153,100 in 2011), giving a total of 3,163,500 high-speed connections in Switzerland.

Whereas in 2011 the cable operators had already recruited almost as many new customers as the DSL providers, in 2012, for the first time in more than 10 years, they gained more new customers than the DSL service providers. The cable operators have therefore acquired more than 87,500 new internet customers in 2012 whilst the DSL service providers gained 65,000 (cf. fig. 4).

This recovery, which began in 2011 therefore seems to be sustained for the cable operators. The latter have already invested in the upgrading of their network infrastructure by continuing the roll-out of optical fibre and the DOCSIS 3.0 standard, allowing them to offer speeds of 100 Mbit/s and more. No less than 64% of Swiss households today have the option of a connection based on DOCSIS 3.0 technology (source: Swisscable). Cable operators are continuing to roll out DOCSIS 3.0 and to upgrade networks in order to get these speeds up to 150 Mbit/s. The next DOCSIS 3.1 standard will enable very much higher speeds in future, of the order of several gigabits per second.

However, DSL access technology via a telephone line continues to be users' preference for internet access: 70% of users opted for DSL (2,213,000 connections) and 30% for cable (950,500 connections) at the end of 2012.

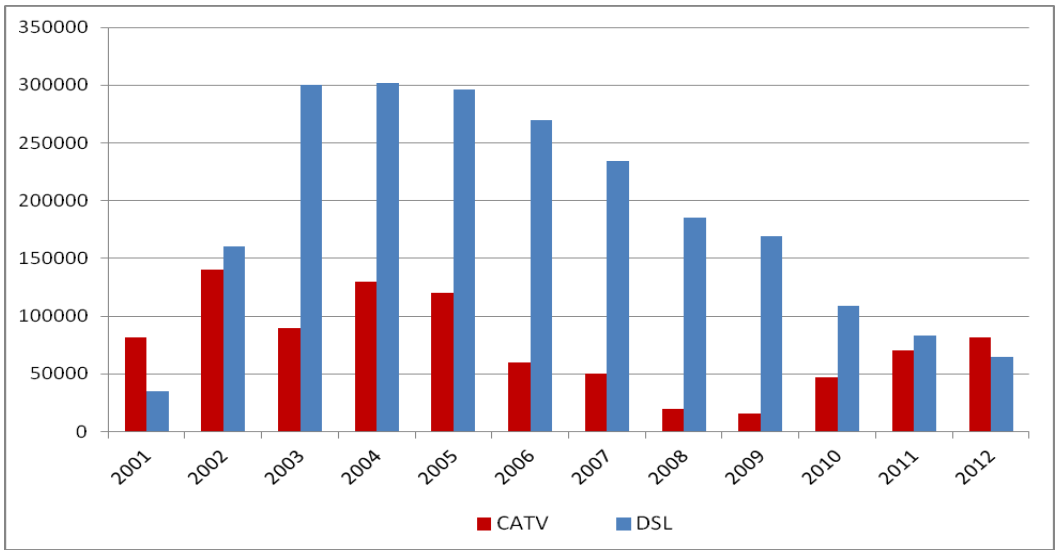

Fig. 4: New customers per year according to technology, 2001-2012
Sources: Swisscom, Swisscable

Considering the entirety of high-speed internet service providers (CATV and DSL), the distribution of market shares still favours Swisscom (cf. fig. 5). Although slightly down, with a market share of 54.6% at the end of 2012 (compared to 55.2% at the end of 2011) Swisscom is far ahead of its main competitors. The share of all the alternative DSL providers is 15.4%, with 11.6% attributable to Sunrise. For the cable operators, Cablecom's market share is 18.8% and that of the other CATV providers is 11.2%.

By way of comparison, the average market share of the historic operators in the European Union has fallen continuously and was 42.6% at the end of July 2012.

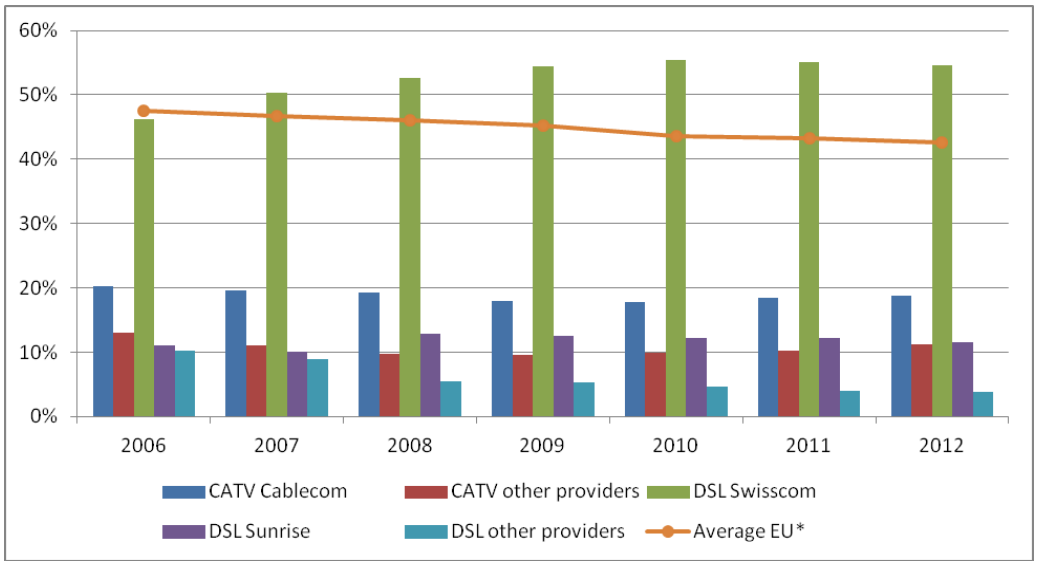

Fig. 5: Market shares of broadband connections in Switzerland and in the EU, 2006 - 2012
Sources: operators, European Commission.
* Historic operator's market shares

In the DSL market alone, including unbundled lines, there has been an overall increase of 65,000 customers (compared to 83,000 customers between 2010 and 2011), i.e. an increase of 3% between 2011 and 2012 (cf. fig. 6).

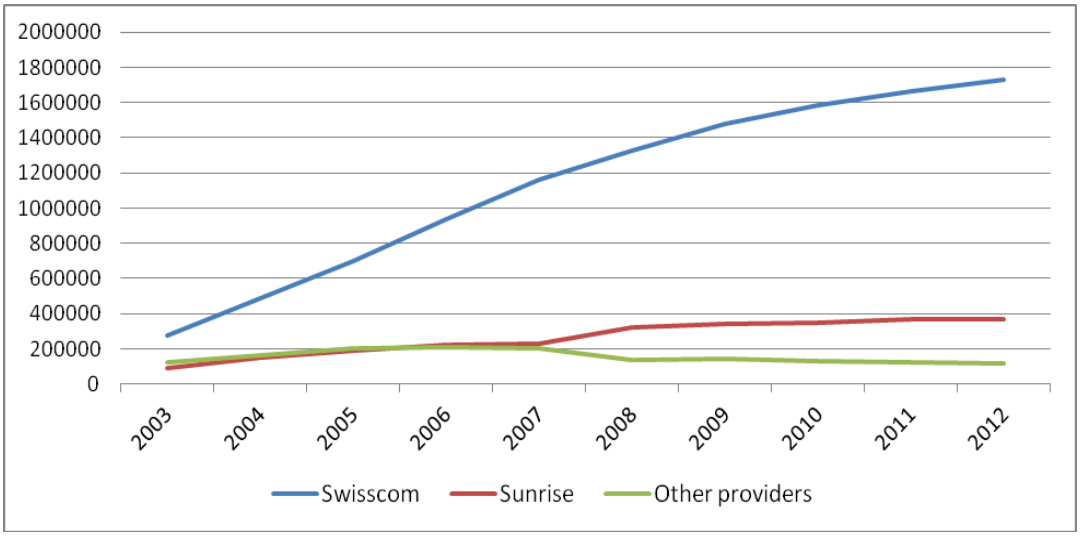

Fig. 6: xDSL connections in Switzerland (including unbundling), 2003 - 2012
Sources: Swisscom, Sunrise

Swisscom is still reporting the largest increase in the number of customers, with growth of the order of 66,000 new customers during 2012. With 1,727,000 DSL lines, its market share therefore increased from 77.3% at the end of 2011 to 78% at the end of 2012.

Sunrise, for its part, gained less than thousand new customers over the same period. With 367,000 broadband customers at the end of 2012, including 261,000 unbundled customers, Sunrise's market share fell slightly to 16.6% at the end of 2012 (from 17.1% in 2011). The launch of Sunrise TV in early 2012 helped Sunrise to consolidate its position in the market by offering its customers bundles including fixed and mobile telephony, internet access and TV over IP.

After losing many customers over the past two years (-10,000 in 2011 and -13,000 in 2010), the other operators – resellers of DSL services – lost another 1900 customers in 2012. Their market share, therefore, continued to fall, to 5.4% at the end of 2012 compared to 5.6% at the end of 2011.

Finally, unbundling, which was introduced very late in Switzerland, suffered a setback for the first time in 2012. After having experienced exceptional growth in the early years and stimulating competition in the DSL access market, unbundling was down nearly 6000 units in 2012. The number of unbundled lines was therefore approximately 300,000 units at the end of 2012, compared to 306,000 at the end of 2011 (cf. fig. 7).

On the one hand, this decline has to be seen in relation to the development of digital television on the fixed network. The ADSL technology is not sufficient for digital television, TV in HD quality needs the higher transmission capacity of VDSL. This requires providers to rely on a Swisscom wholesale VDSL offering in order to benefit from sufficient bandwidth to offer their customers television over IP. This concerns Sunrise in particular, as in recent years this provider ordered up to 90% of all unbundled lines in Switzerland.

On the other hand, it is also attributable to infrastructure competition, involving both the good performance of the cable operators and the first connections of users to optical fibre.

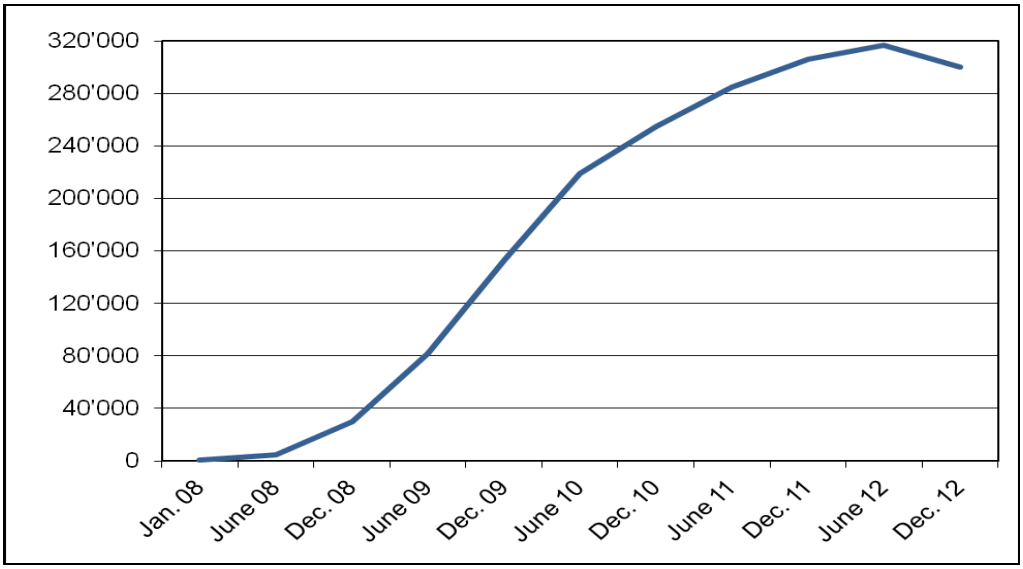

Fig. 7: Evolution of the number of unbundled lines in Switzerland, 2008-2012
Source: Swisscom

Although the number of fully unbundled lines (Full Access) already represents almost 62% of the DSL lines of the alternative operators, they account for only 14% of all DSL lines and less than 10% of all broadband lines including CATV connections.

Furthermore, the bitstream product, which was little used so far, continued to decline markedly in 2012. Introduced by Parliament in 2007 at the time of the revision of the TCA in order to temporarily facilitate investment in broadband before a transition by providers to full unbundling, this offering did not have the desired effect. The number of bitstream connections only amounted to almost 7000 units at the end of 2012 (compared to 8900 at the end of 2011).

Fibre access network (FTTH)

The expansion of the fixed telecoms network using optical fibre to the home (FTTH) is making rapid progress in Switzerland. The roll-out of fibre is taking place in about 20 regions within the framework of partnerships between Swisscom and individual municipalities or their electricity utilities. In 2012 alone, several collaborative projects were definitively agreed; these include, for example, those in the cities of Basel, Bellinzona, Berne, Geneva, Lausanne, Lucerne, St. Gallen, Winterthur and Zurich. However, in rural areas there are also projects for rolling out fibre (e.g. in some 70 Upper Valais municipalities) - among other things with a view to improving their attractiveness to businesses. In Fribourg too, the entire canton is to see fibre expansion through a cooperative project. Occasionally, there is also cooperation between CATV operators and Swisscom, which has seen investment in fibre access networks in some 30 locations.

According to Swisscom, at the end of 2012 more than 550,000 households and businesses were provided with fibre to the basement ("homes passed"), i.e. about 15% of Swiss households. By 2015, the partners involved want to cover about 30% of all households.

In relation to cable TV networks, for several years fibre has also been laid ever closer to the end customer. These hybrid fibre-coax networks (HFCs) - together with the DOCSIS data transfer standard - enable the CATV operators (such as upc cablecom, for example) to offer very high transmission rates. In turn, this infrastructure competition encourages fibre expansion in the fixed telecoms network.

This competition is also being intensified by the latest developments, which allow very high transfer rates of up to 100 Mbit/s over short copper wires. This means that fibre only has to be brought as far as the manholes or distribution boxes in the street (FTTS); this is more cost-effective and thus is also likely to speed up high-speed broadband development outside of the metropolitan areas.

Cooperation agreements analysed by ComCo

The first agreements had already been submitted to the Competition Commission (ComCo) in 2010 for review in relation to anti-trust legislation. ComCo subjected the contractual clauses to in-depth analysis and came to the conclusion in September 2011 that in part the contracts would contain problematic conditions which could be deemed to be agreements affecting competition. Following this preliminary investigation by ComCo, negotiations were held between the cooperating partners and various contract amendments were made in the year 2012. It is assumed that the cooperation agreements are now in conformity with anti-trust law.

It is also worthy of note that the Competition Commission welcomes the multi-fibre model and cooperation in the construction of fibre networks, provided that operation of the networks by operators is in accordance with competition law.

The ComCom FTTH Round Table

With the "FTTH Round Table" launched in 2008, ComCom and OFCOM wished to prevent the emergence of monopolies in this sector which could impede access for other telecommunications providers and hinder competition. At the same time, construction of the network should be as efficient as possible, in order to allow economically sound investment. A dozen heads of Swiss companies which are investing in fibre networks took part in nine Round Table meetings.

At the beginning of 2012 the participants and ComCom came to the conclusion that a continuation of the discussions at the Round Table was no longer necessary, as the main objective, namely the avoidance of uncoordinated construction of parallel networks, had been achieved.

Within the framework of the FTTH Round Table, the participants voluntarily agreed to comply with the following principles in the construction of fibre networks:

- **Coordinated network construction and multi-fibre model:** network construction should be coordinated in order to avoid the inefficient construction of parallel fibre networks, and multiple fibres will be laid up to the buildings, as well as inside houses.
- **Allowing network access:** The participants in the Round Table were also in agreement that all providers must have access to the fibre network on equal terms and at different levels of the network. This ensures competition, and consumers can continue to freely choose their telecoms providers.
- **Technical standards:** Uniform technical standards for the installation of multi-fibre cables up to the building were worked out (interfaces for interconnection, sockets, etc.).

OFCOM's NGA working group

In the summer of 2011, OFCOM established the NGA (Next Generation Access) working group to promote the development of high-speed broadband networks in the peripheral regions. All network technologies which allow the expansion of high-speed broadband (i.e. fibre, modern cable and mobile radio networks) are included in the considerations. Industry representatives, associations and federal agencies participate actively in the working group.

In the summer of 2012, a guide was published for the first time which outlines the different possibilities for the expansion of broadband by way of examples and which is intended to assist municipal authorities in the decision-making process.

In close cooperation with the network operators, OFCOM has produced an interactive broadband map which can be consulted at www.hochbreitband.ch and which shows the bandwidths, technologies and providers available throughout Switzerland.

II. The Commission and its Secretariat

ComCom is an independent extraparliamentary commission with decision-making powers, in charge of awarding licences and regulation of the telecommunications market. It consists of seven members appointed by the Federal Council, all independent specialists.

In 2012, the Commission consisted of the following members:

- **Marc Furrer, President,** Lawyer and Notary
- **Monica Duca Widmer,** Vice-President, Doctor, EPFZ graduate chemical engineer, Ticino entrepreneur
- **Andreas Bühlmann**, doctor of political science, head of the Finance Office of Canton Solothurn
- **Adrienne Corboud Fumagalli**, Doctor of Economic and Social Sciences, Vice-President of the Ecole Polytechnique Fédérale of Lausanne EPFL, Head of Innovation and Commercialisation
- **Reiner Eichenberger**, Doctor of Economics, Professor of Economics at the University of Fribourg
- **Jean-Pierre Hubaux**, electrical engineer, Professor at the EPFL
- **Stephan Netzle**, Doctor of Law, LL.M., lawyer.

At the end of the 12 years of the permitted legal mandate, the vice-chairman, Christian Bovet, left the Commission at the end of 2011. The Federal Council appointed Mrs Adrienne Corboud Fumagalli as a new member of ComCom effective January 2012. With a Doctorate in Economics and Social Sciences, and President of the Foundation for Technological Innovation at the Ecole Polytechnique Federal of Lausanne (EPFL), Adrienne Corboud Fumagalli is a multimedia, ICT and telecommunications specialist.

On the occasion of the full renewal of the Commission at the end of 2011, the Federal Council re-elected the other members of ComCom for the 2012-2015 administrative period. It also appointed Monica Duca Widmer as Vice-President.

In 2012, the Commission sat nine times. It also met for an internal training seminar. In addition, it made many decisions by way of circulation.

The Commission is assisted by a secretariat which is responsible for coordinating business, organising activities and carrying out communication tasks. The secretariat is provided by one female employee and two part-time male employees, i.e. three persons who fill 2.4 posts (full-time equivalents).

Since 2012, ComCom has no longer been attached administratively to OFCOM but to the General Secretariat of DETEC (cf. Finance).

III. Activities of the Commission

ComCom is the Swiss licensing and regulatory authority in 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 Commission is authorised to issue instructions to the Federal Office of Communications (OFCOM) (Art. 56-57 TCA).

The guide for ComCom's decisions is the purpose clause of the Telecommunications Act (Art. 1 TCA): The purpose of the Act is the reliable provision of diverse, affordable and high-quality telecommunications services to the population and the economy. In addition to ensuring the universal service (basic offering of telecom services) throughout Switzerland, this objective is to be achieved through effective competition.

According to the Telecommunications Act, ComCom's main tasks are:

- the award of licences for the use of the radio frequency spectrum (Art. 24a TCA),
- the award of the universal service licence (Art. 14 TCA),
- the definition of access prices and conditions if the providers cannot reach an agreement among themselves (Art. 11 and 11a TCA),
- the approval of the national numbering plans (Art. 28 TCA),
- the regulation of number portability and carrier selection (Art. 28 TCA),
- taking measures and imposing sanctions for violations of the applicable law or a licence awarded by ComCom (Art. 58 TCA).

In carrying out its duties, ComCom cooperates closely with OFCOM. On behalf of the Commission, OFCOM, with its specialist services, independently prepares most of the Commission's business and then submits the business to ComCom for a decision. The decisions of the Commission are implemented by its secretariat or by OFCOM.

The following sections provide an overview of ComCom's activities in 2012.

1. Access procedures

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

1. full unbundling of the local loop,
2. fast bitstream access (for four years),
3. subscriber line rebilling on the fixed network,
4. interconnection,
5. leased lines,
6. access to cable ducts, in so far as these have sufficient capacity.

The number of access procedures pending with ComCom has remained relatively stable: at the beginning of 2012, two access procedures were pending with ComCom. Of these, one procedure concerning cable ducts was deemed groundless in January 2012, because the parties had reached a compromise. The second procedure, relating to leased lines, was suspended.

In the course of the year, four new applications were submitted in order to determine conditions of access and resale prices: in one ComCom did not intervene in the interconnection application because there was no interest in bringing proceedings. Two applications to set mobile termination prices were dismissed during the year because the parties reached an agreement through negotiation.

At the end of 2012 two procedures were therefore still current: one relating to access to leased lines and the other to the prices of other forms of access.

Two new appeals against ComCom decisions in the year 2012 were added to the seven appeals pending before the Federal Administrative Court at the end of 2011. In the reporting year, the Federal Administrative Court dismissed two appeals as a result of a withdrawal and in three other cases a judgment was delivered (cf. section on subscriber line rebilling on the fixed-network and leased lines). At the end of 2012, four appeals therefore remained before the Federal Administrative Court.

1.1. The LRIC price calculation method

In Art. 11, the Telecommunications Act (TCA) stipulates that a market-dominant provider must in certain cases offer access to infrastructure and services at cost-based prices (see above).

In accordance with long-standing practice, ComCom calculates these prices using the “Long Run Incremental Cost" (LRIC) method, which is defined in Art. 54 of the Telecommunications Ordinance (TCO). These prices are based on the costs that an efficient provider would have to bear if it needed to construct a new network with modern technology itself, under competitive pressure. Accordingly, the calculations do not include the historical costs of the market-dominant provider, but rather current replacement costs.

The LRIC method takes into account, in addition to the pertinent costs relevant to the service concerned, a proportion of the overheads, as well as the capital costs customary in the sector. In the case of the latter, both the external capital costs and the expected returns of equity investors are included.

Apart from the price for subscriber line rebilling, which must be determined according to Art. 60 TCO using the retail-minus method, all other access prices are calculated using the LRIC method.

Fibre as MEA from 2014 onward

When calculating regulated interconnection and access prices using the LRIC method, to date copper technology has been used as a "modern" established technology - Modern Equivalent Assets (MEA).

As a result of on-going technological developments, ComCom announced as early as 2011 the following change in practice (originally with effect from the beginning of 2013): for the price calculation, a packet-switched Next Generation Network (NGN) will be used as MEA in the carrier network and optical fibre technology as MEA in the access network.

With regard to the transition to fibre technology as MEA, ComCom noted in the summer of 2012 that it was still unclear what the Federal Council would prescribe as innovations in relation to price calculation within the framework of the announced revision of the TCO and when these new provisions would enter into force. With a view to avoiding uncertainties in the market and unnecessary price shifts, ComCom therefore felt it appropriate to postpone the transition to fibre technology as MEA until the beginning of 2014.

1.2. Subscriber line rebilling on the fixed network

In a decision on 7 December 2011 ComCom came to the conclusion that the monthly deduction for subscriber line rebilling by an alternative provider would be assessed for 2010 at CHF 1.50. Swisscom's appeal against this decision was partially upheld and the corresponding deduction for 2010 was reduced by the Court to CHF 1.40 (cf. Federal Administrative Court judgement A-411/2012).

1.3. Leased lines

In two parallel procedures, ComCom had decided in March 2010 that Swisscom was market-dominant in relation to leased lines in the access network. The same applied in the long-distance network wherever at least two other network operators were unable to provide leased lines.

Swisscom was obliged by the ComCom decision on the one hand to publish an offering at cost-based prices for leased lines with bandwidths from 2 Mbit/s to 10 Gbit/s by the end of May 2010. On the other hand, ComCom retroactively reduced Swisscom's resale prices for leased lines by 15 to 30% for the years 2007, 2008 and 2009.

In February 2012 the Federal Administrative Court decided on the appeals against this ComCom decision (cf. judgements A 2969/2010 and A 2970/2010): the Court upheld ComCom's approach in the context of the market analysis and confirmed Swisscom's market dominance for the years 2007-2010. The Court also confirmed the broad definition of the term "leased line" as defined by ComCom. Swisscom was not therefore successful with its limitation to leased lines with a capacity of 2 Mbit/s.

On the other hand, the Court criticised ComCom, saying that ComCom should not oblige Swisscom to publish a general leased lines offering, but only one in respect of the parties involved.

ComCom was also successful in almost all areas of the price calculation: only in the case of fibre splices, for which ComCom in a subsequent procedure included average prices instead of the lowest prices, was the Commission obliged by the Court to re-calculate the prices using average prices. ComCom therefore recalculated leased line rates for the years 2007-2009 and issued them in May 2012. These decisions were not challenged.

At the beginning of June 2012, Swisscom published a comprehensive leased line offering for the first time.

The three pending procedures concerning leased lines were progressed by ComCom, but they were also temporarily suspended as a result of negotiations between the parties. In two cases, the parties were able to agree at the negotiating table, so these procedures were dismissed in early 2013. One procedure is being actioned by OFCOM.

1.4. Other forms of access

In March 2012, ComCom received an application to check the prices for interconnection, unbundling, co-location, cable ducts and subscriber line rebilling for the extent to which they were cost-based. The application is currently under investigation by OFCOM.

The interconnection and unbundling prices were last checked by ComCom in December 2011 and fixed somewhat lower. Interconnection prices in the fixed network are among the lowest in Europe, whereas the unbundling price is above the European average.

2. Licences

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

ComCom has delegated to OFCOM the granting of those radio licences which are not the subject of a public tender procedure (e.g. licences for amateur radio operators or for private companies' radio) and which are wholly or primarily intended for the broadcasting of access-authorised radio and television programme services.

The following overview deals only with those licences awarded by ComCom itself.

2.1. The universal service

The universal service will be provided until the end of 2017 by Swisscom, which received the corresponding licence from ComCom in 2007.

Since 2008, a broadband internet connection has also been part of the universal service. The Federal Council slightly increased the transmission speed requirement of this connection in March 2012: since then, the universal service licensee has been obliged to offer an internet connection at 1000/100 kbit/s download/upload (instead of the previous 600/100 kbit/s). At the same time the Federal Council reduced the upper price limit for such an internet connection from CHF 69 to CHF 55 per month (excl. VAT).

The universal service licensee must comply with quality criteria which are determined by the Federal Council. The annual review of these quality criteria by OFCOM found that Swisscom is complying with the universal service, at least in the required quality.

The coverage of the population with the universal service - a high-quality and affordable basic offering telecom services - is thus being fully ensured throughout Switzerland.

Public telephone boxes

In an international comparison, Switzerland enjoys a good provision of public telephones and call boxes.

In the universal service licence, ComCom lays down the minimum number of public telephones for each municipality. Consideration was given to the number of inhabitants and the surface area of the municipality. However, municipalities can also opt to forgo public telephones.

Telephone boxes have been used less and less in recent years, since most inhabitants have a mobile telephone. If a phone box is used extremely rarely, Swisscom sometimes seeks a discussion with the relevant municipality and clarifies whether they wish to forgo a particular public pay phone. If a municipality agrees to the removal of pay phones, Swisscom applies to ComCom for their removal. In 2012, ComCom - on the basis of the waiver declarations of the municipalities - agreed to the removal of a total of 544 public telephones. At the end of 2012, there were 3,514 public telephones ('Publifone') in Switzerland which form part of the universal service.

Outside the universal service, Swisscom operates a further 2300 or so public telephones on a commercial basis.

What is the universal service?

The universal service includes a basic range of telecom services which must be offered throughout the country to all sections of the population in good quality and at an affordable price. The universal service is intended to prevent any regional or social disadvantages in relation to access to the most basic means of social communication.

It is the task of the Federal Council to periodically adapt the content of the universal service to social and economic needs and to technological developments. For its part, ComCom is obliged under the TCA to put the licence for the universal service out to tender periodically and to award it by means of a criteria-based competitive auction.

The universal service includes among other things the public telephone service and the right to a fixed-network connection and a broadband internet connection. Furthermore, an adequate provision of telephone boxes and access to emergency services and subscriber directories must be guaranteed. There are additionally various special services (such as a transcription service and switching services) to facilitate communication for the hearing and visually impaired.

2.2. GSM licences

At the beginning of the liberalisation of the telecommunications market in 1998, ComCom awarded three GSM licences to Diax, Orange and Swisscom for a term of ten years. In addition, in December 2003 the companies Tele2 and In&Phone each received a GSM licence - though with a smaller spectrum entitlement. In the short term, this effectively lead to the desired revival of competition in mobile communications and to lower prices. Unfortunately these new licensees were unable to succeed in the market in the long term. The Tele2 licence was surrendered in the autumn of 2008 on the occasion of the takeover by Sunrise. The frequencies of In&Phone in the 1800 MHz band reverted to the State in the summer of 2012.

In 2009, ComCom extended the existing GSM licences of Orange, Sunrise and Swisscom until the end of 2013. The frequencies had already been awarded at that time in a technology-neutral manner and could therefore also be used with other mobile technologies (e.g. UMTS).

In Switzerland at present, three GSM licences with different spectrum entitlements in the 900 MHz and 1800 MHz frequency bands are in use.

All three national network operators - Orange, Sunrise and Swisscom - can demonstrate high GSM coverage in an international comparison: practically 100% of the population and approximately 90% of the surface area of the country are covered by GSM.

2.3. UMTS licences

In 2000, ComCom awarded four UMTS licenses by auction. These licenses will run until the end of 2016.

The UMTS licence acquired by 3G Mobile was revoked without compensation by ComCom in 2006, because the licensee had not used the allocated frequencies and had therefore violated the conditions of the licence.

Currently, one UMTS licence is being used by Orange, Sunrise and Swisscom respectively. In the case of UMTS, all three network operators are complying with the terms and conditions of the licence. Depending on the provider, population coverage for UMTS services is between 80% and 93%.

In order to accommodate rapidly growing demand for transmission capacity on the mobile networks, all three mobile operators have invested large sums in upgrading their networks in

recent years. The GSM networks were first upgraded with GPRS and EDGE, to enable mobile broadband communication over as large an area as possible. The later development of UMTS - HSPA - has been introduced in recent years. This now enables transmission rates of up to 42 Mbit/s in download (HSPA+). Switzerland's broadband coverage is therefore also of high quality in the mobile sector.

2.4. Takeover of Orange by Apax Partners

In the summer of 2011 it became known that Orange Switzerland was up for sale. On 23 December 2011, France Telecom, Orange's owner, announced that the private equity company Apax would be taking over 100% of Orange shares.

If a company intends to take over a mobile radio licensee, ComCom has to approve the economic transfer of the licences. In the process, it verifies whether the statutory licensing requirements will be complied with under the new ownership and whether competition in the telecom market is not substantially endangered (in accordance with Art. 23 TCA).

ComCom approved the economic transfer of the licence in February 2012, since Orange continues to meet the licensing requirements and competition in the mobile market will be unaffected by this take-over.

At the end of February 2012, Orange announced that the takeover by Apax Partners had been completed.

2.5. Re-allocation of all mobile radio frequencies

In November 2010, ComCom launched the tender for the reallocation of all free mobile radio frequencies, and those which would become free by 2014 and 2017 respectively. The procedure, which had been in planning for a long time, was successfully completed with the auction in February 2012 and the subsequent award of licences.

The three existing mobile operators - Orange, Sunrise and Swisscom - acquired a much larger, future-proof frequency entitlement in this auction. This will ensure that the rapidly growing demand for mobile broadband services can be met, even in the long term.

With the technology-neutral award of all frequencies until 2028, the way is now clear for the use of modern, more efficient mobile radio technologies such as LTE (Long Term Evolution).

Mobile frequencies put out to tender

ComCom had opted for the simultaneous re-allocation of all mobile radio frequencies, because on the one hand the first-time award of many new frequencies for use with mobile radio services was imminent, and because on the other hand the GSM licences were due to expire at the end of 2013 and the UMTS licences at the end of 2016.

The following frequencies were awarded simultaneously:

- **800 MHz:** Thanks to the "digital dividend" frequencies were free in the 790 to 862 MHz band; these are newly available for mobile services from 2013 (2 x 30 MHz FDD). The so-called "digital dividend" frequencies were freed up because, as a result of the more efficient digital broadcasting of TV programme services, not all the UHF frequencies (470-862 MHz) are required for broadcasting.
- **900 MHz:** All frequencies were awarded to Orange, Sunrise and Swisscom until the end of 2013, within the framework of the GSM licences (2 x 35 MHz FDD).

- **1800 MHz:** Most of these GSM frequencies (2 x 65 MHz FDD) were awarded until the end of 2013 to Orange, Sunrise and Swisscom. As soon as the licences are awarded, the 1800 MHz-frequencies surrendered by Tele2 can be used.
- **2100 MHz:** Within this range, Orange, Sunrise and Swisscom each hold a UMTS licence until the end of 2016 (2 x 45 MHz FDD and 15 MHz TDD). Those frequencies which were revoked from 3G Mobile (FDD 2 x 15 MHz and 5 MHz TDD) can be used as soon as the licences are awarded.
- **2600 MHz:** Frequencies amounting to a total of 190 MHz (FDD 2 x 70 MHz and 50 MHz TDD) were free and can be used as soon as the licences are awarded.

Implementation of the procedure

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

On the basis of numerous questions and comments regarding the procedure, ComCom extended the deadline for applications in January 2011 and after a public consultation examined in detail the suggestions put forward. At the end of May 2011, it amended the invitation to tender on some points and set the deadline for participation in the auction for the end of September 2011. In retrospect, this question and answer phase was helpful, even though it delayed the award somewhat.

ComCom authorised the participation in the auction of those candidates which were able to demonstrate that they could meet the licensing requirements and that the award to them of a radiocommunication licence would neither eliminate nor substantially adversely affect effective competition. In addition, they had to submit along with their application a bank guarantee covering 50% of the minimum bid for the frequencies applied for.

The Orange, Sunrise, Swisscom and In&Phone companies applied to take part in the auction in September 2011. In&Phone did not meet the conditions relating to authorisation and was therefore not permitted by ComCom to participate in the auction.

To ensure satisfactory preparation of the auction participants, bidders received the software in good time for practice purposes and were trained before the auction.

The "Combinatorial Clock Auction" (CCA) adopted by ComCom consisted of a principal stage and an assignment stage; in the principal stage it was determined what (abstract) range of frequencies a bidder could bid on. The assignment stage served to determine the specific position of the acquired frequencies within the individual frequency bands.

The auction lasted from 6 to 22 February 2012 and was conducted using an online electronic auction system provided by the British company DotEcon Ltd.

For the frequencies assigned, with a bandwidth of 575 MHz, a total of CHF 996,268,000 was achieved. The auctioned frequency entitlements and the bidding prices per bidder can be found in Table 1.

Table 1: Result of the mobile radio auction in February 2012

Frequency band	Orange	Sunrise	Swisscom
800 MHz FDD	20 MHz	20 MHz	20 MHz
900 MHz FDD	10 MHz	30 MHz	30 MHz
1800 MHz FDD	50 MHz	40 MHz	60 MHz
2.1 GHz FDD	40 MHz	20 MHz	60 MHz
2.1 GHz TDD	–	–	–
2.6 GHz FDD	40 MHz	50 MHz	40 MHz
2.6 GHz TDD	–	–	45 MHz
Auction price [in CHF]	**154,702,000**	**481,720,000**	**359,846,000**

FDD: Frequency Division Duplex - **TDD:** Time Division Duplex

There was no interest during the auction in the following frequencies: all TDD spectrum in the 2100 MHz band, as well as one FDD frequency block (2 x 5 MHz) in the 2600 MHz band. In addition, one block of frequencies amounting to 1 x 15 MHz in the 2010-2025 MHz was not auctioned separately because there was no demand.

The tender procedure initiated in November 2010 was successfully completed with the award of the new mobile radio licences in June 2012 to the operators Orange, Sunrise and Swisscom. The licences, which will run until the end of 2028, have entered into force.

Goals of the frequency allocation achieved

ComCom's main objective was to promote the introduction in Switzerland of the latest mobile radio technologies in the interest of consumers - by means of the world's most extensive award procedure to date. Operators were to be offered long-term planning security and a unique opportunity to purchase a new and larger spectrum entitlement which corresponded to their needs.

In all, ComCom considers the overall result of the tender procedure to be positive:

- **Equal treatment:** All interested companies were able to participate in the auction on equal terms. In fact, however, only the existing operators took part in the spectrum auction. This confirmed the Commission’s earlier assessment that the entry into the market of an additional provider which would have to construct its own new mobile network was unlikely.
- **Optimal frequency allocation**: by virtue of the award of the spectrum in small blocks of frequencies, the participants in the auction were able to exercise flexibility and acquire a range of frequencies which corresponded to their needs and business models. In contrast to earlier award procedures, the operators therefore determined the frequencies they wanted for themselves.
- **More frequencies for new technologies:** All the existing operators were able to purchase a much larger, technology-neutral frequency entitlement (cf. Fig. 8). This allows not only the use of the latest technologies, but also makes for valuable flexibility in network planning.

Operators can therefore meet the rapidly growing demand for mobile broadband services. As a further measure to promote investment in the mobile networks, ComCom left the licensees the choice of whether they want to pay the auction price in full or in three instalments (60% in 2012, then 20% plus interest in 2015 and 2016 respectively).

- **Planning and investment security:** By means of the early award of all frequencies until 2028, market players are provided with a long-term planning perspective and investment security.
- **Reasonable revenue:** Frequencies are a scarce public resource for which a reasonable fee has to be charged, in accordance with the statutory provisions. This requirement was also met.
- **Good deals for consumers:** In the future, thanks to operators' better provision with frequencies, consumers will benefit from very good mobile coverage and high-quality services.

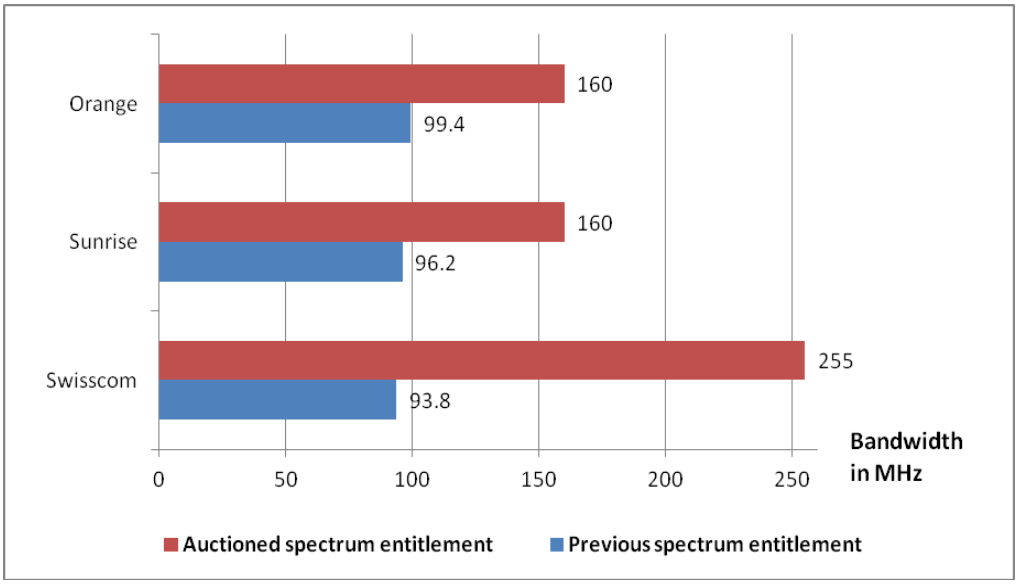

Fig. 8: Larger spectrum entitlement for all operators after the mobile radio auction in Feb. 2012

2.6. Licence for DVB-H

In 2007, ComCom had awarded Swisscom Broadcast frequencies for use with DVB-H, a technology for mobile television. The licensee did construct the necessary infrastructure to meet coverage conditions, which prescribed coverage of about 44% of the population.

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.

Swisscom Broadcast returned the licence for DVB-H at the end of 2012.

DVB-H is an example of a failed technology. On the few devices which could receive DVB-H, usage on the small screens prevalent at the time remained way below expectations. Since 2010

no more devices with receivers for DVB-H have come onto the market and at about the same time DVB-H services were terminated in many countries. Television is much more attractive on today's highly popular smartphones and tablet PCs with their much larger screens. Television channels are often carried via WLANs at home and on mobile radio when travelling. With the introduction of the much more powerful LTE technology, sufficient capacity for mobile television will be available in the future.

3. Carrier selection

Consumers must be able to freely choose and switch their provider. From ComCom's point of view, the free choice of the provider is important to ensure that competition can take place.

In mobile telephony, consumers have a choice between three network operators and various providers which have entered into commercial partnerships with operators.

The term of the contracts and the cancellation periods are governed by the providers' general terms and conditions. If the customer has entered into a contract for a minimum period of 12 or 24 months including a mobile device, they cannot in principle terminate it before the end of the contract without an additional charge (a one-off fee or the remaining contract period) . When the contract matures, it becomes unlimited with Swisscom or it is extended for one year with Sunrise and Orange. These contracts can be terminated within certain time limits which vary according to the operator.

For the benefit of consumers, the obstacles to cancelling their contracts should be reduced. Changing provider should be made simpler. Although the situation is improving, it is still unsatisfactory.

In order to simplify switching providers on the fixed network, manual selection of the provider for each call (carrier selection call-by-call) and automatic preselection (carrier pre-selection) were introduced in 1999.

From the beginning of the liberalisation process, carrier selection has made a valuable contribution to stimulating competition. Until 2002, the number of connections on which carrier selection was activated rose rapidly to 1.37 million, i.e. one third of all connections. Since then, this number has been constantly falling. At the end of 2012, it amounted to 331,283, i.e. a fall of 55,968 preselections over one year. According to Swisscom, 58,192 automatic carrier selections were activated and 43,717 de-activated over the same period. In 2012, preselection applied to only 10% of connections. The net decline in the number of connections with carrier selection is due to the fact that customers are opting for cable networks or unbundled connections, increasingly together with combined offerings (also with VoIP).

Protection of consumers from abusive preselection

Although ComCom wanted to simplify the customers' ability to switch their provider of fixed telephony services, for example by allowing carrier selection to be requested by telephone, it also set out to protect the interests of customers.

To better protect consumers from an unwanted change of provider, in 2007 ComCom strengthened the practical steps for automatic preselection (Annex 2 of the ComCom Ordinance). Preselection orders placed by telephone must, for example, be recorded and verified by a recognised third-party organisation (Third Party Verification; TPV). When registering, customers must in no case be influenced and must give their explicit consent to the oral conclusion of the contract. The entire sales conversation preceding the actual preselection application must also be recorded. In cases of dispute, the customer can request this recording.

After an initial net fall, complaints about unsolicited provider switching have again been lodged with the authorities in recent years. Designated by the term "slamming", they relate mostly to telephone canvassing.

From 2 July to 20 October 2012, the Federal Communications Commission (ComCom) consulted interested parties about a draft amendment of the ComCom Ordinance and Annex 2 thereof, governing the detailed rules to be applied. The amendment is intended to allow more effective action against unsolicited switching of telecommunications service providers by means of preselection.

The Federal Office of Communications (OFCOM), which was responsible for preparation of the amendment, received 20 comments. Since the significant sections of the draft were rejected by virtually all of the participants in the consultation, ComCom decided to temporarily suspend the revision work. It may be resumed at a later date, depending on market developments.

4. Number portability

Since 2000, it has been possible to transfer one's telephone number when changing operator.

According to the Teldas company, which operates the central database on portability in Switzerland, some 200,000 numbers were transferred in the mobile network during 2012; this represents barely 2% of mobile users.

On the fixed network, the number is transferred only when the customer changes the connection operator, opting for a cable network or another operator in the context of unbundling. During 2012, some 93,697 Swisscom numbers were transferred to another operator, amounting to 3.1% of Swisscom's fixed connections; for its part, Swisscom regained 15,616 numbers over the same period.

Since 2002, fixed telephony operators have been able to offer geographic number portability throughout Switzerland: If the customer moves house, they can also take their telephone number to other dialling code areas.

5. Outlook

Through its decisions and in the interest of consumers, ComCom pursues the goal of promoting sustainable competition between providers and the efficient use of the frequency spectrum. ComCom is also committed to stimulating an investment-friendly environment and to technological innovation in the telecommunications market.

The following themes will take centre stage in 2013:

- **Licences:** After the completion of the auction of mobile radio frequencies, ComCom is determining how the necessary frequency changes will be carried out. It will monitor compliance with the licences it has awarded, take decisions on applications and monitor the development of the market.
- **Access procedures:** Access procedures already pending and new submissions will continue to be processed. In 2013, ComCom will again deal in detail with the price calculation methodology. In particular, with regard to the calculation of regulated prices, the switch to fibre technology as "Modern Equivalent Assets" (MEA) is imminent. Also, new provisions in ordinances, defined by the Federal Council, will have to be implemented.

- **High-speed broadband:** ComCom is represented in the "Next Generation Access" working group of the Federal Office of Communications (OFCOM) and is closely monitoring developments in the broadband market.
- **International:** together with OFCOM, ComCom is monitoring regulatory practice in the other European countries. For this purpose, it participates in meetings of BEREC and is actively engaged in the Independent European Regulators Group (ERG).

IV. Finance

In 2012 there was a transfer of responsibility for ComCom's administrative affairs from OFCOM to the General Secretariat of the Department of the Environment, Transport, Energy and Communications (DETEC). Together with the Federal Electricity Commission (ElCom), the Federal Postal Services Commission (PostCom), the Railways Arbitration Commission (RACO) and the Independent Complaints Authority for Radio and Television, ComCom has been part of the "Infrastructure Regulation Authorities" (RegInfra). The DETEC General Secretariat provides services to ComCom in the administrative areas of logistics, information technology, human resources, translations, budgeting and accounting.

ComCom remains independent in its activity and continues to work closely with OFCOM, which prepares most of ComCom's business and produces briefs for legal proceedings. An overview of the revenue and expenditure of the telecom regulator must therefore also include the activities of OFCOM on behalf of ComCom. Accordingly, a brief account of both ComCom's expenditure and OFCOM's expenditure as well as revenue from administration fees is shown below (further information is published in the Confederation's estimates and government accounts, cf. www.efv.admin.ch).

OFCOM's expenditure within the framework of its activity on behalf of ComCom amounted to CHF 4.46 million in 2012 and therefore fell by 3.8% compared to the previous year. The expenditure of the Commission and its administrative secretariat amounted to CHF 1.29 million.

The successful mobile radio auction, conducted after several years' preparation, and several completed access procedures led to high receipts in 2012 (CHF 4.7 million) and enabled an extraordinary cost coverage ratio of 106 percent to be achieved.

Also, it should be remembered that the radiocommunication licences awarded by ComCom also generate substantial annual or - in the case of auctions - non-recurring revenue for the federal Treasury. In 2012, the Confederation received CHF 13.2 million in fees for current radio licences. In addition, there was extraordinary revenue for the Confederation amounting to CHF 738 million from the mobile radio spectrum which was auctioned for CHF 996 million; the remaining amounts (incl. interest) will become due in the years 2015 and 2016.

Table 2: OFCOM expenditure and revenue on behalf of ComCom in 2012

Product	Cost [in CHF]	Administration fees received [in CHF]	Cost coverage [in %]
General regulatory principles	1,869,807	0	0
Universal service, telecommunication services	774,491	214,490	28
Access procedures:	626,524	765,327	122
Radio licences: tender and award	1,152,258	3,700,000	321
Supervisory measures	34,421	41,595	121
Total	**4,457,501**	**4,721,412**	**106**

Abbreviations

ADSL = Asymmetric Digital Subscriber Line
BEREC = Body of European Regulators for Electronic Communications
CATV = Cable Television
ComCo = Competition Commission
ComCom = Swiss Federal Communications Commission
DETEC = Federal Department of the Environment, Transport, Energy and Communications
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
FDD = Frequency Division Duplex (two radio channels are used for one connection)
FTTC = Fiber to the Cabinet
FTTH = Fiber to the Home
FTTS = Fibre to the Street
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
LTE = Long Term Evolution of UMTS
MMS = Multimedia Messaging System
NFC = Near Field Communication
NGA = Next Generation Access Network
OFCOM = Swiss Federal Office of Communications
PSTN = Public Switched Telephone Network
SMS = Short Message System
TCA = Telecommunications Act (SR 784.10)
TDD = Time Division Duplex (bi-directional communication over only one radio channel)
UMTS = Universal Mobile Telecommunications System
VDSL = Very High Speed Digital Subscriber Lines
VoD = Video on Demand
VoIP = Voice over IP
WiMAX = Worldwide Interoperability for Microwave Access