Activity Report ComCom

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Foreword by the President

ComCom was one of the first sector-specific regulatory bodies in Switzerland. It was founded in 1998 to facilitate competition in the telecommunications market and ensure fair distribution of scarce resources such as frequencies.

Since then, other regulatory authorities have been set up, and with the financial crisis, in tandem with deregulation of the electricity market, regulation is now very much “in vogue”. However, this is not good news to many people due to fears that it could become excessive and regulation could lead to distortion of the market and unnecessary bureaucracy.

These fears have to be taken seriously. Because regulation, especially when competition should be promoted rather than obstructed, must be carefully and skilfully measured out. If regulation is excessive or misdirected, this can inhibit incentives for investment and innovation.

In all sectors, regulation treads a fine line between helping to address market failure and distortion of the market.

ComCom is aware of this issue and only intervenes if fair market access is not available for all telecoms companies, or where essential key resources for the national economy, such as radio frequencies, are to be allocated. It is quite natural then that the universal service and investment in the telecoms sector are of prime concern.

This is why ComCom has adopted a practice that is subsidiary and proportionate. This means that we want, and still have

to, make decisions about access conditions in the copper access network – which will soon be based on new technological foundations – and allocate frequencies. As far as the latter is concerned, we note with satisfaction that based on our somewhat controversial allocation of frequencies, all mobile network operators are now intensifying the upgrading of their networks with 4G/LTE so that in future we can profit from very high band widths in the mobile network too.

Important decisions have been taken in the mobile network and in the fibre sector. Competition is working in the Swiss telecommunications market – sometimes good, sometimes bad. However, we are grizzling at a high level, if we are complaining about the lack of market dynamics.

The central issue though is whether and where the communications market should be regulated in the future. We are confronted with completely new technology, new global monopolies and new markets that are difficult to quantify. We are faced with issues such as network neutrality and internet governance. And above all, we face an avalanche of Big Data, which penetrates into (and also follows) the furthermost corners of our lives. Do we need regulation for all that too – and if so, what form? Or should we just leave it in order to avoid putting the freedom of the internet at risk (and because it can only be regulated at the global level)?

These are issues that society and our policy need to urgently address, as the TCA (Telecommunications Act) does not offer any answers to these issues.

ComCom will do this – not under the illusion that we can make things happen or change them, but in the hope that it will provide food for thought.

Marc Furrer, President
March 2014

Overview of the telecoms market

Continuous further development is a constant factor for information and communications technologies (ICT). Anyone working in the telecommunications, information technology, internet or media sectors that are becoming increasingly convergent must constantly deal with new trends and market development. This is the background against which telecommunications providers must make difficult decisions, but also where ComCom must operate.

ComCom's Annual Report firstly provides an overview of individual aspects of the mobile and fixed network markets, as this is likely to be of interest to a broader section of the public. After a brief look at future developments, the report then examines the composition and activities of the Commission in 2013.

In 2013, ICT expenditure has risen worldwide to US$ 3663 billion; more than 40% of this represents expenditure for telecommunications services. After a period of stagnation, for 2014 a slight growth in expenditure on telecommunications services in excess of one percent is forecast globally (Gartner Inc., IT Spending Forecast, January 2014).

In Switzerland, total turnover of the major telecommunications companies is around CHF 13 billion. As in the European environment, turnover of the major telecommunications operators remained stable overall in 2013. For 2014 moderate growth is expected, and the prevailing mood in the ICT sector for the start of the year is optimistic (according to the SWICO ICT index).

With a net product of around 5% of GDP, the ICT sector has become one of the largest economic sectors in Switzerland. With ICT penetration into all sectors of life and the economy, it is not only the importance of this sector that is continuing to rise. The impact potential of the ICT sector is also an important driving force for further development in other economic sectors.

Also, the increasing annual investment in the broadband infrastructure is making a key contribution to Switzerland's future: a whole series of studies highlight the link between the availability of higher broadband speeds in a country and its economic growth and job creation.

For the future of a service economy such as Switzerland's, it is also of particular importance to have an innovation-friendly climate with highly qualified specialists both home-grown and from abroad.

Evolution of mobile radio networks

Since 2007 there have been more mobile telephone connections in Switzerland than there are residents. The mobile telephony penetration rate at the end of 2013 reached 136% – which corresponds to over 11 million connections for a total population of more than 8.1 million.

Despite the increasingly saturated market, the number of mobile telephony customers rose further in 2013. As in 2012, the rapid uptake of smartphones had a positive effect.

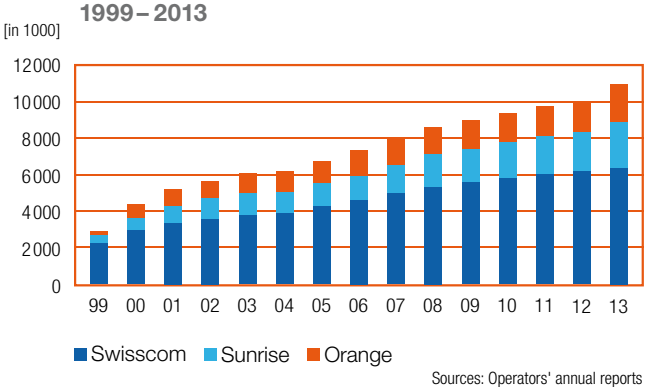
Since the beginning of 2013, Orange has applied the 12-month rule, which counts the active prepaid cards on the network over the last twelve months.

According to this new basis, **Orange** therefore had 2,146,000 customers and its market share was 19.4% at the end of 2013.

With its take-over of the virtual operators Lebara Mobile and Ortel Mobile in the summer of 2013, **Sunrise** was able to achieve a significant increase in customer numbers. With 349,000 new customers Sunrise had a total of 2,491,000 in 2013 and its market share rose from 21.4% to 22.6%.

Despite 190,000 new customers in 2013, giving a total of 6,407,000, **Swisscom's** market share fell to 58.0%.

Fig. 1: Mobile telephone connections in Switzerland 1999 – 2013



Sources: Operators' annual reports

However, the shift in market shares of the mobile telephone operators should not be misinterpreted. Sunrise primarily had the take-over of the two resellers Lebara Mobile and Ortel Mobile in the summer of 2013 to thank for the significant increase in customers. In the first half of 2013 it had lost almost 26,000 customers. With this take-over, however, Sunrise can consolidate its position and even take a leading position in the prepaid market. The market dynamics in the subscriber customer sector, however, are first and foremost based on smartphones and mobile internet.

Whilst Orange seemed to confirm the upward trend that started in 2011, with 22,000 supplementary customers, it only gained a few new customers. Within the same period, Swisscom registered more than 8 times as many new customers. Although Swisscom's market share fell slightly, it nevertheless remains high at over 58%.

The growth in mobile data traffic

The worldwide mobile telephony market is characterized by the rapid uptake of smartphones. According to the latest Ericsson Mobility Report of November 2013, some 25 to 30% of all mobile telephone connections are currently used with smartphones. In the third quarter of 2013 more than half (55%) of mobile telephones sold were smartphones.

According to a study published at the end of January 2014 by the market research company International Data Corporation (IDC), worldwide some 1 billion smartphones were sold in 2013. This represents an increase of almost 40% compared to 2012.

In Switzerland too, smartphones are increasing their share of the mobile phone market. According to the operators, smartphones represented between 65% and 90% of the units sold in 2013 and more than two thirds of the mobile telephones used in Switzerland.

Above all, this massive proliferation of intelligent mobile telephones has led to a vast increase in data traffic on the mobile telephony networks. The increasing size and high resolution of screens on smartphones, smartlets and tablets have also contributed to the increase in data volumes. Take-up of Cloud computing products by private users and businesses and virtually automatic data synchronization between the different devices likewise generate enormous volumes of data.

In 2013, data traffic on mobile telephony networks increased faster than in previous years. Whilst the mobile telephony volumes on the Swisscom network previously doubled every 16 months, data traffic on the historic provider's network rose by 116% between December 2012 and December 2013.

At global level, mobile data traffic created by the use of smartphones will increase tenfold between 2013 and 2019 according to the Ericsson Mobility Report. This is primarily due to the steep rise in video usage (+55% per year). In the year 2019, this will account for more than 50% of total mobile data traffic.

In order to cope with the growth of mobile network data traffic in particular, telecommunications operators are making significant investments in their network infrastructures.

Swisscom intends to invest CHF 1.5 billion in developing its mobile telephony network by 2017. Sunrise made investments of CHF 281 million in 2013, including CHF 187 million to improve its mobile telephony network. Within the framework of its 5-year investment program initiated in 2010, Orange is investing more than CHF 700 million in the modernisation and future expansion of its mobile network. In 2013, Orange invested CHF 171 million in expanding its LTE network.

In the mobile telephony network test published at the beginning of December 2013 by the German independent specialist journal Connect, Swisscom came off best, whilst Sunrise took a step forward. More importantly, though, the test confirmed the quality of Swiss mobile telephone networks, rating them good to very good.

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

In relation to UMTS/HSPA services which enable mobile internet access, population coverage in Switzerland is up to 98%, depending on operator.

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. More than 70% of carriages in long-distance trains are already equipped with signal amplifiers and network coverage should be guaranteed in all long-distance carriages by the end of 2014. Collaboration between the SBB and mobile telephony operators also concerns mobile telephony coverage in regional trains, which is still considered unsatisfactory. Investments of around CHF 60 million will be required for this. By 2020 the entire regional transport fleet should then be fitted out. In addition, mobile telephony operators also want to improve coverage alongside railway lines.

Introduction of LTE

There was a further leap forward in mobile telephony networks in 2013. The introduction of the new LTE (Long Term Evolution) technology made very high data transmission rates possible on the mobile networks as well as fixed networks. In late November 2012, Swisscom officially launched its LTE network in 26 localities. Sunrise and Orange officially connected their new generation networks in June 2013.

According to the characteristics defined by the standardization organization 3GPP (3rd Generation Partnership Project) the present LTE networks should strictly be classified as "Super 3G" or "3.9G" networks. Only when the LTE A Standard (LTE-Advanced) is introduced, which allows transmission rates in excessive of 1 Gbit/s, will LTE finally become a true 4G mobile telephony system. In Switzerland, however, the network infrastructure and mobile telephones necessary for exploiting these transmission rates will not be available until 2015.

Nonetheless, theoretical maximum data transfer rates of up to 150 Mbit/s are already possible for mobile internet access in the current development phase of the new LTE networks.

Modernization of the mobile telephony networks in Switzerland is on the right course. Population coverage with the new networks is increasing rapidly. Swisscom's LTE network population coverage rate had already reached 85% by the end of 2013. Orange's network population coverage rate was 71% at the end of 2013, and that of Sunrise was over 50%. And according to the operator population coverage will be 85% by the end of 2014. As a comparison, whilst the LTE population coverage rate in the USA has already reached 90%, that in Europe was only 47% and 10% in Asia (according to GSMA). Furthermore, at the end of 2013, in the USA 19% of mobile telephony connections were made via the LTE network, and in Europe the figure was only 2%.

In addition to area coverage, the success of a new technology also depends on users having compatible equipment. The number of mobile telephones with LTE capability is also growing and an increasing number of customers are using their mobile equipment to surf on the new networks in Switzerland.

Swisscom reports a penetration rate for LTE-capable mobiletelephones of around 15% on their network. This corresponds to nearly one million customers using LTE. At Orange, at the end of 2013, i.e. six months after the launch, 30% of all data traffic was already being carried on the LTE network.

Demand for broadband mobile services is therefore continuing to grow. According to OECD figures for mid-2013 the number of mobile telephony broadband connections in Switzerland increased between June 2012 and June 2013 by 6% to 4.5 million. The penetration rate of broadband mobile telephony in Switzerland for mid-2013 was 56.7% (compared to 54.0% in June 2012) below the EU (58.2%) and OECD (68.4%) averages.

Operators offer access to these broadband services in different ways in their subscriptions.

Orange always offers all customers the maximum available transmission speed at no extra cost within a data limit range varying from 1 to 10 GB depending on subscription. In addition, Orange is the first operator to offer its prepaid customers LTE services.

Sunrise also offers all its customers access to mobile telephony services with the highest available transmission speed at no extra cost, subject to the speed and data limits specified in the subscription. In 2013, Sunrise also offered new flat rate tariff options to its prepaid customers: Depending on the option selected, maximum download rates for data limits of 500 MB up to 1 GB are available.

Swisscom offers a different tariff model which as a rule has unlimited data. The download speed differs according to the subscription price. Only customers with an Infinity XL subscription for CHF 169 per month can use the theoretical maximum LTE speed of 150 Mbit/s. With introductory offers, however, customers can benefit from an entry subscription, available from CHF 33 per month, likewise with these download speeds. The data limits for these subscriptions, however, are 100 MB or 500 MB per month.

Mobile telephony prices

In 2013 prices for mobile telephony services in Switzerland continued the trend and fell considerably, though the reductions were smaller than in 2012 and varied according to product. Nonetheless, all types of customer benefited from price reductions in 2013. On average, the prices of the cheapest products fell by 9.4% for low users, 14.6% for medium users and 8.9% for high users (cf. Fig. 2).

However, this evolution of prices must be qualified according to market segments.

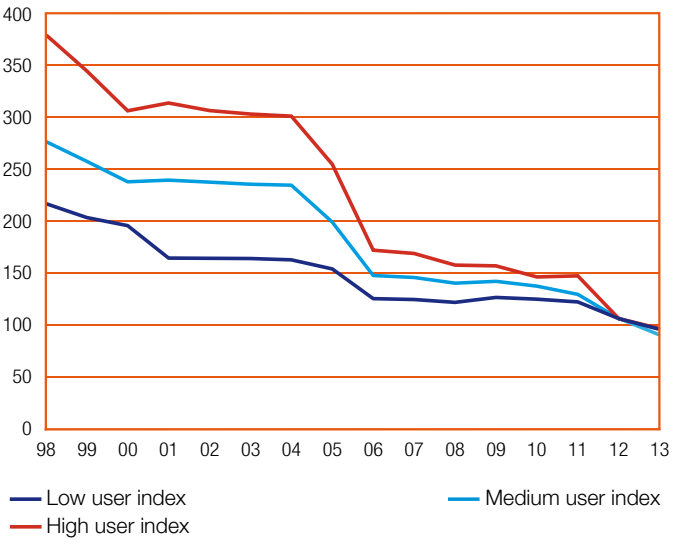
A report published by OFCOM in late November 2013 on the retail prices of mobile telecommunications services indicated that prices fell slightly for users with a contract, but fell heavily for users using a prepayment card.

Since 2011, medium to high users get better value with a subscription, whereas for low users, pre-paid cards remained the best option.

According to the OFCOM report, however, this trend does not apply to resellers of telecommunications services. These remain comparably more favourable in the pre-paid segment.

Fig. 2: Evolution of retail prices of mobile telephony in Switzerland, 1998 – 2013

[cost indices by user profile 100 = year 2012]



Source: OFCOM, "Kosten der Mobilfunkdienste", November 2013

Furthermore, the retail prices for mobile communications in Switzerland continue to be some of the most expensive among OECD countries.

These confirm the Teligen price basket published by the market research company Strategy Analytics, which is based on OECD methods, and takes into account the cheapest pro-duct offered by the largest operators in each country. For a basket containing only voice communications via mobile telephony (100 calls), an average user in Switzerland paid twice as much as the OECD average in mid-2013 (€ 36 compared to € 18). Though the bill for a high user (basket with 900 calls) approached the OECD average in mid-2013 (€ 45 compared to € 40), Switzerland still ranked only 28 of 34 countries in this classification.

For an average basket with voice and data connections (100 calls and 500 MB data), users in Switzerland paid € 20 more than the OECD average (€ 45 compared to € 25). Switzerland ranked third to last in this classification (see Fig. 3). A heavy user (900 calls and 2 GB data) on the other hand paid slightly less in Switzerland than the OECD average (€ 49 compared to € 51), but here again Switzerland only ranked 21 out of 34 countries.

New dialling code 075

The number of mobile phone connections is constantly increasing and now stands at over 11 million for the whole of Switzerland. As a result, it was necessary to create additional capacity for new numbers. OFCOM therefore approved the dialling code 075 for mobile radio. These new numbers have been issued since late October 2013 and are available to all mobile telephony operators. For the time being, Swisscom will only assign numbers with the dialling code 075 to business customers with data contracts. Private Swisscom customers are expected to receive telephone numbers with the new area code only in 2015.

Evolution of fixed networks

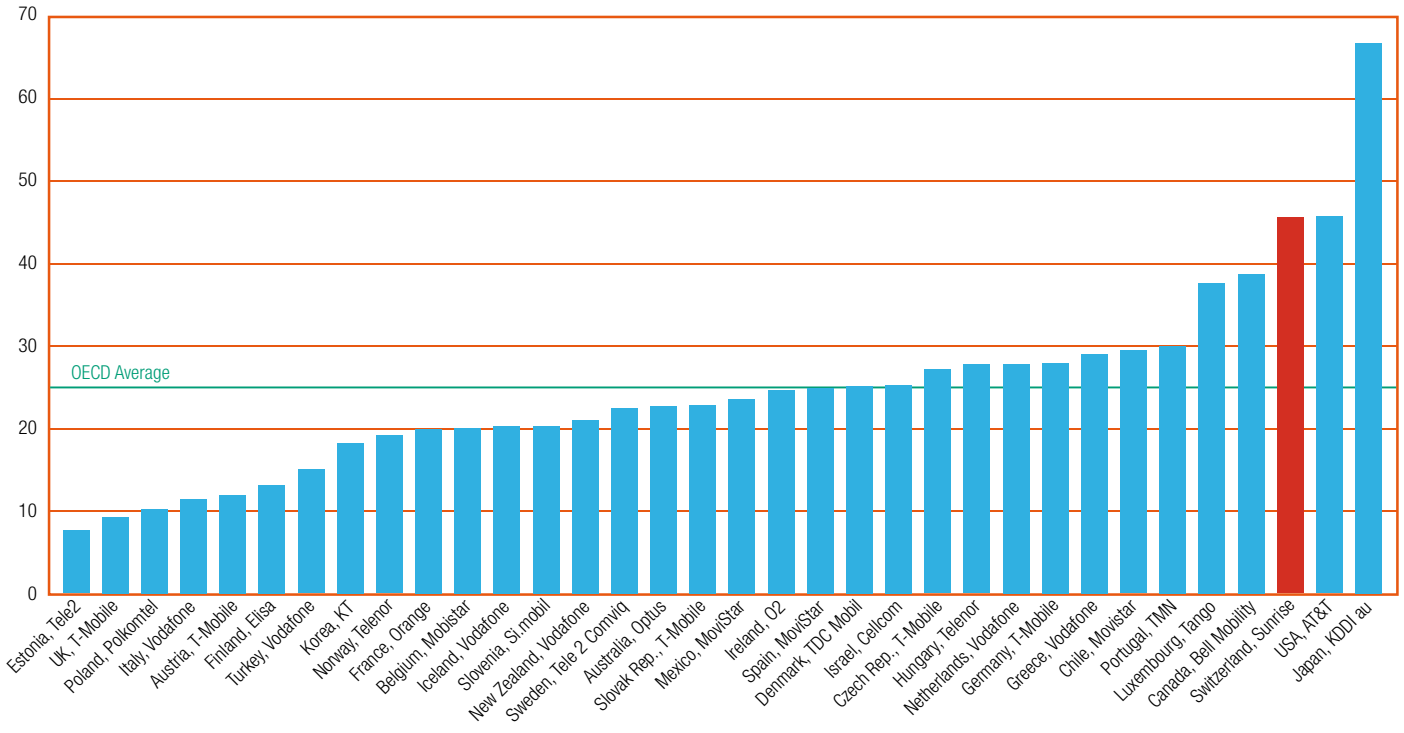
The continuing growth of mobile telephony has resulted in a constant decline in the number of fixed telephone connections over the last ten years (down 25% between 2003 and 2012). Nevertheless, mobile telephony will not replace fixed network telephony.

Although the number of calls made on the fixed network fell in 2012 (down 3.7%), their duration increased by 2.6%.

In contrast, digital IP telephony (VoIP) will have completely displaced traditional telephony in a few years because the new internet protocol (IP)-based voice telephony is also on the rise in relation to the fixed network. According to the official telecommunications statistics for 2012 published by OFCOM in December 2013, the number of customers accessing telephony services on fixed networks from a VoIP connection provided by one of the telecommunications service providers (DSL, cable, etc.) increased by 8.2% in 2012 to 730,459. At the same time, the duration of calls made via VoIP access between 2011 and 2012 rose by 15%. In 2012, the number of direct and indirect connections (with

Fig. 3: OECD basket – mobile telephony voice and data connections, 100 calls + 500 MB

(€ incl. VAT), cheapest product according to country, August 2013



Source: Results from Teligen Price Benchmarking System. Copyright Strategy Analytics, UK

manual or automatic operator selection) fell by 8.9% and 8.3% respectively.

The volume of fixed data traffic in Switzerland is doubling approximately every 16 months. Against this background, it is imperative that there is sustained investment in the various high-speed broadband infrastructures.

The growth of the market for digital TV via DSL lines, the modernisation of the networks and the expansion of fibre networks indicate that fixed network and mobile telephony will be complementary technologies in future.

In addition to the three mobile telephone networks, Switzerland has several "backbone" networks and high-quality access networks. Swisscom's access network (2,879,000 connections by the end of 2013) covers the whole of the territory. 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 experienced stagnation in 2012, they rose slightly in 2013, regardless of the user profile. According to a study by OFCOM on retail prices for fixed network telephony published in November 2013, the prices of the cheapest products in 2013 rose by 0.7% for low users, 1.2% for medium users, and 1.8% for high users.

In an international comparison, the prices for fixed network telephony in Switzerland are about the same as the OECD average.

The distribution of fixed network telephony market shares has changed little in recent years. With a market share of almost 70%, Swisscom remains the undisputed market leader, although it lost approximately 134,000 customers in 2013. Sunrise, its main competitor, also lost customers and covers less than 12% of connections.

For their part, the cable operators continue to gain market share in fixed network telephony. In 2012 and 2013 they gained almost 90,000 and 69,000 additional customers respectively (up 12% on the end of 2012). At the end of 2013, Cablecom, the leading provider of cable telephone services, had 458,500 telephone subscribers (compared to 421,000 at the end of 2012). Their market share is now the same as that of Sunrise (12%). The numerous other providers have marginal shares of the market.

Finally, rebilling for the fixed network access line allows the alternative operators to bill the subscriber connection directly to their customers (instead of Swisscom). Rebilling for the access line again declined sharply in the reporting year and was 73,058 at the end of 2013 (compared to 89,206 at the end of 2012). This represents a reduction of approximately 18%. This reduction – like the fall in the number of automatic carrier preselections (down 51,000 in 2013; cf. p. 25) – can be explained by the increase in customer migrations to cable operators and the success of combined offerings with VoIP telephony.

Broadband on the fixed network

For several years Switzerland has been one of the leading countries in relation to broadband. Competition between 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.

The fact that 43.8% of the population had broadband internet access in mid-2013 means Switzerland has confirmed its position in the OECD ranking. It remains in first place, ahead of the Netherlands (40.0%) and Denmark (39.7%). The OECD average is 26.7% (cf. Fig. 4) and the figure for the EU countries is 29.4%.

Switzerland not only has a good broadband access penetration rate; 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 2013) in late January 2014, 90% of Swiss internet users have an internet connection faster than 4 Mbit/s (compared to 81% at the end of 2012); the worldwide average is 53%. Switzerland is therefore in fifth place in this worldwide ranking, with average speeds around 11.6 Mbit/s, while the average international connection speed is only 3.6 Mbit/s. According to Akamai, 39% of all broadband connections in Switzerland

feature speeds of 10 Mbit/s and over (compared to 22% in 2012).

According to another study published by OFCOM in November 2013 on the prices of retail broadband services, the increase in speeds is accompanied by a very slight increase in prices. This meant the costs incurred by an average user for broadband services increased by 1% between 2012 and 2013. Since the speeds for an average user have increased by an average of 1.4 Mbit/s to 10.6 Mbit/s, the Mbit/s price index consequently fell by 0.4% from the previous year.

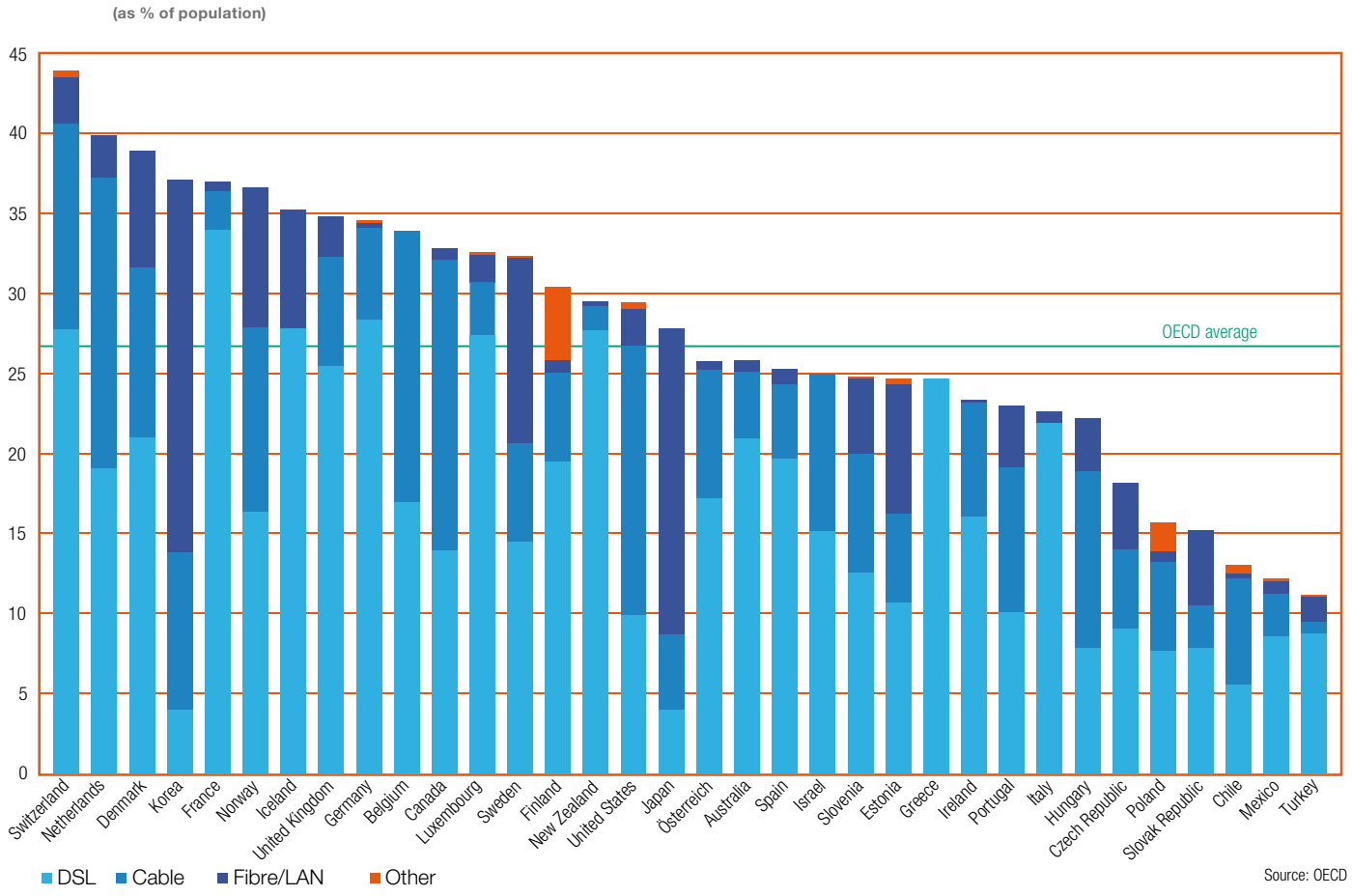
The broadband connection market has recorded a relatively stable growth rate over the past few years. In 2013 the number of broadband connections grew by some 5.5% (compared to 5.1% in 2012 and 5.4% in 2011).

All internet service providers (CATV and DSL) combined gained 173,300 new customers in the year 2013 (compared to 152,500 in 2012), giving a total of 3,336,800 high-speed connections in Switzerland.

As in 2012, cable network operators gained more new customers than DSL providers did. In 2013, CATV companies acquired more than 104,300 new internet customers, whereas DSL service providers gained 69,000 (cf. Fig. 5).

This therefore appears to confirm that the cable operators' recovery, which began in 2011, is of a long-term nature. In recent years they have invested heavily in upgrading their network infrastructure, particularly in the further expansion of the access network with fibre and the establishment of hybrid fibre-coax (HFC) networks. The introduction of the DOCSIS 3.0 data transmission standard has allowed CATV operators to offer data rates of 100 to 150 Mbit/s. With the advancement to DOCSIS 3.1 in the future, even higher transfer rates will be possible (several gigabits per second). For now, the cable network operators are continuing to invest in improving their network infrastructure and bringing fibre closer to the end customer (FTTC/S). The network operator association Quickline, for example, increased its download speed to 200 Mbit/s in the autumn of 2013. In 26 municipalities in the Bern region, Cablecom customers have enjoyed a rate of 500 Mbit/s since December 2013.

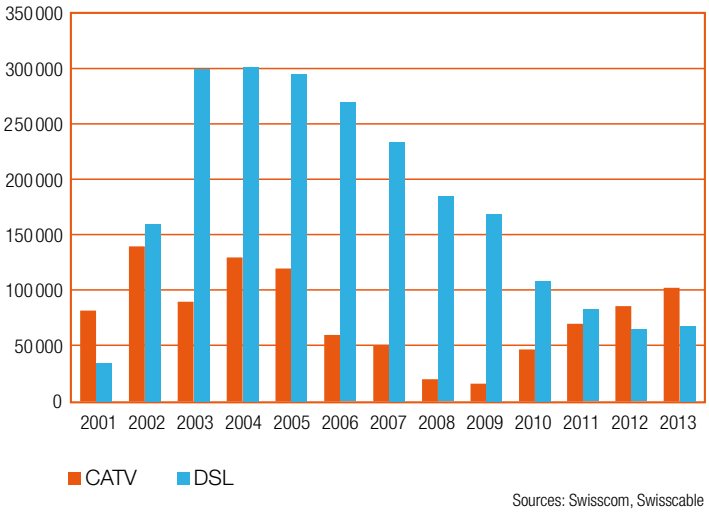
Fig. 4: OECD broadband penetration, June 2013



Despite the slowdown in growth, the number of internet connections via the telephone network (DSL) is still far greater than via cable networks: By the end of 2013, 68.4% of users (2,282,000) had opted for DSL and 31.6% (1,054,800) for CATV.

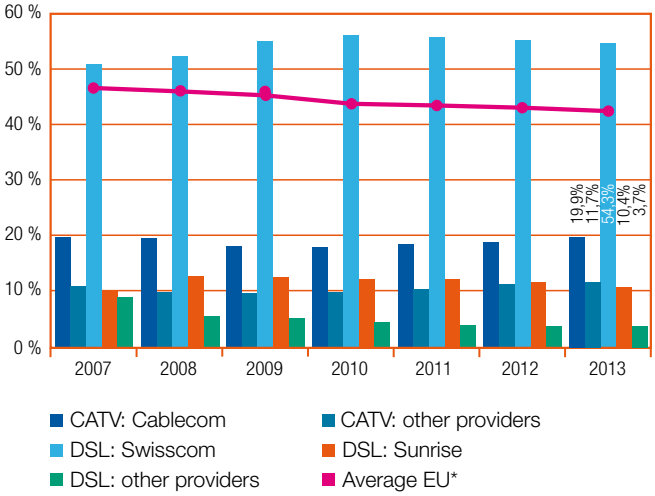
By way of comparison, the average market share of incumbent operators in European Union countries has fallen continuously and was 42% at the end of July 2013.

Fig. 5: New customers per year according to technology, 2001 – 2013



Sources: Swisscom, Swisscable

Fig. 6: Market share of broadband connections in Switzerland and the EU, 2007 – 2013



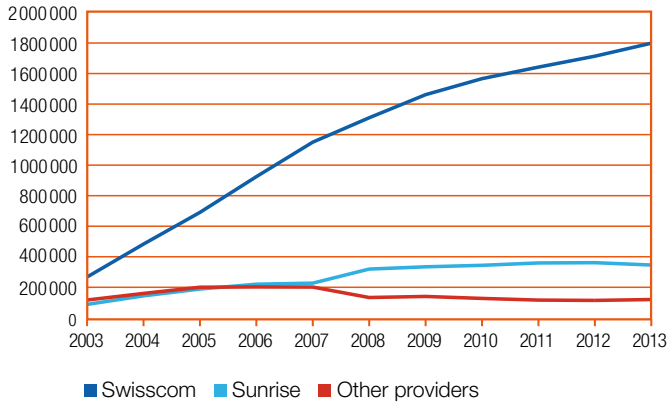
* European average of incumbent's market share
Sources: Operators, EU Commission

Considering the entirety of high-speed internet service providers (CATV and DSL), Swisscom still retains by far the largest market share (cf. Fig. 6). Although slightly down, with a market share of 54.3% at the end of 2013 (compared to 54.6% at the end of 2012) Swisscom is far ahead of its main competitors. The market share of all alternative DSL service providers combined fell to 14.1% (compared to 15.4% at the end of 2012), of which 10.4% are attributable to Sunrise alone. For cable operators, Cablecom's market share is 19.9%, while that of all other CATV providers combined is 11.7%.

In the DSL market alone, including unbundled lines, there has been an overall increase of 69,000 customers (compared to 65,000 customers between 2011 and 2012), i.e. an increase of 3.1% between 2012 and 2013 (cf. Fig. 7).

In 2013, Swisscom, with around 84,000 new customers, continued to record the highest rate of growth. With 1,811,000 DSL lines it increased its market share from 78% to 79.4% between the end of 2012 and the end of 2013.

Fig. 7: DSL connections in Switzerland, 2003 – 2013 (including unbundling)



Sources: Swisscom, Sunrise

Sunrise lost 21,000 customers over the same period. With 346,200 broadband customers at the end of 2013, including 210,600 unbundled customers, Sunrise's market share fell nearly 1.5% to 15.2% at the end of the reporting year (compared to 16.6% in 2012). The increase in Sunrise TV subscribers (up 36,000 in 2013), which was launched in early 2012, could not make up for the loss in unbundled customers.

After losing a significant number of customers over the past three years (1,900 in 2012, 10,000 in 2012 and 13,000 in 2010), the other operators (resellers of DSL services) gained some 6,000 customers in the reporting year. Their market share therefore increased slightly to 5.5% in 2013 (compared to 5.4% at the end of 2012).

Unbundling of the local loop, which first began already to decline in 2012, recorded a very sharp decline in 2013. After having experienced exceptional growth in the early years following its introduction and stimulating competition in the DSL access market, unbundling was down by more than 43,000 units in 2013. The number of unbundled lines was therefore only 256,444 units, compared to 299,844 in the previous year (cf. Fig. 8).

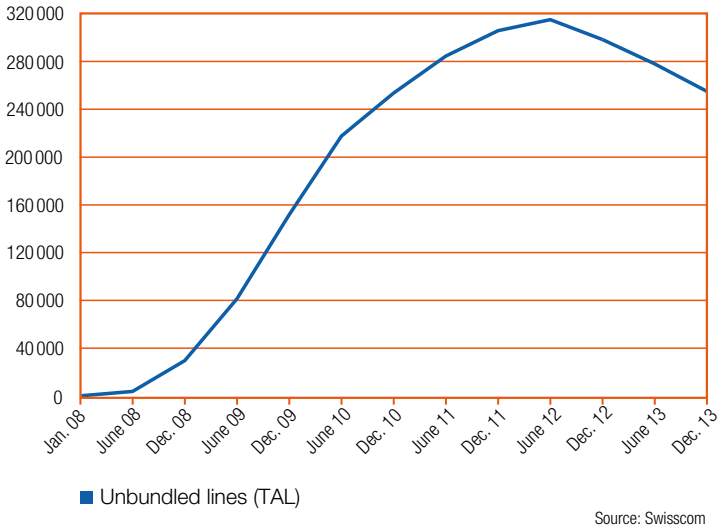
This decline can be explained firstly by the development of fixed network digital television. It has been shown that ADSL technology is insufficient for high-quality TV (especially HD-quality) services over the telephone network. However, it is only possible to use ADSL and not VDSL on an unbundled line in Switzerland. This means that providers are therefore required to rely on a Swisscom resale VDSL offering in order to be able to offer their customers television over IP.

Secondly, the growing interest of customers in combined offerings for telephony, internet and digital television is working to the detriment of the unbundling technology, which is no longer suitable for this purpose.

Both issues concern Sunrise in particular, as in recent years this provider has ordered up to 90% of all unbundled lines in Switzerland.

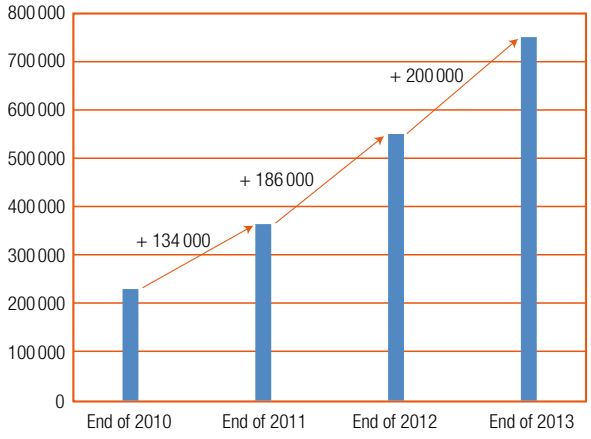
In contrast, the offerings of cable network operators and the increasing use of fibre connections is intensifying infrastructure competition.

Fig. 8: Evolution of the number of unbundled lines in Switzerland, 2008 – 2013



Source: Swisscom

Fig. 9: FTTH connections in Switzerland (homes passed)



Source: Swisscom

At the end of 2013, fully unbundled lines (full access) therefore made up only 11.2% of DSL lines and just 7.7% of all broadband lines (including CATV connections).

According to figures from Swisscom, by the end of 2013 no service provider was availing themselves of the bitstream product. Swisscom stopped providing this type of access in January 2014. The legislature introduced this temporary offering in 2007 with the revision of the TCA in order to provide temporary easing of the transition to full unbundling and promote investment in broadband infrastructure. However, the anticipated effect of this measure failed to materialise.

Fibre access networks (FTTH)

The expansion of the fixed telecoms network using optical fibre to the home (FTTH) is continuing to make rapid progress in Switzerland. According to Swisscom, at the end of 2013 more than 750,000 households and businesses in Switzerland had been provided with fibre ("homes passed"), an increase of approximately 200,000 households within the year. This means more than 21% of Swiss households currently have fibre to the basement connections, as a minimum. After the construction of a considerable number of fibre connections, 2013 was the year in which sales gained significant momentum.

The FTTH Round Table meetings that took place between 2008 and 2012 continue to bear fruit: though network expansion does not always occur in the form of cooperations, Swisscom is nevertheless single-handedly investing in approximately 30 locations. However, wherever more than one company wants to invest in the fibre network, work is usually coordinated and the inefficient construction of parallel fibre networks can be avoided. The multi-fibre model and the technical standards agreed upon by an industry working group under the direction of OFCOM have also been implemented. Several connections to the building and within the building have been laid, so each investor has its own fibre connection or reserves are ensured for the future.

For ComCom it was also particularly important that the participants in the Round Table were 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.

Agreements between Swisscom and individual municipalities or their electricity utilities have already been concluded in more than 20 cities and regions. Additional cooperations were agreed in 2013. Such cooperations are taking place, for example, in the cities of Basel, Bellinzona, Bern, Geneva, Lausanne, Lucerne, St. Gallen, Winterthur and Zurich. There is also occasional cooperation between CATV operators and Swisscom. In Fribourg, the entire canton is to see fibre expansion through a cooperation with Groupe E.

Although network expansion will take place primarily in major urban areas, there are many projects in rural locations with the aim of improving their attractiveness by constructing fibre networks (e.g. Upper Valais, the Urserntal and the Broye region).

Results of the NGA working group

In 2011 OFCOM initiated the NGA (Next Generation Access) working group with the aim of promoting the development of high-speed broadband networks and providing decision-makers in Switzerland with information to better evaluate their options for action. This led to the publication of a guide which outlines the different possibilities for the expansion of broadband using case studies, which is intended to assist municipal authorities in their decision-making process. In 2013, in close cooperation with the network operators, OFCOM produced an interactive broadband map which can be consulted at www.hochbreitband.ch and which shows the bandwidths, technologies and providers available for the fixed network throughout Switzerland.

High-speed broadband expansion continues

Swisscom and the power supply companies (PSC) which are investing in fibre, but also CATV companies, have also set high goals:

By 2015, **Swisscom** aims to connect approximately 30% of Swiss households with FTTH (either in cooperation with PSCs or alone) and offer high-speed broadband at 1 Gbit/s and higher. At the same time, in 20 municipalities, Swisscom is investing in fibre to the street (FTTS) where fibre is laid near the building and then various technologies are used to connect to the building, allowing high-speed broadband in less densely populated areas. This cost-effective solution allows a bandwidth of several hundred megabits per second and is also possible in connection with new copper technologies (such as vectoring and G.fast).

And the race goes on: in the next few years, **CATV operators** will gradually equip all connections with DOCSIS 3.0, and in the following years, with the successor technology DOCSIS 3.1, which features data transmission rates in excess of 1 Gbit/s. Ultimately, most of the 80% of Swiss households with a CATV connection will be able to use fast broadband via their cable network.

By 2020, Swisscom also intends to offer at least 80% of Swiss households with bandwidths of between several 100 Mbit/s and more than 1 Gbit/s via FTTH and FTTS.

This technology-driven competition is now being reinforced by a new infrastructure provider: Six major energy companies who are investing in FTTH have teamed up under the umbrella of **Swiss Fibre Net AG**. When FTTH infrastructure is completed they will supply 600,000 households with fibre access. Using uniform products for telecommunications service providers, Swiss Fibre Net guarantees nationwide marketing of local PSC fibre networks. Sunrise, for example, wishes to offer high-speed broadband services in conjunction with these third-party infrastructure providers.

The FTTH Round Table has also proved fruitful in the case of Swiss Fibre Net: Using ALEX, a common platform which was initially developed as part of the Round Table, Swiss Fibre Net can offer uniform fibre products from different PSCs throughout Switzerland.

Even though the FTTH Round Table was successful and investment continues to be high in the expansion of access networks, it is important to note that with the current Telecommunications Act the competent authorities have no instruments to protect competition in the event of market failure.

Outlook

A study trip to Silicon Valley in June 2013 left ComCom with the impression that the phrase “the future’s not what it used to be” is very pertinent to information and communication technologies (ICT). ICT penetration will be universal and will change many things, but is not without problems, which is one of the reasons why policy-makers should not overlook ICT.

As diverse and revolutionary the ICT achievements have been over the last 15 years, it is important to keep in mind that the developments have really only just begun. Ultimately, electronic devices, computers and ICT will increasingly penetrate and become networked with every aspect of life and the economy. ICT will move increasingly “closer to the skin” and affect our lives.

Of course, access to high-speed broadband networks and the need to extend internet infrastructure remains of great importance, but beyond that many trends and new issues are coming to the fore:

- **Cloud Computing:** Network and computing resources, data storage and software can be obtained on demand from specialised providers via the internet. Data security is an important issue here.

- **Big Data** is becoming big business: Although analysing data is nothing new, new powerful ways of combining vast amounts of data from different sources and using it for commercial purposes are now being developed. Data can be collected and subsequently analysed – sometimes without the knowledge of the individuals concerned – for very different purposes.

- **Wearable computing and augmented reality:** More and more devices and sensors will be integrated into clothing or worn directly on the body. These devices are networked and constantly analyse our physical environment and behaviour, in order to enrich our real world with additional information (e.g. glasses with integrated screens).

- **The internet of things:** In the future, many everyday objects and devices will contain microprocessors and sensors and will be able to communicate via the internet. Current estimates suggest that 50 billion devices and sensors will be networked via the internet by 2020. Autonomous communication between machines will also be more common.

Other trends in the networked ICT world are autonomous vehicles, radio-controlled aeroplanes, innovative robots, 3D printing, online payment, online commerce, etc.

With these developments, issues such as **data security**, protection of **privacy** and measures against **cybercrime** also become the subject of concentrated focus.

It is becoming increasingly difficult for individuals to manage their own personal data and online identities. Citizens are worried and confused: Where is personal data safe? How is it possible to maintain control of data? Where is privacy ensured in the ICT realm?

While these are only a few aspects of ICT development, they nevertheless point to the significant social changes that can be expected.

With regard to telecommunications, from ComCom's perspective it is important that the Federal Council quickly take action regarding the announced revision of the Telecommunications Act (TCA), which has long been overtaken by rapid technological developments. In general, however, the question arises as to whether it would not be better to address social issues in a broad-based discussion process. The Federal Council could, for example, use a "groupe de réflexion" to support the politicians that have ultimately to decide whether a new framework is necessary in certain areas for the benefit of citizens.

ComCom activities 2014

In addition to reflecting on the development of telecommunications, ComCom will focus on the following activities in 2014:

- **Licences:** The auction of all mobile radio frequencies two years ago means that there will be frequency re-farming between operators in the summer of 2014. OFCOM and ComCom are committed to ensuring that the frequency re-farming will take place with the least possible disruption to end users. Furthermore, ComCom will continue to 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 2014, ComCom is likely to deal primarily with the issues of interconnect peering and price calculation methodology (which will be discussed later in this report). In particular, with regard to the calculation of regulated prices, the switch to fibre technology as modern equivalent assets (MEA) is imminent. In this case, the result of the prospective revision of the Telecommunications Services Ordinance (TSO) presented by the Federal Council should be taken into account.

- **International:** Together with OFCOM, ComCom monitors regulatory practice in other European countries. For this purpose, it participates in meetings of BEREC and is actively engaged in the European Independent Regulators Group (IRG).

LTR: Jean-Pierre Hubaux, Andreas Bühlmann, Marc Furrer (President), Monica Duca Widmer (Deputy President), Stephan Netzle, Adrienne Corboud Fumagalli, Reiner Eichenberger (Photographer: Günter Bolzern)

Commission and 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 2013, the Commission consisted of the following members:

- **Marc Furrer, President,** lawyer and notary
- **Dr. Monica Duca Widmer, Deputy President,** Dr. dipl. Chem. Ing. ETH, Ticino entrepreneur
- **Dr. Andreas Bühlmann,** Dr. rer. Pol. Head of the Finance Office, Canton of Solothurn
- **Dr. Adrienne Corboud Fumagalli,** Dr. rer. pol. Vice President for Innovation and Technology Transfer, Swiss Federal Institute of Technology, Lausanne (EPFL)
- **Dr. Reiner Eichenberger,** Doctor of Economics, Professor of Economics at the University of Freiburg
- **Jean-Pierre Hubaux,** Electrical engineer, Professor at the Swiss Federal Institute of Technology, Lausanne (EPFL)
- **Dr. Stephan Netzle,** Doctor of Law, LL.M. Lawyer

In 2013, the Commission sat five times. Members also spend a significant amount of time on preparations for meetings and work by circulation. In order to learn about the rapid development in the telecommunications sector and the latest technological achievements, ComCom took a study trip to Silicon Valley, California in the summer of 2013.

On this trip they visited large and small ICT companies as well as university institutes. The study trip was planned in close cooperation with Swissnex in San Francisco. Swissnex is an initiative of the Swiss State Secretariat for Education, Research and Innovation; it is a very well networked platform for scientific and technological exchange between Switzerland and the west coast of the USA.

The Commission is assisted by a secretariat, which is responsible for coordinating cases, organising Commission activities and carrying out communication tasks. The secretariat comprises three part-time employees who fill 2.4 posts (full-time equivalents).

Activities of the Commission

As the independent Swiss licensing and regulatory authority in the telecommunications sector, ComCom is not subject in its decisions to any instructions from the Federal Council or the Department. 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 cases and then submits the cases to ComCom for a decision. The decisions of the Commission are implemented by its secretariat or by OFCOM.

ComCom's activities are based on the Aim 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 telecommunications services) throughout Switzerland, this objective is to be achieved through effective competition.

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

- awarding licences for the use of the radio frequency spectrum (Art. 24a TCA),
- awarding the universal service licence (Art. 14 TCA),
- setting 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 freedom of choice of service provider (Art. 28 TCA),
- decisions on measures and imposing sanctions in the event of infringement of the applicable law in the context of a licence awarded by ComCom (Art. 58 TCA).

The following sections provide an overview of ComCom's activities in 2013.

Access procedures

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

1. fully unbundled access to the local loop,
2. fast bitstream access for four years,
3. rebilling for fixed network local loop,
4. interconnection,
5. leased lines,
6. access to cable ducts, provided these have sufficient capacity.

At the beginning of 2013, four access procedures were pending with ComCom; three cases concerned leased lines and one case concerned the interconnection and unbundling prices 2012 – 2013. As explained in detail below, these procedures were all concluded during the course of the year. At the end of the reporting period, only one new procedure was pending regarding "interconnect peering".

Appeals against ComCom decisions may be lodged with the Federal Administrative Court (FAC). At the end of 2012, four appeals were pending at the FAC against ComCom decisions. Of these, two were partially upheld and sent back to ComCom for revision of prices (and procedural costs). ComCom subsequently made the adjustments required by the court and set the new unbundling price for 2010 and the interconnection prices for 2009 and 2010. After ComCom made new calculations for interconnection prices for calls to 058 numbers for the year 2011, the FAC was able dismiss an appeal in this regard. Another procedure ended with the appeal being withdrawn.

In November 2013, the FAC also dismissed an appeal filed against a precautionary measure introduced by ComCom halfway through the year. At the end of 2013 there were no appeals against a ComCom decisions pending before the FAC.

Leased lines

In March 2010, ComCom decided that Swisscom was dominant in the market for leased lines in the access network and to some extent in the long-distance network. In the case of the long-distance network this only applies when not at least two other network operators are able to provide leased lines. ComCom therefore introduced a dynamic element which could over time lead to decreasing market dominance depending on local infrastructure development.

Furthermore, Swisscom was obliged to publish an offering at cost-based prices for leased lines with bandwidths from 2 Mbit/s to 10 Gbit/s. Swisscom disagreed with ComCom's decision and appealed against it.

In February 2012, the FCA upheld ComCom's decision 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 (for further details, see the ComCom Activity Report 2012).

In June 2012, Swisscom published a comprehensive leased line offering for the first time. Negotiations then took place between the parties. In two cases, the parties were able to agree at the negotiating table, so ComCom dismissed these procedures in early 2013. The third procedure was withdrawn six months later.

Interconnect peering

In March 2013 the company Init7 (Switzerland) AG submitted an access application to ComCom concerning "interconnect peering". Init7 sought to oblige Swisscom to grant it free-of-charge peering as a precautionary measure.

The background to this procedure is the conclusion of the peering agreement between the two parties and the change required by Swisscom from free-of-charge peering to peering in return for payment.

In June 2013, ComCom adopted the proposed precautionary measure. In its decision, ComCom approved the preliminary issue of whether it was responsible for assessing the case: this was the case because "interconnect peering" falls under the concept of interconnection according to the TCA and because the parties were unable to conclude a new agreement after the old one was terminated.

The provisional measure restored the old contractual relationship between the parties: This means that Init7 can use the existing data connections free of charge for the duration of the access procedure. For the duration of the procedure, this ensures that Init7 suffers no disadvantage which would prove difficult to resolve afterwards. ComCom rejected the security requested by Swisscom.

As a precautionary measure is based on a mere cursory examination of the facts and the law, it is not possible to derive from this how ComCom will ultimately decide at the main proceedings.

Swisscom lodged an appeal against the precautionary measure. The FAC rejected this appeal on 13 November 2013 and the FAC judgement was published on the internet (www.bvger.ch).

The expected duration of the procedure is difficult to estimate, as it concerns many new questions and extensive procedural stages are pending (e.g. clarification of the issue of dominance).

Unbundling and co-location

In December 2013, ComCom concluded a comprehensive access procedure which addressed the prices in 2012 and 2013 for the following access types: unbundling, co-location, interconnection, cable ducts and subscriber line rebilling.

On the basis of extensive cost analyses by OFCOM, ComCom reduced the monthly rental for unbundling the access line to CHF 15.50 in 2012 and CHF 15.20 in 2013. Swisscom had asserted an unbundling price of CHF 15.80 for 2012 and 2013.

Sunrise, which had sought an access price review, therefore retroactively paid 2% and 4% less respectively.

The price of unbundling has fallen steadily since first being set by ComCom in 2008: In 2008, ComCom reduced Swisscom's asserted price of CHF 23.50 to CHF 18.18. For each year between 2009 and 2011 ComCom reduced the monthly access line rental by 7 - 8%. Nevertheless, the regulated price of unbundling in Switzerland is still well above the European average (€ 9.56 in October 2012).

In order for Swisscom's competitors to unbundle access lines, they must install their own equipment in the exchanges and operate these themselves. This is referred to as "colocation". ComCom significantly reduced the rental price (by 16 - 20%) for the space used in the exchanges in comparison to the Swisscom offer. However, ComCom did not dispute the remaining co-location prices.

Reasons for the price reductions introduced

In the cost analysis performed by OFCOM, the correction of cost allocation and irrelevant costs in particular have led to adjustments. Following a review of the credit risk premium, which is recognised in the calculation of the interest rate on capital, the weighted average cost of capital (WACC) was reduced.

Interconnection and other access procedures

Interconnection prices are remuneration for the use of the telecommunications network of another provider. In previous years the prices offered by Swisscom as the dominant provider have been repeatedly reduced by a significant margin. In 2012 and 2013 there have only been minor adjustments, since Swisscom to a large extent already offers interconnection at cost-based prices.

There has also been little change in the prices for direct subscriber line rebilling by an alternative provider (the monthly deduction for subscriber line rebilling for 2013 was CHF 1.31). Furthermore, ComCom has reduced the price offered by Swisscom for shared use of cable ducts by approximately 5%, while monthly fees in 2013 were established at CHF 0.184 per metre.

Comments on the LRIC price calculation method

Art. 11 of the Telecommunications Act (TCA) stipulates six cases in which a dominant provider must 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 Services Ordinance (TSO). The price calculation takes into account those costs which a new competitor would have to bear if they were to create a new network with modern technology – modern equivalent assets (MEA). In the ordinance, the Federal Council has explicitly provided for the evaluation of the network at modern equivalent assets, and not, as often requested, based on the historical costs of the dominant provider.

The LRIC method takes into account as relevant costs also a portion of overhead costs and the weighted average capital costs (WACC) which are customary in the industry. Capital costs include both the costs for external capital and the expected returns of equity investors.

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

MEA migration

When calculating regulated interconnection and access prices using the LRIC method described above, traditional switching technology and copper technology has been used to date as a "modern" established technology (MEA).

In this case, however, a technology switchover is currently taking place because an efficient provider would construct a new telecommunications network with modern switching technology and optical fibre.

In future this technological change must be taken into account when determining prices. ComCom originally presented the prospect of this change in practice at the beginning of 2013.

At the end of 2011 the Federal Council announced it would start a TSO revision and publish a proposals for adjusting cost calculation methods until autumn 2012. Since the TSO revision was somewhat delayed, it was not clear by the summer of 2012 what changes the Federal Council would decide on regarding price calculation or when these provisions were likely to come into force.

To avoid uncertainties in the market and large price shifts, ComCom announced in July 2012 that it would postpone the MEA transition to the new technologies by one year and await the result of the Federal Council's TSO revision. At the end of 2013 the decision of the Federal Council on the TSO revision was still pending. ComCom, however, continues to assume MEA migration in 2014. The revision of the ordinance is likely to bring with it new rules for price calculation and clarity, particularly in relation to the implementation of the upcoming technology switchover.

Licences

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

ComCom has delegated to OFCOM the award of those radio licences which are not the subject of a public invitation to tender (e.g. licences for amateur radio operators or for professional mobile 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.

Universal service

Providing the population with a universal service comprising a high-quality and affordable basic offering of telecom services is being fully assured throughout Switzerland.

Swisscom has held the universal service licence since 2008; this runs to the end of 2017. In 2013, Swisscom complied with and partially exceeded the quality criteria laid down by the Federal Council also, as the inspection of the quality of the universal service by OFCOM indicated.

Since 2008, in addition to the normal telephone connection, the universal service has also included a broadband internet connection. Since 2012 the transfer rate of this connection has been 1000/100 kbit/s for download/upload. The Federal Council reduced the upper price limit for this internet connection to CHF 55 per month (excl. VAT).

Public telephones

In an international comparison, Switzerland has a good provision of public telephones and call boxes. However, telephone boxes have been used less and less in recent years, since most residents and tourists have a mobile telephone.

With the award of the universal service licence, the minimum number of public telephones for each municipality was also specified (taking the historical context into account). Consideration was given to the number of residents and the surface area of the municipality.

However, municipalities can also opt to do without public telephones. In the case of many very rarely used public telephones, the competent municipalities together with Swisscom often came to the conclusion that a specific telephone was unnecessary.

If a municipality agrees to the removal of a pay phone, Swisscom applies to ComCom for its removal. In 2013 – as a result of waivers by municipalities – ComCom approved the removal of a total of 207 payphones; this is significantly less than the previous year (-544 payphones). At the end of 203, there were 3,307 public telephones ('Publifons') in Switzerland which are part of the universal service.

Outside the universal service, Swisscom operates more than 1,500 additional public telephones on a commercial basis. The number of these commercial payphones was greatly reduced by Swisscom in 2013.

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 terms of access to the most basic means of social communication.

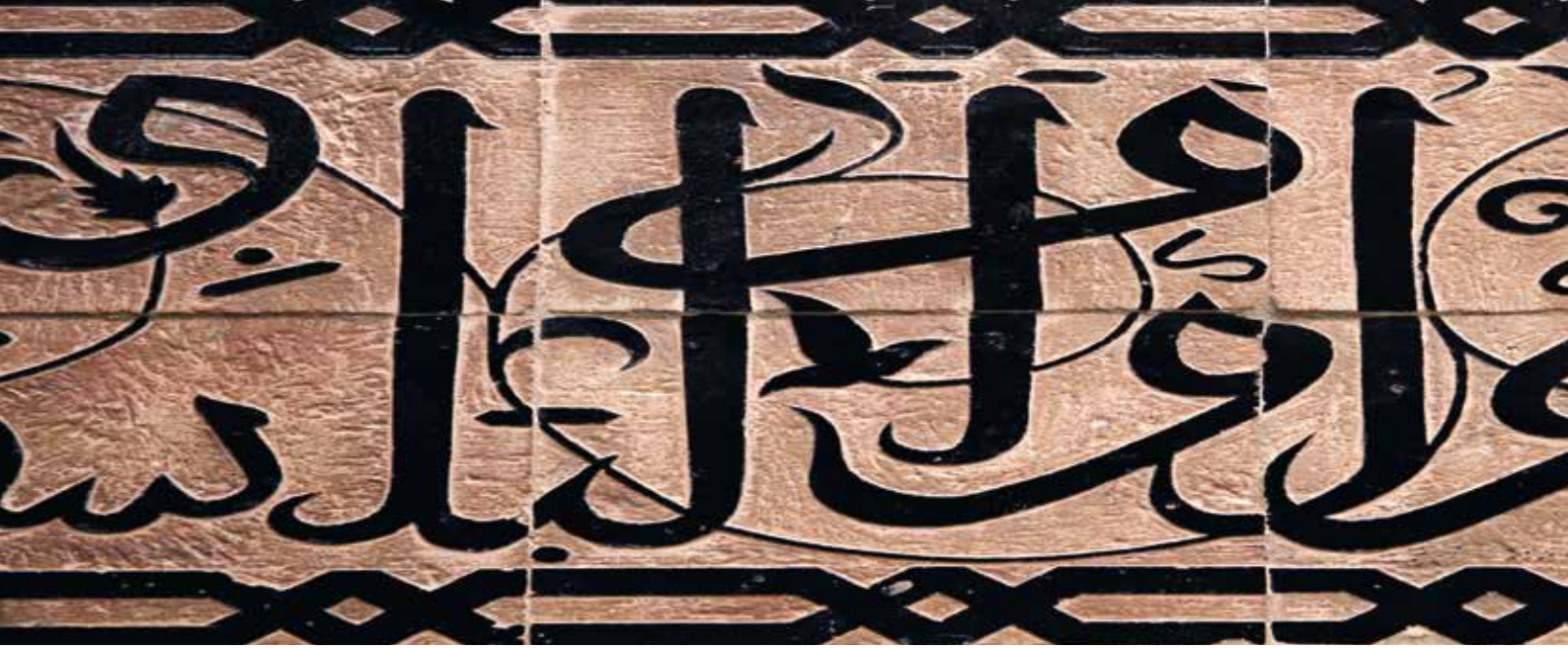
The Federal Council periodically adapts the content of the universal service to social and economic requirements and to the state of technology. ComCom in turn is responsible together with OFCOM for tendering and awarding the universal service licence.

The universal service includes voice telephony, fax, landlines and broadband internet access at 1000/100 kbit/s. 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.

GSM licences

At the beginning of the liberalisation of the telecommunications market in 1998, ComCom awarded three GSM licences to Orange, Diax and Swisscom for a term of ten years. As the result of a merger with Diax, Sunrise became a GSM licensee in 2000.

In addition, in December 2003 the companies Tele2 and In&Phone each received a GSM licence for ten years, with a smaller spectrum entitlement. This licence award led in the short term to stimulation of competition in mobile communications and to price reductions, as intended by ComCom. Unfortunately, these new licensees were, however, unable to prevail in the market in the long term. The Tele2 licence was surrendered in the autumn of 2008 on the occasion of its takeover by Sunrise. The frequencies of In&Phone in the 1800 MHz band were surrendered to the State in the summer of 2012 as part of a bankruptcy procedure.



In 2009, ComCom extended the existing GSM licences of Orange, Sunrise and Swisscom in a technology-neutral form for a further five years. These licences expired at the end of 2013.

The GSM licences included frequencies in the 900 MHz and 1800 MHz range. During the auction of all mobile phone frequencies in February 2012, these frequency bands were then awarded for use from 2014 to 2028.

In spring 2013, ComCom rejected competing requests for temporary use of the frequencies formerly awarded to In&Phone up to the end of 2013, as it considered both a public tender and a direct award to be inappropriate considering the period of use of a few months only.

However, the end of the GSM licences is not synonymous with the end of GSM technology: this highly successful mobile phone technology will continue to operate in parallel with UMTS and LTE for several years, primarily for telephone calls and services using smaller data volumes (e.g. SMS). Currently more than 99% of the population and approximately 90% of the land area are covered by GSM and EDGE.

UMTS licences

Four UMTS licences were auctioned in 2000. These licences will run until the end of 2016.

Currently, one UMTS licence is being used by Orange, Sunrise and Swisscom respectively. The unused fourth UMTS license was revoked from 3G Mobile in 2006.

According to information from operators, population coverage for UMTS services is up to 98%. Especially in rural areas where there is no LTE coverage, the UMTS extension HSPA+ enables mobile broadband coverage at up to 42 Mbit/s.

Technology-neutral mobile radio licences

In February 2012, all mobile radio frequencies currently available in Switzerland were awarded anew. The frequencies in the 800 MHz, 900 MHz, 1800 MHz, 2100 MHz and 2600 MHz were auctioned. In June 2012, the new licences, with a term extending to 2028, were awarded. This gives mobile operators long-term planning security, because they know exactly which frequencies they can use until 2028.

Thanks to the technology-neutral assignment of the frequencies, the operators themselves can decide which technologies they wish to use in which frequency bands.

All three mobile operators – Orange, Sunrise and Swisscom – acquired a much larger, future-proof frequency entitlement in the auction. This ensures that the operators have sufficient spectrum to meet the rapidly growing demand for mobile broadband services even in the long term.

The frequencies used until the end of 2013 in the GSM licences were in part auctioned to a new operator when they were re-assigned. In these cases, the frequencies must be transferred by the previous operator to the new licensee.

This frequency refarming will take place in summer 2014 for the previous GSM frequency in the 900 and 1800 MHz

bands (and at a later date for the UMTS frequencies). So that this change can take place in an organised fashion and with minimal interruptions for mobile users, the licensees had to submit to OFCOM a joint proposal for the procedure. The detailed procedure was laid down by ComCom early in 2013 on the basis of these proposals.

The frequency changes will deliberately take place during the summer holidays, since mobile traffic is usually at its lowest at that time. Mobile customers will be informed of these frequency changes by network operators along with OFCOM at an early stage.

Free choice of service provider

Consumers must be able to freely choose and change their provider without restrictions. The free choice of provider is an important instrument for promoting competition.

In mobile telephony, consumers have the choice between three network operators and various service providers which have entered into a commercial partnership with an operator.

On the fixed network, every household is accessed through the conventional Swisscom telephone line. With the liberalisation of the telecommunications market, it became possible for telephone service providers to use the Swisscom network, for a fee. Most households also have a cable TV connection, via which broadband internet and telephony services have also been offered for several years. Recently, a third network infrastructure, and thus an additional offering, has been made available to consumers, with the expansion of fibre-optic networks by various public utilities.

To make the switching process in the fixed network as simple as possible, in 1999 the manual carrier selection for each call (carrier selection call-by-call) and permanent selection (carrier preselection) were introduced.

Right at the beginning of the liberalisation, carrier preselection was an important instrument for promoting competition. By 2002 the number of connections featuring carrier preselection had risen rapidly to 1.37 million, corresponding to one-third of all connections. Since then, this number has decreased continuously and at the end of 2013 it was 280,056, i.e. 51,227 fewer connections with preselection than a year before. In 2013 the proportion of connections with carrier preselection was less than 10%. The fact that the number of connections featuring preselection is rapidly declining is attributable to customers increasingly switching to cable connections or bundled offerings with VoIP telephony.

Protection of consumers from abusive preselection

In order to better protect consumers from an unwanted switch of provider, in 2007 ComCom tightened the rules for activation of preselection (Annex 2 of the ComCom Ordinance). Since then, for example, telephone preselection applications must be recorded and validated by a recognized third-party authority (third party verification; TPV). During the recording, the customer must never be influenced and his or her verbal consent to the agreement must be unambiguous. Also, the sales pitch that precedes the actual preselection application must be recorded in full. In the event of a dispute, the customer can demand the surrender of this recording.

ComCom also advocates a relaxation of the conditions for the termination of connections. This would facilitate the free choice of a service provider.

The term and notice periods of the agreements are governed by the providers' terms and conditions. Contracts concluded for a minimum period of 12 or 24 months and including the purchase of a mobile telephone cannot be terminated without additional costs (a one-off payment or the remaining subscription amount) before expiry of the contract. If customers do not avail themselves of the notice period, the agreement is extended in principle by a further year.

Since 2011, Swisscom has waived the tacit renewal of contracts. After the expiry of the minimum contract period, the contract with Swisscom becomes indefinite and may be terminated within two months. In the case of Sunrise and Orange, the contract is extended automatically by one year. At the end of January 2014, however, Sunrise announced the launch of new contracts in the second quarter of 2014, with periods of notice of one to three months.

Number porting

Since the year 2000, it has been possible to keep an existing telephone number when switching to a new operator.

In mobile telephony, according to the Teldas company which operates the central porting database in Switzerland, in the course of the year 2013 approximately 200,000 numbers were ported. This is equivalent to just under 2% of all mobile connections.

On the fixed network, number porting takes place only when switching one's own line between operators (e.g. when changing to a CATV operator or to one of the other providers in the course of unbundling). In the year 2013 approximately 140,000 numbers were ported to a different operator, corresponding to 3.3% of fixed network connections.

Since 2002, fixed network providers have also been able to offer "geographic number portability" throughout Switzerland: When moving house, customers can take their telephone number with them to a different area code zone, if their provider offers this.

Finances

Regulators from various infrastructure sectors are administratively attached to the Federal Department of the Environment, Transport, Energy and Communications (DETEC). Together with the Federal Electricity Commission (ElCom), the Post Commission (PostCom), the Railways Arbitration Commission (RACO) and the Independent Complaints Authority for Radio and Television (UBI), in 2012 ComCom became part of the "Infrastructure Regulation Authorities" (RegInfra) administrative unit. The DETEC General Secretariat provides services to the RegInfra unit in the administrative areas of logistics, information technology, human resources, translations, budgeting and accounting.

The independence of ComCom in its activities continues to be guaranteed. Naturally, a very close practical cooperation continues to exist with OFCOM, which prepares most of ComCom's cases and produces propositions for legal decisions. If one wishes to represent the revenue and expenditure of the telecoms regulator as a whole, the costs and revenues of OFCOM must also be included. For this reason, OFCOM's expenditure for ComCom, plus the collected fees, are shown in summary below.

OFCOM's expenditure within the framework of its activity for ComCom amounted to CHF 2.9 million in 2013 and therefore fell compared to the previous year by one-third. This marked reduction in OFCOM activity for ComCom is attributable to lower expenditure on access procedures and particularly to the major spectrum auction completed in the previous year. For the same reasons, the administrative fees collected and the cost coverage ratio fell considerably (from 106% in 2012 to 30% in 2013).

The expenditure of the Commission and its administrative secretariat in 2013 amounted to CHF 1.32 million (more detailed information is published in the estimates and governmental accounts of the Confederation; cf. www.efv.admin.ch).

Annual fees for the use of radio licences, issued by ComCom, also resulted in significant revenue for the federal Treasury in 2013. In 2013, these licence fees amounted to CHF 12.7 million.

Table 1: OFCOM expenditure and revenue on behalf of ComCom in 2013

Product	Cost [in CHF]	Administrative fees received [in CHF]	Cost coverage ratio [in %]
General regulatory principles	1,677,656	–	–
Universal service	657,709	216,590	33
Access procedures	513,185	635,295	124
Radiocommunication licences: tender procedure and award	1,320	–	–
Supervisory measures	40,389	2,520	6
Total	***2,890,259***	***854,405***	***30***

Abbreviations

ADSL = Asymmetric Digital Subscriber Line
BEREC = Body of European Regulators for Electronic Communications
CATV = Cable Television
COMCO = Competition Commission
ComCom = Federal Communications Commission
DETEC = Federal Department of the Environment, Transport, Energy and Communications
DVB-H = Digital Video Broadcasting for Handheld Terminals
EDGE = Enhanced Data rates for GSM Evolution (GSM Technology)
FAC = Federal Administrative Court
FDD = Frequency Division Duplex (two radio channels are used for one connection)
FTTB = Fibre to the Building
FTTC = Fibre to the Cabinet
FTTH = Fibre to the Home
FTTS = Fibre to the Street
GPRS = General Packet Radio Services (GSM technology)
GSM = Global System for Mobile Communications (standard for second-generation mobile radio networks)
HDTV = High-definition television
HSDPA = High Speed Downlink Packet Access (UMTS technology)
IC = Interconnection
IP = Internet Protocol
IPTV = Internet Protocol Television
ISP = Internet Service Provider
LRIC = Long Run Incremental Costs (model for calculation of interconnection prices)
LTE = Long Term Evolution (standard for fourth-generation mobile networks/3.9G standard)
LTE-A = LTE-Advanced (Standard for fourth-generation mobile radio networks)
MEA = Modern Equivalent Asset
MMS = Multimedia Messaging System
NGA = Next Generation Access Network
OFCOM = Federal Office of Communications
PSTN = Public Switched Telephone Network (traditional telephone network)
RTVA = Radio and Television Act (SR 784.40)
SMS = Short Message System
TCA = Telecommunications Act (SR 784.10)
TDD = Time Division Duplex (bidirectional communication via only one radio channel)
TSO = Telecommunications Services Ordinance (SR 784.101.1)
UMTS = Universal Mobile Telecommunications System (standard for third-generation mobile radio networks)
VoD = Video on Demand
VoIP = Voice over IP
WACC = Weighted Average Cost of Capital

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